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Promotional communication for a college food pantry: findings from a cross-sectional assessment of socioecological variables related to past use of a campus-based food pantry.

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PROMOTIONAL COMMUNICATION FOR A COLLEGE FOOD

PANTRY: FINDINGS FROM A CROSS-SECTIONAL ASSESSMENT OF

SOCIOECOLOGICAL VARIABLES RELATED TO PAST USE OF A CAMPUS-

BASED FOOD PANTRY

By

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B.Sc., University of Louisville, 2019

M.Sc., University of Louisville, 2021

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A Thesis Approved on

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ABSTRACT

PROMOTIONAL COMMUNICATION FOR A COLLEGE FOOD
PANTRY: FINDINGS FROM A CROSS-SECTIONAL ASSESSMENT OF
SOCIOECOLOGICAL VARIABLES RELATED TO PAST USE OF A CAMPUS-
BASED FOOD PANTRY

Bunny M. Hayes

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Objective: This study examined differences between users and non-users of campus food pantry, conducted communication audit, and made recommendations for future food pantry communication.

Methods: Cross-sectional twofold study, first analyzing existing intrapersonal, interpersonal, and environmental data to test predictors of campus food pantry usage characteristics, using inferential statistics. Secondly, conducting a communication audit that evaluates the reach of student communication.

Results: Significant differences were found between users and non-users of food pantry that support hypotheses in relation to gender, age, race, class, marital status, housing type, housing description, and Pell eligibility. Findings could not support hypothesized differences in first-generation status. Research question data showed there is room for tailored out-going communication

improvement and growing awareness of the campus food pantry among students.

Conclusions: With respect to the predictors of food insecurity, the campus food pantry appears to be serving those in need.

Keywords: campus food pantry, food insecurity in college

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INTRODUCTION

Food insecurity is an area of study that holds significant implications for personal health and wellbeing (Bruening et al., 2017). Food insecurity can be defined as the lack of financial, physical, and social means to obtain safe and nutritious foods meeting one's preferences and needs for a healthy lifestyle (Hiller et al., 2021). Although much of the seminal work on food insecurity can be found in adult or child populations, the first article on college food insecurity (FI) was published in 2009 (Chaparro, 2009) and opened the floor for conversation concerning the dark secret students face while seeking college degrees – hunger (Hagedorn et al., 2019). This study explored differences across variables at different levels of the Socioecological Model (SEM) to better understand the characteristics of campus food pantry users in contrast and comparison to those who have not used the campus food pantry. It then compared these differences to the findings of a brand contact audit in order to make recommendations for how to improve an on-campus food pantry at the University of Louisville.

LITERATURE REVIEW

Food Insecurity on Campus

The first step in realizing the significance of studying food insecurity on college campuses is to understand that traditional college demographics have changed in recent times. Higher education is seeing a diverse mix of students entering professional training programs, ready to receive an education that will give them the skill sets needed to enter the work force and make change (Miles et al., 2017). Students who are new to college life experience financial needs and burdens and often have difficulty juggling a limited budget (Broton & Goldrick-Rab, 2016). A survey by the Wisconsin HOPE Lab reported concluded that 71% of students sampled lacked the funds to make ends meet, noting that students frequently reported changing their grocery shopping, or eating habits to compensate for budget shortfalls (Broton & Goldrick-Rab, 2016). A year later, a follow up study of the students who had reported not having enough money to buy food found that more than one out of four (27%) reported eating less than they felt they should or cutting the sizes of their meals in order to compensate for limited access to food or to stretch the food they did have (Broton & Goldrick-Rab, 2016).

Bronton & Goldrick-Rab's study was eye-opening for advocacy groups in higher education and pointed to a need to further review food insecurity among college-aged students. Subsequently, Bruening and colleagues (Bruening et al., 2017) conducted a systematic review to measure the prevalence of FI among college students along with sociodemographic, health, and academic factors related to FI. It offered possible solutions available to address FI on campuses. The result of their review illustrated a connection between poor health and adverse academic outcomes, which corroborates findings from researchers who have studied FI in children and adolescents. Specifically, FI in children and adolescents has also been found to be related to higher stress and anxiety (Jyoti, 2005), poorer academic outcomes (Jyoti, 2005), and poorer nutritional status and health outcomes (Chilton, 2007; Rose-Jacobs, 2008). Similarly, adults' health and wellbeing can be negatively affected by FI, which has been linked to lower work productivity (Borre, 2010) and chronic disease (Laria, 2013; Seligman, 2010).

With FI having such marked outcomes on children, adolescent and adult populations, researchers are continuing to study FI among college students. Unfortunately, college students are not usually the focus of federal antipoverty and antihunger programs, highlighting a gap in federal assistance program focus (Fausto, 2022). Given what we know about the effects of FI, this gap, sometimes caused by the lack of communication and developing supportive relationships with county services, has the potential to have significant negative implications on college students' academic performance, health, and career prospects. As a

result, there is much need for institutions to identify FI on campus, measure its prevalence, and understand how to better serve students affected by FI because of the underlying concern with the safety and well-being of students (Miles et al., 2017).

Prevalence of Food Insecurity on College Campuses

The prevalence of FI on college campuses has been studied since 2009 thanks to Chaparro and colleagues. Chaparro and colleagues were the first to report 21% of surveyed students at the University of Manao, Hawaii were experiencing FI (Chaparro, 2009). Hagedorn-Hatfield and colleagues (2022) suggested that the prevalence of food insecurity on campus might be better reflected as a weighted average of approximate 41%.This latter and higher estimate seems concerningly high, but possible given the fact that Patton-Lopez and colleagues (Patton-Lopez et al., 2014) conducted a nonprobability cross-sectional study at a midsize rural university in Oregon and found the prevalence of FI among students to be 59%. A more recent cross-sectional study of a large public university in the Southeast US by Robbins, Spence, and Steeves (2022) found the rate of FI at their campus to be estimated at 48.5%.

Although some of these estimates are grounded in nonprobability samples and represent a large disparity in estimated numbers of students affected by FI, the fact remains that most likely between 2 and 6 students out of 10 do not have enough food to eat on a regular basis. As a result, studying food insecurity among college students should be as much a priority for researchers studying this population as it is for children, adolescents, and older adults.

Implications for Students Experiencing Food Insecurity

Programs like the Wisconsin HOPE Lab showed that one in four Pell grantees grew up living in families where there was not enough food to eat at home. With this thought in mind, Wisconsin HOPE Lab followed 3,000 students from low-income families who were attending two- or four-year colleges or universities in Wisconsin (Broton & Goldrick-Rab, 2016). When researchers asked about the students' first semester experiences, 90% admitted worrying, even upset about the lack of financial funds to pay for what they needed to attend college. To cope with this lack of money the top three strategies that students reported using were to 1) cut back on social activities (80%), 2) change food shopping or eating habits (71%), and 3) cut back or stop driving (48%). Other strategies included postponing medical care and paying debts, increasing the use of credit cards, or increasing the number of hours spent working. Of the 3,000 students who were followed, 20% reported they went without a computer for the semester and 15% indicated that they did not buy all the required books and material resources for courses. Given these coping strategies, it seems likely that students experiencing FI might be at a disadvantage with respect to successfully participating in their collegiate educations and experiences. As such, it is important to continue to study how colleges and universities might better identify who is at risk for FI and how to better support these students.

Predictors of Food Insecurity Among College Students

Since the recognition that college students experience food insecurity on campus, some researchers have tried to identify the predictors and correlates

underlying the need for food assistance among university students. Several studies over the last 15 years have demonstrated some important trends across variables that predict food insecurity. Specifically, there is evidence to support the idea that living situation, race, ethnicity, first generation/aid-assistance status, gender, country of origin, and year in school are all associated with a need for food assistance. Below I detail some of the studies and literature that point to these variables as important predictors of food insecurity.

To begin, the first published research study on FI by Chaparro (2009) reported that students living on campus and students living off campus with roommates were at higher risk for being food insecure than students living off campus alone, with parents, or living off campus with a spouse (Chaparro, 2009). Similarly, El Zein (2018) and Hiller and colleagues (2021) also reported that an important sociodemographic predictor associated with FI was a student's living situation, with those living off campus being most likely to experience FI (El Zein et al., 2018; Hiller et al., 2021). Recently, Robbins and associates (2022), in a sample of students from a large public university in the Southeast, also noted that living off campus in a relationship increased the odds of experiencing FI. El Zein and colleagues (2018) reported on another living situation that impacted FI—a student's marital status. In their study, students listed as married accessed the campus food pantry at a higher rate than those who were listed as not married (El Zein et al., 2018).

The first study has sparked others of its kind across American universities for over a decade now (Chaparro, 2009; Patton-Lopez et al., 2014; Hiller et al.,

2021). In addition, other factors have been associated with FI. One important variable to consider with respect to increased likelihood of experiencing food insecurity is a student's racial and/or ethnic background. Chaparro's (2009) initial study on FI in college students reported that those who identified as Hawaiians and Pacific Islanders, Filipinos, and mixed race were at a higher risk for FI than those who did not identify as Hawaiian, Pacific Islander or mixed race (Chaparro, 2009). Likewise, according to a study by Stephens et al. (Stephens et al., 2012), students of color and first-generation students may enter the higher education environment already at a disadvantage, which places them at higher risk for experiencing FI at some point during their collegiate experience. A study by Miles and colleagues (2017) supported Stephen's findings and showed that 63% of students of color experienced FI in the past year, as compared to their White counterparts at 37%. Ethnicity also played a role in the chances of experiencing FI, as Miles et al. noted that Hispanic students were more likely than non-Hispanic students to experience FI (64% vs 36%). Finally, support for black and brown minorities having a higher risk of FI is seen in El Zein, et al.'s (2018) study of University of Florida students, which also showed Black students to have higher FI scores on average than their White or biracial counterparts. Clearly, numerous studies have found support for race and ethnicity as a predictor of FI status regardless of a university's geographic location or size.

In addition to living situations and racial/ethnic identity, first-generation students were slightly more likely to be FI than others (53% vs 47%) (Miles et al., 2017). Additionally, El Zein's (2018) study showed that Pell grant recipients

experienced double the rate of FI as those without Pell Grants. Other demographic groups at risk for FI were found in results from Miles et al.'s study. Also, their study sample highlighted females (49%) as being more likely to be FI than males (38%). Finally, international students had the highest prevalence of FI (El Zein et al., 2018).

In a study that compared graduate and undergraduate status, Hillers (2021) showed that more graduates were likely to know of and use food pantries than undergraduates, leaving the undergraduate population more at risk for adverse outcomes related to FI. El Zein (2018) also found support for the idea that graduates were more likely to be FI (21%) than undergraduate students (13.5%) (El Zein et al., 2018). Finally, Robbins, Spence, and Steeves (2022) recently reported a similar finding on student class (academic year): in their study, Juniors, Seniors, and graduate students (i.e., master's or doctoral level) were more likely to experience basic needs security than Sophomore students, who possessed less basic needs security. These trends suggest a need for future studies to focus in on correlates and predictors of undergraduate students' food and security needs.

Theoretical Frameworks for Understanding FI Among College Students

A focus on undergraduates' basic needs can be organized around Maslow's hierarchy of needs; the foundation of human well-being (Maslow, 1943; Taylor, 2020). Maslow's hierarchy places food, and thereby the need for food security, in with the physiological needs that form the basis of the hierarchy. Self-actualization, self-esteem, social needs, and safety needs on Maslow's chart can

change, but the foundation of our physiological needs (i.e., food, water, and shelter) do not change. Moreover, Maslow's hierarchy posits that is it difficult to focus on other levels of needs when basic living requirements are not met, suggesting the necessity to shore up individuals' access to food, water, and shelter. When individuals are unable to satisfy their basic needs on their own, there is the opportunity to develop community or environmental programs and systems to support access to basic living requirements (Hiller et al., 2021). Food pantries are an approach that community-based organizations have used to provide food to community members experiencing FI (Hiller et al., 2021).

One theoretical model that bridges the idea of individual-level behavioral change and community/environmental systems' influence on individuals' ability to address basic living needs, and specifically FI, was the socioecological model (Bronfenbrenner, 1977). The Socioecological Model (SEM) categorizes factors affecting health and wellbeing into five levels: intrapersonal, interpersonal, institutional, environmental/community, and policy (Hiller et al., 2021). Studies of food insecurity indicate that FI is influenced by multiple interactions between behavioral, social, and environmental factors (Hiller et al., 2021), and that the SEM provided a framework for evaluating FI beyond a focus on personal finance patterns (Hiller et al., 2021). Support for the application of the SEM to FI in a college student population had been noted by both Hiller (2018) and Miles (2017). Below, I outlined ways in which FI has been addressed across the different levels of the SEM on college campuses.

Overview of Interventions on College Campuses

Bruening et al., (Bruening et al., 2017) in their systematic review of FI on college campuses, found the most common interventions to address FI included individual financial coaching (found in six peer-review studies), implementation of institutional-level interventions including on-campus food pantries (found in seven peer-review studies), and policy/systems level changes to increase financial aid create a basic living stipend for students (found in nine peer-reviewed studies), and aiding students in accessing and receiving Supplemental Nutrition Assistance Program (SNAP) benefits. Fausto, a Bill Emerson National Hunger Fellow at the American Public Human Services Association, in her 2022 article addressing FI among BIPOC college students, supports the idea of helping students access SNAP benefits. Fausto suggests that universities could expand SNAP education and outreach programs because barriers to accessing SNAP benefits often stem from a lack of communication between county health and human service agencies and their respective college campuses (Fausto, 2022).

Students in the Wisconsin HOPE Lab study also emphasized the importance of co-locating community services, such as food banks, on campus (Broton & Goldrick-Rab, 2016). When food pantries are located on campus rather than off-campus, Broton (2016) found time and transportation costs were reduced. Additionally, on-campus food pantries appeared to lessen the stigma of accessing food support systems (Broton & Goldrick-Rab, 2016). With recent research into FI on college campuses and the need for continued food support

for students, intervention systems such as food pantries are becoming more commonplace on college campuses (Watson et al., 2017).

Barriers to Using Food Pantries

Even with the existence of food pantries on campus, some students experience barriers to accessing this basic resource. For example, Brito-Silva, et al., (2022), recently reported a high prevalence of FI (49%) at Texas Women's University but noted that among those experiencing FI only 1 out of 10 (11%) had ever visited the campus food pantry despite conscious efforts by campus administration to lessen FI issues among students since 2019. Brito-Salvo and colleagues noted that almost 48% of the students facing FI were still unaware that there were food pantries to access. Awareness levels were better in a 2018 study of University of Florida students (El Zein et al., 2018). In this study, the researchers concluded that 70% of the students surveyed were aware of the existing food pantries available to them on campus. Of those aware of the food pantry, those most likely to access it were listed as non-whites, Hispanics, international students, graduate students, students using a credit card to purchase food and Pell grant/loan recipients (El Zein et al., 2018).

Strategies for Increasing Awareness of Food Pantries on Campus

Colleges and universities often organize food pantry operations under the headings of "student support services" or "student affairs" (Student-Involvement, 2023). As such, it is unlikely that university administrators will view food pantries as a marketing communication organization or branded entity, although research on such internal perceptions is scant. Nevertheless, the issue of low awareness

of food pantries on some college campuses suggests that marketing and brand communication strategies and approaches could be leveraged to increase knowledge about the existence of on-campus food assistance. Below, I outline some basic marketing communication concepts that might be employed to increase awareness of food pantries on campus.

Intersection of Market and Brand Communication

The foundation of customer-focused marketing efforts is derived from Duncan & Moriarty's Communication-Based marketing model. This model posits that a communication-based approach to marketing should be grounded in developing relationships and branded meaning with consumers over time, which moves away from a more traditional marketing model that had been focused on functionalism and production – the, "if we build it, they will come" perception (Duncan & Moriarty, 1998). Rather, Duncan and Moriarty help to solidify the purpose of a communication-based marketing model, which blends marketing communication and brand communication into an integrated cohesive set of messages aimed at a particular audience to start a relationship (Moriarty & Kenney, 2015). At the heart of this relationship is branded communication (Duncan & Moriarty, 1998). As explained by Toohey (2008), a brand extends beyond an organization's name/logo/trademark. It includes a connection to the distinct impression left on and mental schema developed in the minds of customers. As such, a brand includes not only how the organization looks, but also the attitudes it exudes, and the advertising/communication choices it makes (Toohey, 2008). Although campus food pantries are not corporate entities,

Duncan and Moriarty's model has been used by nonprofit organizations to help gain membership, volunteers, and donations (Moriarty & Kenney, 2015). As such, it presents an approach to addressing the awareness issues that some campus food pantries are experiencing.

As noted above, to effectively implement Duncan and Moriarty's Communication-based marketing model, there is a need for consistency among all marketing communication messages (Duncan & Moriarty, 1998). This consistency can help build trust and cohesion across audiences' perceptions of an organization's brand (Duncan & Moriarty, 1998). In this model, consistency is operationalized as "one voice" (i.e., the same tone of communication across all collateral) and "one look" (i.e., the same color scheme, font, logo, and other visual elements across collateral) for each priority audience regardless of the marketing function or the media being used (Duncan & Moriarty, 1998). When consistency is lacking, messages can be ignored, misunderstood, or diluted.

Brand Audits

A brand audit is a practical approach that can be used to evaluate brand and message consistency helping to ensure consistency in the way one's organization is promoted and perceived (Toohey, 2008). This process evaluates a brand's strengths, what is good about a brand, and where it works (Toohey, 2008). A brand audit can also determine weaknesses and inconsistencies that uncover opportunities for improvement (Toohey, 2008).

For success in the brand audit process, research findings should separate the brand audit into the three categories: marketing, internal, and external

(Toohey, 2008). The marketing part of the audit will give the organization a complete review of the brand's physical representations including areas such as stationery, social media, digital media, and more traditional forms of advertising. In contrast the internal portion concerns itself with employee interactions, like workshops and management interviews (Toohey, 2008). The external brand audit assesses the organization's current positioning and perceived culture, as seen by members, a target audience, and stakeholders (Toohey, 2008). A brand audit allows for the application of an evidence-based practice that can yield a comprehensive overview of the current state of a brand's marketing communication material and provide a road map for addressing changes (Freberg, 2021).

Study Purpose

The University of Louisville (UofL) is an urban school with a diverse mix of students and a large portion of first-generation students (UofL, 2023f). According to US News & World Report's Best Colleges rankings for 2022-2023, University of Louisville (UofL) is ranked number 182, with 15,364 undergraduate students listed for the 2022-2023 academic year. More than half (56%) of the undergraduate student body identify as female and 44% identify as male. The minority enrollment at UofL is listed at 32%, consists of 14% Black students, 7% Hispanic students, 6% of students of two or more races, 5% Asian students, and 1% International students. About a third (31%) of the student body lives on the 287-acre campus in college-owned, -operated, or –affiliated housing and 69% live off campus. UofL awarded Pell Grants to 32% of students in the 2020-2021 school year (U.S. News & Report, 2021).

Like other institutions discussed above, UofL established a food recovery network, the Cardinal Cupboard Food Pantry (CCFP), in 2019 to address a growing concern for food access among students, staff, and faculty. The inclusion of a food pantry on campus helped FI students aware of the food pantry, supplement one of the foundational level needs of Maslow's Hierarchy of Needs—access to food (Maslow, 1943). The Cardinal Cupboard Food Pantry has been open for four years and remains funded by Commonwealth Credit Union, Dare to Care, and Kroger. [1] At the University of Louisville, the CCFP is overseen by the Office of Student Affairs, with the Engaged Learning Service Board (ELSB) being a primary source of student leadership involvement. The ELSB oversees schedules for food recovery pickup and organizes the CCFP volunteer schedule.

Although the CCFP has been in existence for four years, this study will be the first to explore predictors of food pantry use at the University of Louisville (UofL). Past data shows that approximately 4.3% of the students at UofL used the CCFP at least once during the 2021-2022 academic year, yet there have been no tests of statistical difference between those using the CCFP and those who have not used it. Given this lack of inferential comparison and analysis with respect to the CCFP user base, this study explored differences across variables at different levels of the SEM to better understand the characteristics of CCFP users in contrast and comparison to those who have not used the CCFP. This

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[1] The contributions of the three sponsors created a larger, more accessible location, with more resources, greater food supply, improved equipment, and increased visibility UofL. (2021). *Donate*. Student Involvement. https://louisville.edu/involvement/leadership/engage-lead-serve-board/cardinalcupboard/donate.

study progressed two-fold. First, I analyzed existing intrapersonal, interpersonal, and environmental data to test predictors of CCFP usage characteristics, as suggested by past SEM-based research. The number of factors that I was able to analyze at each level of the SEM was limited by the data available from CCFP at UofL. As such, the bulk of the study's hypotheses were at the intrapersonal level including gender, age, race, student class (academic year), and first-generation status. Marital status, however, did address the interpersonal level of the SEM. Finally, housing variables—type categorized as affiliated and university housing and description labeling which university housing unit, and Pell-eligibility were used to reflect factors affecting FI at the environmental level. The following hypotheses will be explored.

- H1: There is a statistical difference in gender between users and non-users of the CCFP.

- H2: There is a statistical difference in age between users and non-users of the CCFP.

- H3: There is a statistical difference in race between users and non-users of the CCFP.

- H4: There is a statistical difference in student class between users and non-users of the CCFP.

- H5: There is a statistical difference in students who are first-generation college students between users and non-users of the CCFP.

The next variable is categorized into the interpersonal level of the SEM. For this level I explore the food insecurity status in relation to marital status.

- H6: There is a statistical difference in marital status between users and non-users of the CCFP.

The last set of variables looks is categorized into the environmental level of the SEM. Here I look at housing type and description and Pell eligibility.

- H7: There is a statistical difference in housing type, affiliated or university housing, between users and non-users of the CCFP.

- H8: There is a statistical difference in housing description, the specific university housing unit, between users and non-users of the CCFP.

- H9: There is a statistical difference in students who are Pell eligible between users and non-users of the CCFP.

Given that studies of campus FI prevalence have found a range of students experience a need for food support (i.e., 21-59%), the portion of students at UofL using the CCFP (4.3%) seems low. As the extant literature has shown, a low usage rate may simply be due to low awareness of the CCFP support. As such, the second phase of my study included a systematic external communication and marketing audit of student facing CCFP messaging. The audit was developed to answer the following research questions:

RQ1: Where is the Cardinal Cupboard currently advertising and promoting its services and how well do these mediums align with the profile of current Cardinal Cupboard users?

RQ2: How consistently is the Cardinal Cupboard brand communicated across various promotional media?

METHODOLOGY

Discussion of this study's methods is divided into two parts. The first focused on the quantitative method used to test the study's hypotheses related to CCFP use. The second focused on the method employed to conduct the CCFP brand contact audit to address the research questions identified above. Both phases of this study were approved by the University of Louisville's Institutional Review Board (IRB).

Phase I: Testing the Study's Hypotheses

Phase I of the study used existing data from UofL to test the hypotheses stated previously. Below, I provide additional detail about UofL's data, as well as information about my sampling process and my analytical approach.

Data Extraction and Cleaning Procedures

In February 2023, I submitted an IRB approved request for coded, raw data to the Office of Institutional Research and Planning (IRP). The request resulted in the extraction of 1,379 UofL undergraduate students' information from institutional datasets. The information was sent to my password protected computer, in a password protected file in March 2023. The 1,379 students were composed of two groups: 679 of the students were users of the CCFP and 700 were randomly selected undergraduate students who did not use the CCFP. The

randomly selected group was extracted from data that reflected the 2021-2022 academic year and used to represent the general student body of UofL. [2]

Descriptive statistics reported no missing data. There were, however, some variable groups that were quite small and would not yield accurate statistical outputs. As such, among the data concerning race, I removed the categories American Indian/Alaska Native because only one non-user student reported identifying with this category. The unknown category, which had two non-users and 1 user, and the Non-resident Alien category, which had 16 non-users and 23 users, were also eliminated due to comparatively small group sizes. The above-mentioned categories were removed due to the small size of the group. Thus, the total number of participants for the filtered race category became 681 non-users and 655 users. No other sample size adjustments were made for the hypotheses that tested group differences.

Sample

As noted above, I sampled UofL undergraduate students who were users and nonusers of the CCFP. Of the universities' 14,763 undergraduate students, I received a sample of 700 nonusers of the CCFP. After running some descriptive statistics, I found that most of the random sample of nonusers provided to me from IRP were similar in composition to that of the general undergraduate student body. Using a Z test to compare the proportions to the population, the nonuser sample was determined to accurately reflect the population of UofL

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[2] The nonuser data was randomly extracted from the general UofL student population. It was not specifically matched to the CCFP users in order to receive a dataset that could be analyzed in a reasonable timeframe. More complicated data matching requests require processing times in excess of one month.

students, except with respect to Pell eligibility and year in school. There were significantly fewer Pell eligible students in y sample than in the UofL student body. Additionally, there was significantly fewer Freshmen and more Seniors in my sample than the UofL population. Please note that Table 1 provides UofL demographics gathered from "About Us" on the landing page for UofL's website and compares them with the random sample of nonusers drawn for this study.

Table 1

Comparison of Random Sample of Non-CCFP Users with UofL Undergraduate Population Sample

Variable	UofL Population	Population %	Sample n	Sample %	p-value
Gender					
Female	9630	55.90%	392	56.00%	.9575
Male	7598	44.10%	308	44.00%	.9575
Race					
Asian	903	5.20%	46	6.60%	.0953
Black/African American	845	11.70%	88	12.60%	.4588
Hispanic/Latino	413	5.70%	43	6.10%	.6480
Two or More Races	262	3.60%	33	4.70%	.1182
White	4673	64.60%	471	67.30%	.1352
Academic Status					
Freshman	3627	21.10%	99	14.10%	**<.0001**
Sophomore	2944	17.10%	126	18.00%	.5271
Junior	3648	21.20%	140	20.00%	.4373
Senior	4544	26.40%	236	33.70%	**<.0001**
Undergraduate nondegree	621	3.60%	27	3.90%	.6701
Residency					
In-state	13857	80.40%	556	80.90%	.7389
Out-of-state	2559	14.90%	107	15.30%	.7663

Variable	UofL Population	Population %	Sample n	Sample %	p-value
Visa Status					
Domestic	16749	97.20%	n/a	n/a	n/a
International	479	2.80%	n/a	n/a	n/a
Pell Eligibility	6050	35.10%	212	30.30%	**.0078**
First Generation Status	4564	26.50%	207	29.60%	.0631
Housing					
Commuter	12355	71.70%	n/a	n/a	n/a
On Campus	4873	28.30%	n/a	n/a	n/a
Full or Part Time					
Full Time	12145	70.50%	498	71.10%	.7278
Part Time	5083	29.50%	201	28.90%	.7278

The sample size from the data set for the Cardinal Cupboard Food Pantry users gathered from the IRP, identified 679 students as CCFP users. Nearly three-fourths (71.3%) of users were female and 28.7% male. The racial breakdown shows 49.9% of the users identified as White, 24.3% as Black/African American, 9.3% identified as belonging to two or more races, 8% as Hispanic/Latino, 5% as Asian, 3.4% non-resident Alien, and 0.1% was unknown. Given the low incidence of the non-resident Alien and the unknown categories in the sample, these groups were not used in further data analysis and were deducted from the 670 CCFP users. The ages of the CCFP users ranged from one student under the age of 18, to nine students over the age of 39. The majority of students using the CCFP were calculated at 80.3% being between the ages of 19 to 22, followed by 14.9% aged 23-36 and 2.5% aged 27-30. Students aged 31-38 comprised less than 1% of the users of the CCFP. The sample of CCFP users represents the undergraduate classes with 48% Seniors, 55.4% Juniors, 60% Freshman and 50% Sophomores. For analysis purposes, I decided

not to include the Post-Baccalaureate Undergraduate Degree-Seeking category at 0.6% and the Undergraduate – Nondegree category at 1.5%. Of the 679 users, 28% were first generation students and 45.7% received Pell Grant funds.

The sample of non-CCFP using students were randomly drawn from the UofL undergraduate student body. Table 1 shows the university population in relation to the non-user group, establishing a good representation of the student body. The non-user group was made up 700 students with 55% identifying as female and 45% as male. The racial breakdown for the non-CCFP users show 66.7% identifying as White, 12.4% as Black/African American, 5.7% as Hispanic/Latino, Asians at 4.6%, Non-resident Alien, 3.1% and the unknown category was 0.3%. The ages of the non-CCFP users ranged from 6.9% being less than 18 years-of-age to 5.6% being over the age of 39. Those aged 19-22 accounted for 55.1% of the random selection. Age 23-26 accounted for 21.6% of the sample and ages 27-30 were just under 5%. Three percent of the non-CCFP using students 35–38-year-old was higher than the 31-34 group with only 2.9%.

The last breakdown of the non-CCFP user sample is for student class. Nearly one third (31%) of the sample were Seniors, 22% Juniors, 16% Sophomores, 15.6% Freshman, 4.1% are Undergraduate-Nondegree, and the last was 2.9% for the Post-Baccalaureate Undergraduate Degree-Seeking. Of the 700 non-CCFP users 30.4% were first generation students and 29.6% of the sample were Pell Grant eligible.

Analysis

For the data analysis I downloaded and used Jamovi (stylized in all lower-case as jamovi). jamovi is a new third generation statistical spreadsheet built on R statistical language, that is a free, open-source computer program that researchers can use for analysis and statistical tests (The-jamovi-project, 2022; R-Core-Team, 2021). Once the program was downloaded, the coded raw data set was divided into two groups, users of the CCFP and non-users of the CCFP. Then I ran chi-square tests to determine the statistical difference between my two groups (users and nonusers) and the other nominal variables in my hypotheses.

Phase II: Answering the Research Questions.

The second part of the study involved conducting an external communication audit to help answer the research questions concerning the effectiveness of the CCFP's communication to current and potential users. During this phase, I developed an audit tool, conducted the audit, and analyzed the results.

Audit Sampling Procedures

In February, March, April, and May of 2023, data were collected for the IRB approved communication audit. Data for the communication audit were collected from three main sources: physical spaces on campus, owned digital media (e.g., UofL website), and social media.

In-person Physical Sampling Procedures. To begin I visited a stratified random sample of buildings (selected by a random generator) and physical spaces on campus. I looked at the UofL map of the university campus found

online and assessed the building locations. The map was separated into three categories. Academic and Research Buildings had a list and map of twenty-eight buildings. Campus Life/Student Resources listed eighteen buildings. University and Affiliated Housing listed sixteen buildings. I excluded particular buildings that had little student foot traffic and extreme distance to campus. I calculated the percentages of the three types of building as 28 Academic and Research buildings made up 45% of the building mix, 16 Campus Life/Student Resources buildings made up 29%, and 18 University and Affiliated Housing buildings made up 26% of those buildings found on the map of UofL campus. Based on that calculation, I figured it feasible to randomly select seven buildings from the Academic and Research category and three buildings from each of the remaining two categories, by a random generator, for a total of N = 13 buildings assessed. The building data were collected by recording the communication messages about the CCFP that were visually available for the students to see at the various building locations. These data were managed through numbered maps and pictures to portray the sample area.

One of the characteristics of these data that may be important in interpreting the results of the audit is that some of the data were collected later in spring semester, which could have meant that the communication outreach for the CCFP may have been ending for the semester. Additionally, at the time of collection, various buildings were under repair. For these reasons, housekeeping may have already cleaned certain public comment spaces before my data collection occurred.

Digital Data Sampling Procedures. The online sources chosen stem from the home page of the Cardinal Cupboard's UofL website (UofL, 2023e). From this landing page of the Engaged Learning Service Board, one reaches a page titled the Commonwealth Credit Union Cardinal Cupboard (UofL, 2023c). This website was owned by the Department of Student Affairs and housed the Office of Student Involvement. The landing page for the Engaged Learning Service Board seems geared toward donation and volunteering opportunities. From this website, I accessed media presented through hyperconnectivity (I clicked on the icons at the bottom of the page).

For the Twitter platform, I did a general search of Twitter for uoflccuccfp/@uoflccuccfp because of lack of knowing the CCFP account name which stemmed from my inability to access Twitter through the icons listed at the bottom of the landing page. The CCFP Twitter account was not accessed, and therefore was not represented in this study.

I accessed the Instagram page associated with the CCFP found under @UofLCCUccfp. Assessed in the middle of May 2023, the CCFP Instagram account had 106 posts, 511 followers, and the account was following 87 others. The "bio" (biography) for the UofL CCU Cardinal Cupboard was listed as a nonprofit organization whose goal is to reduce food waste and food insecurity. The location and hours were listed with a contact address as [elsbccfp@louisville.edu.](mailto:elsbccfp@louisville.edu) The link provided accesses the Dare to Care Food Bank locater. The biography page had one logo which is circular with a bag of groceries and the CCU logo. The color scheme was blue and red with Cardinal in

red and cupboard in blue. I evaluated the last nine posts (which spanned a semester) with the communication audit tool designed to help answer the study research questions.

External Communication Audit Research Design

I developed an external communication audit tool to assess the visual establishment of various CCFP media around the campus and evaluate external communication about the CCFP on two fronts: branding and content. For the coding guide refer to Appendix A.

I first looked at the consistency of branding. It assessed how the CCFP uses various logos associated with the food pantry and other stakeholders. The first logo I looked for was the UofL logo. This is a trademark used by the university and is regulated by the Office of Brand Identity and Visual Standards. The guidelines are set up for UofL branded marketing materials and websites to retain consistency. The website suggests that "An official logo should be used on all university marketing communications, including printed pieces, visual presentations, advertising, and any other materials that represent the university to external audiences. It should appear on the front or back cover of all printed communications unless an exception has been granted by OCM" (UofL, 2023a). The next logo I coded belongs to the Commonwealth Credit Union. This is rectangular in a light blue font. The Cardinal Cupboard Food Pantry logo is the third logo I coded for while evaluating the various communications to the UofL students. The most recent logo is a heart shape made of colorful fruits and vegetables. The evaluation also coded for any other UofL organization logo, as

there are various organizations involved in supporting aspects of the CCFP. The last item I assessed was the presence or absence of a hashtag. Hashtags have become an essential part of social media marketing (Facebook, 2022). The purpose of a hashtag is to categorize content for social media users and allow users to easily find topical content across disperse social media posts. The use of a hashtag can allow people to find posts that are related to their personal or business interests (Brooke, 2022).

For the content portion of the audit, I looked at the two aspects of visual elements and textual/verbal messaging. Under the visual elements, I looked for whether a visual was included as a part of the message. If so, I assessed whether the visuals depicted the products available (food items in the CCFP) and/or the audience for whom the communication was intended. Next, I looked at the textual/verbal messages in the communication. Under this aspect, I coded the message to the intended audience. I coded for messages to students that relayed the awareness of free food products available from the CCFP, volunteer opportunities, donation suggestions, messages that noted an operational change in schedule, and/or messages directing students to use the CCFP. Some messages were intended for the public to participate in donation opportunities. A note was also made as to whether the location and hours of operation were mentioned in the CCFP communication.

External Communication Audit Data Collection and Management

To keep the communication audit consistent for the buildings assessment, I assessed the public access communication areas, recording the presence, or

lack of, various distributed CCFP communications. I viewed the buildings turning left first, then right to be fully aware of the various sights' communication could be. Then, after assessing the floor to the left and then to the right, I repeated the procedure for all the floors in the building. The building data were collected by recording/photographing the collateral piece when available at the various building locations. These collateral pieces were collated and managed through numbered maps and pictures to portray the original location of each piece of data.

To review the online media, including social media sites, I visited and evaluated three platforms, Twitter, Instagram, and You Tube, and the landing webpage of the CCFP, between March, April, and May of 2023. For the CCFP messages accessed online, I took screenshots and numbered them accordingly to represent the social media or online site referenced.

Audit Tool

To analyze my external communication data, I developed a communication audit tool. My custom-designed communication audit tool was used to evaluate external communication about the CCFP. to the UofL student body. The communication audit tool evaluated CCFP communication on two fronts: content and branding. With the content portion of the audit, I looked at the two aspects of visual elements and textual/verbal messaging. Under the visual elements, I looked for the presence or absence of a visual in the message If present, I assessed whether the visual included visuals of the products available (food items in the CCFP), as well as visuals of the audience for whom the

communication was intended. Next was to look at the textual/verbal messages in the communication. Under this aspect, I looked at the intended audience and the main message and then made a note as to whether the location and hours of operation were mentioned in the communication piece.

The communication audit tool that I created was grounded in various branding theories and academic best practice for social media outlets for mediated communication (Campbell, 2018; Duncan & Moriarty, 1998; Toohey, 2008), and consisted of a digital Excel spreadsheet where I captured the codes assigned to each piece of CCFP communication assessed. Specifically, the communication audit tool was developed to assess the visual establishment of various CCFP media around the campus and evaluate external communication about the CCFP. For the coding guide refer to Appendix A.

External Communication Audit Analysis

Assessments were made of physical and digital spaces where CCFP external communication were recognized. To answer RQ1, I recorded findings of the communication audit and compared trends in presence/absence of CCFP communication to findings from the hypotheses of the study. To answer RQ2, I took the findings of the communication audit tool and evaluated the message elements of the outgoing CCFP messages across the fronts of branding and content.

RESULTS

The results of my study are organized into two phases to reflect the stepped approach I followed in my study. Phase I results present findings from the inferential statistical tests conducted to test the hypotheses identified for the study. Phase II results present the findings from my analysis of communication audit data.

Phase I Results – Tests of Inferential Hypotheses

In phase I, I found several group differences across variables reflective of the intrapersonal, interpersonal, and environmental levels of the SEM. The sections below provide additional details regarding the differences noted.

Intrapersonal Variables

Chi-square tests were run to test if there was any statistical difference in intrapersonal variables of the SEM (Socioecological Model) characteristics including gender, age, race, student class (academic year), and first-generation status between the user and non-user groups. Hypothesis 1, suggests, there is a statistical difference in gender between users and non-users of the CCFP. Study findings allowed us to reject the null and support Hypothesis 1: X^2 (1, N = 1379) = 34.7, p = < .001. Cramer's V was 0.159 and showed an existing, but weak

association for the gender variable. Table 2 shows that those identifying as females are more likely to use the CCFP then those identifying as males (55.3% v. 38.8%).

Hypothesis 2 suggests there is a relationship in age between users and non-users of the CCFP. Study findings supported this hypothesis with a p value less than .05, which allowed us to reject the null. X^2 (6, N = 1379) = 129, p = <.001. Cramer's V equaled .306, a moderate association in age to users and non-users of the CCFP (The-jamovi-project, 2022). The age group most likely to use the CCFP were 19–22-year-olds (58%).

. Hypothesis 3 evaluated the evidence of a relationship in race between users and non-users of the CCFP. After three categories were filtered out that eliminated small group sizes in the data set, the findings supported Hypothesis 3 and allowed for the null to be rejected, which showed there is a relationship in race between users and non-users of the CCFP: X^2 (4, N = 1336) = 56.9, p = < .001. A Cramer's V of .206 supported an association in race between users and non-users of the CCFP. The race most likely to use the CCFP was Black/African American students (65.2%). Hypothesis 4 suggests there is a relationship in a student's academic year between users and non-users of the CCFP. Results showed X^2 (6, N = 1379) = 85.7, p = <.001, which allowed us to reject the null hypothesis and support Hypothesis 4. The Cramer's V was at .249, which showed weak support for an association in a student's academic year between users and non-users of the CCFP. The academic year most likely to use the CCFP were freshmen (60.0% v. 50.0% sophomore, 55.4% junior, 48.0% senior).

The fifth hypothesis tested the last of the intrapersonal variables. It stated that there should be statistical difference in a student identifying as a first-generation student between users and non-users of the CCFP. The test of the null hypothesis yielded results that forced us to fail to reject the null, so Hypothesis 5 was not supported: X^2 (1, N = 1379) = .425, p = <.515.

Interpersonal Variables

Hypothesis 6 asked if there was a difference in a student's marital status between users and non-users of the CCFP. My study identified that 53% of those who were not married used the CCFP as compared to 24% of those who were married. The p-value of the Chi-square test was below .05, which allowed us to reject the null and show that there was a relationship in marital status and using the CCFP: X^2 (2, N = 1336) = 66.8, p = < .001. The Cramer's V was .226, which supported a weak association between CCFP usage and marital status.

Environmental Variables

Hypotheses 7 and 8 were concerned with housing. Hypothesis 7 stated that "There is a statistical difference in housing type between users and non-users of the CCFP." Students living in UofL resident halls were found to be users of the CCFP more often than students living in affiliated housing (65.1% vs. 59.5%). The study rejected the null with a p value of <.001. X^2 (2, N = 1336) = 189, p = < .001. The Cramer's V .376 of supported a moderate association between user status and housing type. Hypothesis 8 tested was for housing description, which describes the resident halls in which students are housed. I

rejected the null with a p-value less than .05 and showed a medium-high

association with the Cramer's V of .424: X^2 (27, N = 1336) = 240, p = < .001. The

residence hall with the most CCFP usage was Miller Hall with almost 88% of the

students living there having used the food pantry during the 2021-2022 academic

year. The last environmental variable was Pell Grant eligibility. Pell Grant

eligibility, an indicator of socio-economic status, was also hypothesized to have a

differential impact between users and non-users of the CCFP (hypothesis #9). I

was able reject the null hypothesis and show that there was a difference in usage

rate between students who were Pell Grant eligible and those who were not: X^2

(1, N = 1379) = 34.6, p = <0.001. Cramer's V supported a weak association for

Pell eligibility between users and non-users of the CCFP with 0.158.

Table 2

Results of SEM Variable (Intrapersonal, Interpersonal, and Environmental)

Comparisons Between Non-Users and Users of the CCFP

	NON-USERS		USERS		Total	Chi-Square (df)	p-value	Cramer's V
	n	(%)	n	(%)				
INTRAPERSONAL VARIABLES								
Gender						34.7(1)	< .001	0.159
Female	392	44.70%	484	55.30%	876			
Male	308	61.20%	195	38.80%	503			
Age						129 (6)	<.001	0.306
<= 18	51	98.10%	1	1.90%	52			
19 to 22	394	42.00%	545	58.00%	939			
23 to 26	140	58.10%	101	41.90%	241			
27 to 30	41	70.70%	17	29.30%	58			
31 to 34	21	84.00%	4	16.00%	25			
35 to 38	24	92.30%	2	7.70%	26			
>= 39	29	76.30%	9	23.70%	38			

	NON-USERS		USERS		Total	Chi-Square (df)	p-value	Cramer's V
	n	(%)	n	(%)				
Race						59.7 (7)	<.001	0.208
Asian	46	57.50%	34	42.50%	80			
Black/ African American	88	34.80%	165	65.20%	253			
Hispanic/ Latino	43	44.30%	54	55.70%	97			
Two or more races	33	34.40%	63	65.60%	96			
White	471	58.10%	339	41.90%	810			
Academic Year						85.7 (6)	<.001	0.249
Freshman	99	40.10%	148	60.00%	247			
Junior	140	44.60%	174	55.40%	314			
Senior	236	52.10%	217	48.00%	453			
Sophomore	126	50.00%	126	50.00%	252			
First Gen						.425 (1)	0.515	0.018
No	493	50.20%	489	49.80%	982			
Yes	207	52.10%	190	47.90%	397			
INTERPERSONAL VARIABLES								
Marital Status						34.6 (1)	<.001	0.158
No	537	46.5%	617	53.5%	1,154			
Yes	39	76.5%	12	23.5%	51			
ENVIRONMENTAL VARIABLES								
Housing Type						198 (2)	<.001	0.379
Affiliated Residence	15	40.50%	22	59.50%	37			
Hall	273	34.90%	510	65.10%	783			
None	412	73.70%	147	26.30%	559			
Housing						248 (27)	<.001	0.424
Belknap Village North	16	23.9%	51	76.1%	67			
Bettie Johnson Hall	35	50.7%	34	49.3%	69			
Community Park	13	61.9%	8	38.1%	21			

	NON-USERS		USERS		Total	Chi-Square (df)	p-value	Cramer's V
	n	(%)	n	(%)				
Community Park Suites	44	48.9%	46	51.1%	90			
Kurz Hall	18	36.7%	31	63.3%	49			
Kurz Hall Suites	41	27.0%	111	73.0%	152			
Louisville Hall	9	60.0%	6	40.0%	15			
Louisville Hall Suites	19	38.0%	31	62.0%	50			
Miller Hall	2	12.5%	14	87.5%	16			
Miller Hall Traditional	7	23.3%	23	76.7%	30			
Not Housed	412	73.7%	147	26.3%	559			
The Retreat	6	37.5%	10	62.5%	16			
Threlkeld Hall Traditional	5	38.5%	8	61.5%	13			
UTA Under	6	37.5%	10	62.5%	16			
Unitas Tower	7	41.2%	10	58.8%	17			
Unita Tower Traditional	24	27.6%	63	72.4%	87			
University Pointe Apartments	9	34.6%	17	65.4%	26			
University Tower Apartments	5	20.0%	20	80.0%	25			
Pell Eligible						34.6 (1)	<.001	0.158
No	488	57.00%	369	43.10%	857			
Yes	212	40.60%	310	59.40%	522			

Phase II Results – Findings from the Communication Audit

Using the systematic procedure outlined earlier, I visited a randomly selected group of buildings on UofL campus representing three aspects of campus student life. I visited seven out of twenty-eight Academic and Research Buildings, three of eighteen buildings representing Campus Life and Student Resources, and lastly, I visited three of the sixteen University and Affiliated Housing buildings. Digitally, I reviewed posts made to Twitter, Instagram, and You Tube. This process and analysis were designed to help me answer RQ1. Next, I assessed the messaging that I did encounter with respect to content, branding, and media. This assessment aided in addressing RQ2. Below I provide a detailed description of my findings with respect to my two main research questions for the study.

RQ1: Where is the Cardinal Cupboard currently advertising and promoting its services and how well do these mediums align with the profile of current Cardinal Cupboard users?

To answer RQ1, I conducted both an assessment of the presence of CCFP communication in physical and in digital spaces. I compared trends noted in the presence or absence of CCFP communication with findings from the hypotheses I tested in phase I of the study.

Physical Locations on Campus for Communication. To begin, Table 3 lists the results of the physical space assessment. The table shows the number of physical spaces available for CCFP communication in the buildings sampled

on campus compared to the number of actual CCFP pieces of communication. In total, there were fifty-five opportunities for communication and only four of the spaces contained an outgoing message from the CCFP. One poster mentioned the existence of the CCFP related to the Sustainability Council. Below, I provide more detail about the opportunities available for communication in each building and whether the CCFP took advantage of the communication opportunities available.

Table 3

Sampled UofL Buildings Spaces Available and Spaces Utilized by the CCFP

Building	Spaces Available	Spaces Utilized
Academic & Research		
Lutz Hall	running tv announcements	sustainability poster mention
Chemistry Building	14	0
Natural Sciences Building	7	0
Gottschalk Hall	3	0
Schneider Hall	5	1
College of Education	13	0
Oppenheimer Hall	running tv announcements	0
Campus Life & Student Resources		
Jouett Hall	0	0
Gardiner Hall	6	0
Swain Activity Center (SAC)	4 running tv announcements	2
University & Affiliated Housing		
Unitas Tower	0	0
University Tower Apartments	1	0
Denny Crum Residence Hall	0	0
Total	**55**	**4**

The first selection of randomly generated Academic & Research buildings represented the buildings where various colleges, schools and departments have their offices and students attend classes. I started with Lutz Hall. Lutz Hall is home to the sociology, anthropology, geography, and geology departments, the Art History Slide Library, research, and classroom facilities (UofL, 2023i). The first-floor entrance and lobby hold a four-sided column with cork board for public notifications and flyers. There was no communication for the CCFP on the opportune space. The Sociology Department to the left and the Art History Department to the right were assessed, but they held no areas for public communication. The second floor yielded a Sustainability Poster project (36 x 56-inch poster, 15 sq. ft.) that pictured the Cardinal Cupboard. This poster was hung outside of the Sustainability Council Chair's and anthropology department professor's office door. The third and fourth floors and the basement level provided no room for public communication.

The Chemistry Building houses the chemistry department, faculty offices, and laboratories (UofL, 2023l). I visited all three stories and the basement. I determined there were three opportune spaces for public communication on each floor and a wall space next to the vending area in the basement, which totaled ten spaces available for possible public communication. No CCFP posters were found in the chemistry building.

The third building I visited was the Natural Science Building, which holds classrooms, labs, and the Arts and Sciences departments of math, physics, and astronomy. It also is home to a student observatory (UofL, 2023j). There is an

elevated ground floor and a lower level. On the elevated ground floor, I determined there were five possible sites for CCFP communication, although none were found. The lower level had two possible areas for communication, but none were found.

Gottschalk Hall was the fourth building visited to look for CCFP posters or other communication. Gottschalk Hall was built in 1887 and offers offices and classrooms for the history department (UofL, 2023h). The public communication areas in Gottschalk Hall are monitored by the history department and material can only be displayed with permission. Of the three areas of monitored public communication, there was no representation by the CCFP.

The fifth building on the communication audit tour was Schneider Hall. Schneider Hall was originally the general library but is now home to the Department of Fine Arts and the Birdwell Art Library (UofL, 2023m). Schneider Hall also hosts galleries, classrooms, and studios. After assessing the two-floor building, I determined there to be three areas for public communication. On one of the three areas in the rear exit hall was a poster for the CCFP. The poster was prominently displayed and appeared large and readable in English. The poster contained the Cardinal Cupboard logo of a heart shaped made from food as the center piece. The Engage Lead Serve Board had a logo in the top right corner. The written text underneath the food heart logo read, "a sustainable, free food pantry open to the cardinal community" (all in small letters). The remaining information listed the location in the SAC W303C and the hours, which were hand-written in as MWF: 9:00-7:00 and T/Th: 11:00-7:00. At the very bottom of

the poster there was a website address provided for more information: https://UofLELSB.org/cardinal-cupboard. When I went to the above-mentioned web address, the page was unavailable. (Refer to Appendix B, photo 1)

Next, I visited the College of Education Building dedicated as the Woodford and Harriet Porter Building (UofLToday, 2010). This building houses lending offices and classrooms. The building yielded thirteen available public spaces, but none of them were utilized by the CCFP.

The last building to visit representing the academic and research buildings was the Oppenheimer Hall, home of the Kent School of Social Work (UofL, 2023k). This building contained three floors in addition to the ground floor and housed only a television with running ads on the ground level, with no advertisement for the CCFP.

The second set of buildings to be evaluated for CCFP communication represent Campus Life and Student Resources. The buildings randomly selected were Brodschi Hall, Gardiner Hall, and the Student Activities Center (SAC). Brodschi Hall is the home of the International Center and the International Studies Program and administrative offices (UofL, 2023b). When this building was visited, it was under construction and all offices had moved to Jouett Hall. In Jouett Hall there were three floors with no public spaces, although there was a student lounge available to students, no CCFP communication was found in the student lounge.

The second Campus Life/Student Resources building on the tour was the Gardiner Hall. Gardiner Hall is home to the administrative offices of the College of Arts & Sciences and the home of the undergraduate student Advising Center (UofL, 2023g). There were six locations for possible communication among the three floors and basement. The basement contained an organized health area with a lounge and vending machines. None of the potential communication spaces contained any CCFP communication.

The Swain Student Activities Center (SAC), the last campus life/student resources building I randomly checked for CCFP communication, is the main hub for student activities on UofL campus and home to the Cardinal Cupboard itself and the two UofL departments involved in the CCFP—Student Affairs and the Office of Student Involvement. The SAC is also the home of the Dean of Students, Department of Health and Sports Sciences, UofL Athletics, Dining Services, and the Campus bookstore. The SAC offers dining options, event spaces, and various lounges (UofL, 2023p). One noteworthy lounge is the commuter lounge found on the second floor. This lounge is equipped with a refrigerator and microwave for storing and heating pre-prepared food items. The SAC has a prominent advertisement for the CCFP at its east and west entrances. The Level 1 West entrance has an advertisement wrapped around an entry column. The two prominent colors on the wrapped entry column are the UofL red and the Commonwealth Credit Union (CCU) blue. The post's advertisement shows a CCFP logo of a red grocery bag with a heart, fork, and spoon with food products peeking out of the top. Cardinal Cupboard "Visit us at W312" is printed

underneath the grocery bag (refer to Appendix B photo 2). On the third floor, the CCFP has a two-panel floor to ceiling window with a glass door allowing those who walked by a full view of the products available (refer to Appendix B, photo 3). Along with the view of the food pantry, the continuing wall has an advertisement in the UofL red and CCU blue that reads "Bettering Lives- Nourishing Minds." (Refer to Appendix B, photo 4). On the other side of the glass door is a set of Grab & Go food lockers (refer to Appendix B, photo 5), a way to make food accessible outside of regular food pantry hours, holidays, and summer semesters. For those who might have been looking up as they passed by the CCFP, there is a sign hanging from the ceiling with the CCU logo in UofL red and the Cardinal Cupboard in CCU blue with the grocery bag of food logo and the location W312 (refer to Appendix B photo 6). The SAC also had four televisions with running announcements, but none of them mentioned the CCFP at the time of the audit visit.

The last group of buildings to assess for CCFP communication was university and affiliated housing. Unitas, University Towers, and Denny Crum Hall were randomly selected, by random generation, from the sixteen housing units. Unitas is a traditional dormitory setting with primarily single occupancy rooms, but it also offers double and triple occupancy rooms for more cost efficiency. With eleven floors housing an average of thirty-one students, Unitas is filled with about 300 first-year students and is a three-minute walk to the SAC where the CCFP is located (UofL, 2023n). The first floor of Unitas had no public areas but had various flyers posted next to the elevator. No CCFP communications were found.

University Tower Apartments feature studio, one bedroom, and two-bedroom apartments, as well as double occupancy living areas serving three students. University Tower Apartments houses approximately 200 first year and upper-level students. These apartments are equipped with their own kitchen containing a full or mini refrigerator, a stove, cabinets, and a dining table (UofL, 2023o). The entrance lobby held a public posting area, but there were no CCFP communications visible.

The Denny Crum Hall was opened in fall of 2022. The 128-bed facility houses student athletes and non-student athletes (those only participating in academics with no extracurricular sports activities) and includes some of the students admitted to the university's living-learning and themed communities (UofL, 2023d). There were no public spaces available on the first floor of the Denny Crum Hall.

On-line Communication Spaces. For on-line communication spaces, I visited three platforms. All three platforms visited contained CCFP communications and yielded 18 posts for assessment. Although I did not access the CCFP Twitter account, I found two posts under @uoflccuccfp and four posts under @cardinalcupboard. CCFP communications spanned periodically from January 2019 to April 2023. Nine posts were found and assessed on the second platform, Instagram, and ranged from January 2023 to April 2023. The last platform assessed, YouTube, had 3 videos relating to the CCFP posted December 2020 and April 2021.

Coupling my review of physical and digital locations on campus available for communication about CCFP with students with that of my quantitative analyses from phase I, it is interesting to note that those living on-campus and those living in University Tower Apartments and Miller Hall were found to be more likely to use the CCFP than students in other living situations but few outgoing CCFP messages may have reached these students. Minimal digital communication and very few physical messages likely meant that individuals most likely to use CCFP were not reached via mediated CCFP communication. As such, I determined that there is very little evidence to support the idea that outgoing CCFP messages and communication are reaching the type of student who most frequently have used the CCFP in the past. Most of the academic and residential buildings visited (places where students living on-campus would visit) did not have signs, posters or information informing students about the CCFP. Additionally, the small number of posts to social media suggests that the CCFP is missing an opportunity to communicate with college students through media commonly used by the student community.

RQ2: How consistently is the Cardinal Cupboard brand communicated across various promotional media?

To answer RQ2, I looked at textural/verbal and visual content by evaluating the message elements. Then, I captured the communication as either a photo or screen shot and saved it for analysis. Specifically, I reviewed the communication found across two main concepts: content and branding. For the coding guide refer to Appendix A.

Trends Across Content Reviewed. In my review of the content of

identified messages, I found little evidence that CCFP messages were employing

important marketing communication elements. Although most messages

possessed a visual element, in addition to text, very few included a visual of the

product provided at CCFP or the hours and location of the CCFP. Below, chart 1

explains the breakdown of the identified communication with respect to the

elements noted within the messages. Of the 18 messages reviewed, eight or

44% contained a visual element in addition to text. Only three out of 18 or 16.6%

of the messages were text with no visual. I also assessed whether the visual

element depicted the product offered at the CCFP (i.e., food), to help viewers

better understand the assistance available through the Cardinal Cupboard. I

found that 33% or six out of 18 of the messages depicted the product offered at

the CCFP. Only two of the messages used a visual of the audience being served

by the CCFP, which equals 11% of the messages using a visual of the audience.

The location and hours of operation were mentioned three times each in the

outgoing communications, which shows the location and hours of operation are

mentioned in 16% of outgoing communications. Based on my review, there is

room for improvement with respect to including message elements that can help

audience members better understand the brand, such as visuals of the product

available at CCFP, the population served by the CCFP, the hours that CCFP is

open, and the location of the CCFP.

Chart 1

*Message Elements of Outgoing Communication*

Chart showing "Message Elements"

	Text Only-No Visuals	Visuals of Product (Food)	Visuals of Audience Available	Location Mentioned	Hours of Operation Mentioned
no	11	11	15	14	15
yes	6	6	2	3	3
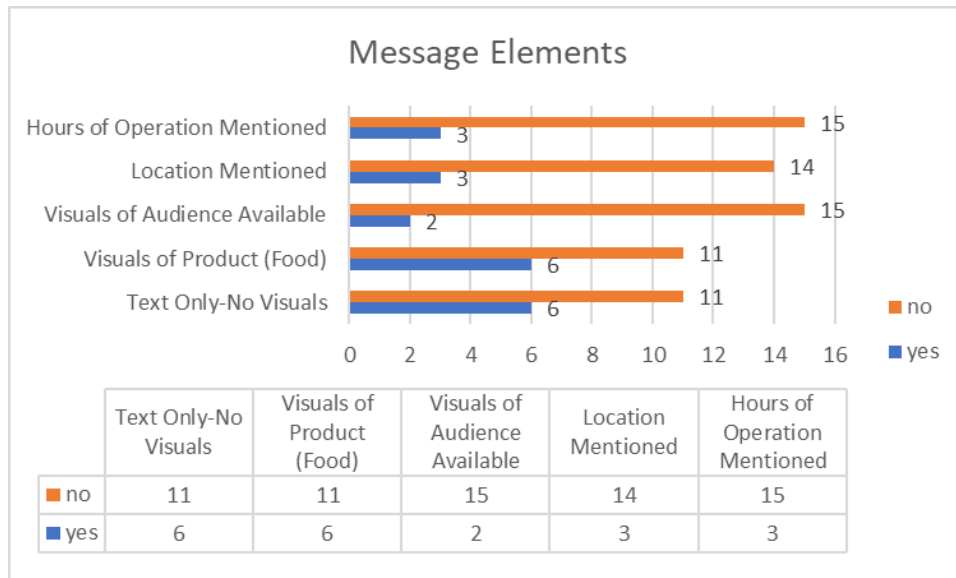
Branding Trends Across Messages. The next step in my assessment of messaging content consisted of determining the extent to which brand identity elements (i.e., logos, message tone) were used consistently. Specifically, I looked for logos and hashtags within the communication. I also assessed the tone of the message categorizing them as messages of awareness, volunteer, donate, operational, or messages directed to the students.

To begin this step, I focused on reviewing and coding the logos present across the CCFP's outgoing communication. I was particularly interested in assessing whether the UofL logo, the CCU logo and the CCFP logo were present within the messages analyzed. The UofL logo is required according to UofL brand identity guidelines. The CCU sponsors the CCFP and, of course, the CCFP logo should be included because it is the name of the service provider. The results of Chart 2 show the logos used for on-line CCFP communication. The

UofL logo was used three out of 18 times, which is equal to 16% of the time. The Commonwealth Credit Union logo was used six times in 18 posts or 33% of the time. The various CCFP logos were used six times in 18 communications—33%. Other logos, such as the SGA (Student Government Association) and the Sustainability Council logos, were coded as "other" and were noted in eight out of the eighteen messages or in 44% of the outgoing messages. Looking at the results of logo codes, I noticed that "other" logos were used more frequently than the UofL, CCFP or CCU logos in outgoing messages, which shows inconsistency across brand mark use (an element of brand identity) across outgoing CCFP messages.

Chart 2

Use of Logos in CCFP Communication

Visuals-Logo Chart

	UofL	CCU	CCFP	other logo
no	15	12	12	10
yes	3	6	6	8
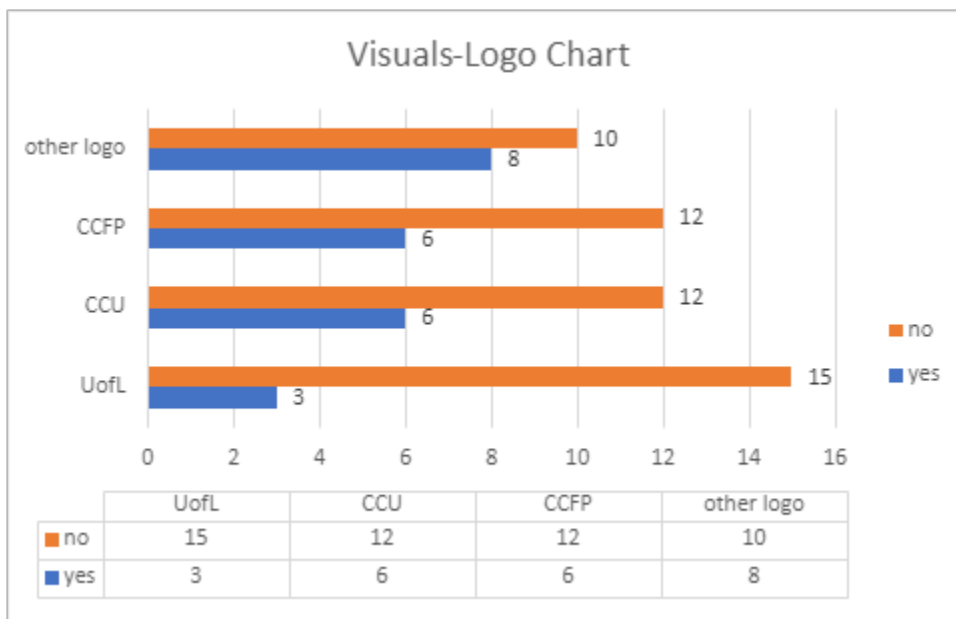
I also assessed each digital message for the use of a hashtag. In the digital space, hashtags can help categorize messages and facilitate users' ability to locate messages during a search. Additionally, hashtags can allow followers to automatically see/receive messages about topics, brands, and services they are interested in. As such, use of hashtags in digital media is noted as a best practice (Brook, 2022). I coded for the presence or absence of a hashtag. Chart 3 shows that hashtags occurred 72% of the time in outgoing communications. Notable hashtags included #uoflccuccfp and #cardinalcupboard for finding CCFP information. The two most widely used hashtags were #foodpantry and #cardinalcupboard.

Chart 3

Use Of Hashtags from the Branding Section of the Communication Audit Tool
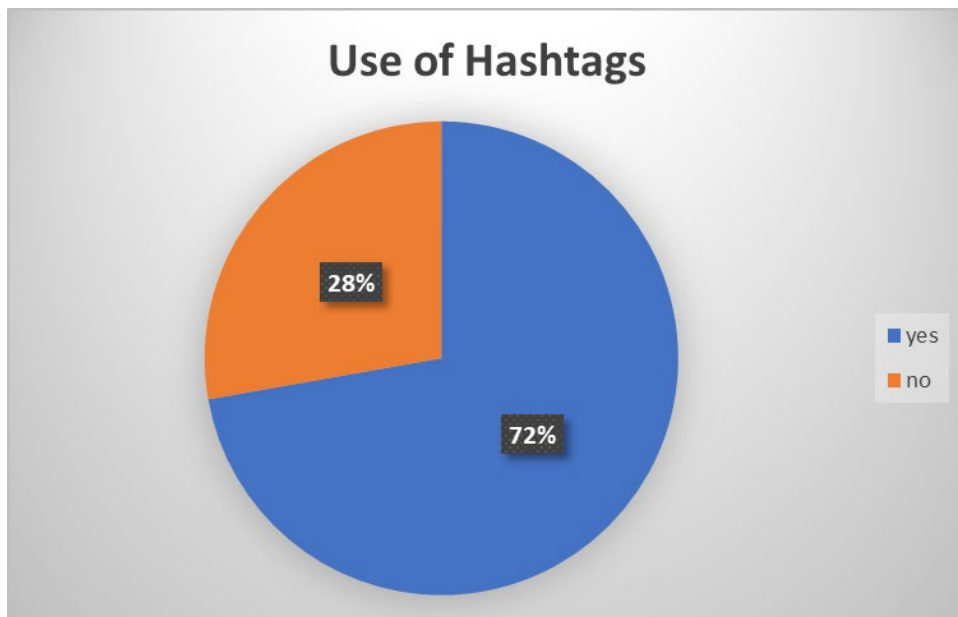
Finally, to assess the tone and relevance of the message to the function and identity of the brand, I focused on social media (I kept the in-person physical data and the digital online data separate). On Twitter, I reviewed six postings total. The first was a @uoflccuccfp mention from the UofL Cardinal Card on September 3, 2021, reporting the day as national food bank day (refer to Appendix B, photo 7). The post asked whether the reader was aware of the CCFP and stated it is a food bank for UofL students, faculty, and staff. The next post I reviewed was from the Office of Student Involvement on April 24, 2023, suggesting students donate extra flex points to the Cardinal Cupboard. (Refer to Appendix B, photo 8). The idea was for students with extra flex points to buy products at the POD (Provisions on Demand) locations and donate them to the food pantry.

The first post under @cardinalcupboard was from the Sustainability Council advertising an Ecolympics Party and Cardinal Cupboard Grand Opening (refer to Appendix B, photo 9). The SGA (Student Government Association) and ELSB (Engaged Learning Service Board) were the organizations mentioned on the visual in the post. This post was primarily text advertising two separate events-an Ecolympic Party and the Grand Opening of the CCFP. At the bottom of the post was a photo of the grand opening poster. It contained the heart logo made of food, invited students to come by the newly opened CCFP, and listed the hours and location. The second post I reviewed was from the ELSB. It let students know how to access the food pantry during the summer semester (refer to Appendix B, photo 10). A third post was from February 13, 2020, from UofL Student Events (refer to Appendix B, photo 11). It advertised a themed game

night, Oh Baby, for donations of baby related supplies for the CCFP. The last post reviewed was from MAGS (Multi-cultural Association for Graduate Students) to support graduate student appreciation week and donate in the food drive for the CCFP (refer to Appendix B, photo 12).

Below I have given bullet points for the date and the main point of the Instagram posts I reviewed: These posts were made between January and April 2023. Please refer to Appendix B for photos 13-21.

- January 30, 2023--Men's Basketball Ticket Giveaway

- February 16, 2023--Call for Recipes for Turnips

- February 24, 2023--Thank You for Assembling the Grab & Go Bags

- February 27, 2023--Thank you to Raise Red for Raising Donations

- March 10, 2023--Closed for Spring Break Announcement

- April 10, 2023--Food Waste Prevention Week

- April 11, 2023--Food Waste Prevention Week

- Apr 13 Food Drive at UofL Baseball Game

- Apr 23 Donate Flex Points to Cardinal Cupboard

YouTube was the last platform evaluated for tone of the CCFP communications. I found three listings related to the CCFP on YouTube. The first was posted December 2020 and was an instructional video on shopping at the CCFP. This video showed visuals of the product, and visuals of a prospective audience, conveying a tone of awareness and student focused messaging content. The video specified the hours of operation and the location of the CCFP.

The remaining two videos posted in April 2021 were two versions, one 3-minute
and the other 5 minutes in length, of a news station spotlight highlighting the
announced a grant of $100,000 to cover the cost of the renovations of the current
CCFP location. The informative news show clips were aimed at the general
public and because the CCFP was not available at the time of the news report,
the time and location were not mentioned.

Table 4

On-Line Communication Posts Pertaining to CCFP, Date, and Tone

Platform	Date	Tone of Message
Twitter--@uoflccuccfp	9/3/2021	Awareness
Twitter--@uoflccuccfp	4/24/2023	Donate
Twitter -- @cardinalcupboard	1/30/2019	Operational
Twitter -- @cardinalcupboard	6/7/2019	Operational
Twitter -- @cardinalcupboard	2/13/2020	Donate
Twitter -- @cardinalcupboard	11/4/2020	Donate
Instagram ELSB post 1	4/1/2023	Donate
Instagram ELSB post 2	4/13/2023	Donate
Instagram ELSB post 3	4/11/2023	Awareness
Instagram ELSB post 4	4/10/2023	Awareness
Instagram ELSB post 5	3/10/2023	Operational
Instagram ELSB post 6	2/27/2023	Donate
Instagram ELSB post 7	2/24/2023	Donate
Instagram ELSB post 8	2/16/2023	Student message
Instagram ELSB post 9	1/30/2023	Student message
You Tube 3-minute news story	4/21/2021	Operational
You Tube 5-minute news story	4/21/2021	Operational
You Tube CCFP Commercial	12/7/2020	Student message

After evaluation of the information collected, I noted twice as many messages that called on others to help support the services of the CCFP than messages designed to increase awareness of the CCFP services for students. Overall, there was little consistency across content in the use of visuals and the tone of verbal messages. The only element that seemed to be consistent across messages was the use of hashtags on social media. In addition, it is interesting to note that the messages on social media were themselves limited in number. Social media are places where consistent activity can help disseminate information more effectively than sparce drips of information found haphazardly. It is free and it can effectively reach students (Austen, 2023), thus social media appears to be highly underutilized as a method for communicating with students experiencing FI.

DISCUSSION

Food insecurity on college campuses has been a topic of discussion for the last fifteen years, but there is still more research to be conducted. Food insecurity affects students on the foundational level of Maslow's Hierarchy of Needs, and students will struggle to reach self-actualization. There are various predictors to identify food insecure students. Universities have had success in establishing food pantries for food insecure students but there are also underlying barriers to food pantry use, one of which is simple awareness of the existence of a food pantry on campus for students to use. The University of Louisville (UofL) has made steps to relieve food insecurity on campus by establishing the CCFP. This study set out to evaluate the existing data collected on the users of the CCFP (Cardinal Cupboard Food Pantry) and to evaluate outgoing communication to the UofL student body. This study is unique in that it documents variables associated with those students who are using the CCFP, whereas other studies on FI have mostly looked at correlates and predictors of FI status (Miles et al., 2017; Patton-Lopez et al., 2014; Robbins et al., 2022). In evaluating the collected data, I hypothesized that there would be significant differences in CCFP users and non-users using variables guided by the Socio Ecological Model (SEM). My findings supported all of my hypotheses except for

first generation status in students being a predictor of food pantry use. In reference to outgoing communication, I found mixed support for topics queried by my research questions, and I am able to make promotional communication recommendations based on these findings. Below I discuss my findings in further detail and compare them to what is already known about FI on college campuses.

Phase 1 Discussion

My first hypothesis addressed gender as a factor that should show significant differences between the non-users and users of the CCFP. My study supports Miles et. al. (2017) in their previous study of social work students and their levels of food insecurity. That is, Miles and colleagues also found those who identify as female were more likely to use the campus food pantries. Additionally, Bruening et. al. (2017) collected research showing that females would be the gender most likely to feel food insecurity and utilize food pantries. Despite changes in food needs due to the COVID-19 pandemic, my study still found that female students tended to use the CCFP more than male students. It is positive to note that the CCFP is serving a group of students most likely to be experiencing FI, per past research.

Concerning the age variable in H2, Bruening et. al.'s (2017) systematic review suggested that the studies on FI so far are showing that younger students are more likely to report FI. For the UofL CCFP users at UofL, we supported this finding by showing that the age group of 19-22 were the ones using the food pantry the most out of all age groups. In fact, 58% of 19–22-year-olds in the data

set had visited the CCFP at least once, although the age group least likely to visit the CCFP was the 18 and under group. This finding makes sense, because younger students may be high school students working on college credit, who might therefore return home for mealtimes or may be still considered minors and their parents may still be responsible for them. In general, the CCFP usage data trended downward after age 19 (Table 2). Overall, the CCFP was being utilized by all the age groups, but as predicted, the 19–22-year-olds were using the food pantry the most. This is an interesting finding and suggests that awareness and promotional efforts may need to be directed toward incoming Freshmen students so that they can be aware of where, when, and how to obtain support for food needs during their first few years at UofL.

There is much research supporting race as a FI indicator. My study was also able to support the hypothesis that there would be a significant difference in race among the non-users and users of the CCFP. My findings place those who identified as two or more races and as Black/African American as many of users of the CCFP with 65% of each group noted to have visited the CCFP during the 2021-2022 academic year. These groups were followed by students who identify as Hispanic/Latino (56%) being users of the CCFP. The White students were least likely to use the CCFP, which aligns with previous research that also found that those of color are more likely to experience food insecurity (Bruening et al., 2017; Hiller et al., 2021; Miles et al., 2017). Hiller's work found that predictors linked to FI in undergraduates include those identifying as non-White (Hiller et al., 2021). As well, Miles et al.'s (2017) study looking at students in the School of

Social Work reported that the students of color were more likely to experience FI. Chaparro's (2009) study was conducted in Hawaii and concluded that those students who were Hawaiian and Pacific Islanders were the race most likely to be food insecure. Recent studies have found the same pattern of FI (Broton & Goldrick-Rab, 2016; Fausto, 2022). Fausto explains that Black, Indigenous, and People of Color (BIPOC) students face disproportionately higher FI rates than other races (Fausto, 2022).

H4 looked for a significant difference in academic year of the sample of non-users and users of the CCFP. My study concluded that the Freshman, or first-year class, was more likely to have used the CCFP (60%) than other academic years. This finding differs from findings reported in the extant literature. Robbins et. al. (2022) shows that food insecurity is found in Seniors, Juniors, and Sophomores, respectively. It should be noted, however, that Freshmen were excluded from their study. In my study, Freshmen users were followed by Junior users. Sophomores and Senior users followed. It is unclear why my results differed from that of Robbins, et al. (2022), however, a few explanations are possible. One viable possibility is the difference between UofL's student body and other universities. The University of Louisville has an established relationship with local community colleges and other universities called Kentuckiana Metroversity, which allows for students to take courses at other local institutions (i.e., often the first two years of higher education) at lower tuition rates and then seamlessly transfer into other area universities. As such, some Juniors may actually be experiencing their first year at UofL as a result of having

completed initial college courses at another institution. Another possible explanation for this difference could lie in the CCFP having a good reputation. Perhaps once Freshman find the CCFP, they continue to use it throughout their college career. Another thing to consider is the experience of FI students arriving at the university and how equipped they might be with the skills needed to find the supplemental food resources available on campus. Finally, my nonuser comparison group had significantly more Freshmen and significantly fewer Seniors than the general UofL student body, which may have affected the outcome of my analysis.

H5 looked at first generation status among the non-users and users of the CCFP. My hypothesis was not supported for H5: there was not enough evidence to support a difference in users between those who were first generation students and those who were not. My finding does not fall in line with the findings of Miles and colleagues (2017) study on social work students in a northwestern public university, where first-generation status was found to be a correlate of FI. The difference across studies is perplexing. A consideration could be that first generation Kentucky students have scholarships and grants to help with the financial burden of attending college. Another possible consideration for this lack of support for the hypothesis could stem from the university's well-planned initiatives for first-generation status students. The university has created support programs for the vast number of first-generation students. READY Mentoring and the 1st Up Program help first-generation students transition into college life and learn success strategies from trained faculty and staff (UofL, 2023f).

H6 looks at the interpersonal factor of marital status of the non-users and users of the CCFP. The study concluded that there is a significant difference in those unmarried students using the CCFP as compared to married students. This finding could be biased, however, as the study sample had 1,154 students declared not married, 174 students reported an unknown marital status, and only 51 reported being married. Chaparro and colleagues (2009) found that the single student population had higher FI prevalence compared to the married students. Because previous findings are scarce on marital relationship to FI, the marital status of students could be further researched to yield comparable results for future studies.

The next two environmental factors are concerned with housing type and housing description. Housing type (hypothesis 7) was categorized by affiliated housing, dormitory living, and none. There was a significant difference found in the type of housing of the user of the CCFP, with more students living in dormitories having visited the CCFP than those living off-campus. Still, almost 60% of those living in affiliated housing had also visited the CCFP. My findings are in contrast to those by Hiller (2021), Robbins (2022), and Chaparro (2009) who all show evidence that students who lived off campus were the most affected by FI. A confounding factor in my study could be the number of first year students enrolled at the university who were included in my study. Robbins' (2022) study does not include the first-year class of the university being studied. Additionally, the difference in outcome variable measured could account for our different findings. My study assessed food pantry usage, which could be affected by

distance from living situation to the pantry location. That is, the fact that my study found that those frequenting the food pantry lived on-campus versus off-campus could be a function of proximity rather than pure food access need. Future research at the University of Louisville could look at consistency between FI status (as was the focus of Robbins and others) and actual food pantry visits (as was the focus of my study) across different living situations to determine whether this relationship is affected by proximity to the food pantry location.

Hypothesis 8 evaluated the housing description or the actual resident hall of CCFP non-users and users. The housing description in this study is unique to UofL as the CCFP collects data on actual university and affiliated housing spaces of the students. Out of the 17 housing units, 14 of them showed that over 50% of the students living there had visited the university's CCFP. The Cramer's V for this hypothesis showed the strongest association of all the hypotheses of the study, suggesting that which dorm a student lives in has a fairly strong effect on whether they have used the CCFP. A trend noted is that proximity to the CCFP seems to hold some relationship to usage of the CCFP. Additionally, proportion of residents who are firs year students may also be intermingled as a factor affecting usage. That is, Belknap Village North (76.1% reported using the CCFP), Miller Traditional Hall (76.7% reported using the CCFP), and Unitas Tower (58.8% reported using the CCFP) are three out of four dormitories used to house the first-year resident experience. Additionally, they are all located very close to the CCFP. Future research should seek to tease apart the specific contributions

of proximity and Freshmen composition with respect to the relationship of dorm residence and CCFP usage.

Previous research supports Pell eligible students being more prone to food insecurity (Bruening et al., 2017; El Zein et al., 2018; Hiller et al., 2021). Hiller, et al. (2021) shows that more of the food-insecure students in their study received need-based financial assistance compared to those who were food secure. Also, El Zein and colleagues, (2018) after adjusting for sociodemographic correlates, found one of the leading factors increasing the likelihood of using a campus food pantry to be Pell eligibility. In my current analyses, data supported H9 in showing that there was a significant difference in those receiving Pell grants among the non-users and users of the CCFP, which fit the other researcher's findings. It is important to note that the nonuser comparison group in my data had significantly fewer Pell eligible students than proportionally found in UofL's student body, which could have contributed to my significant finding.

Phase II Discussion

Phase II of this study posed research questions concerning various aspects of outgoing communications from the CCFP to the UofL student body. Specifically, I looked at whether outgoing communication aligned with the characteristics of past users, as well as how well outgoing communication aligned with best practices for promotional communication. The results of my building assessment showed that only 7.3% (four out of 55) of the accessible places in the on-campus buildings visited contained CCFP related material. This study is a cross-sectional view of communication placement and could show

different outcomes at distinct parts of the semesters involved, if studied again. Nevertheless, a 7.3% utilization rate of on-campus, high student traffic areas for outgoing communication suggests that there is significant opportunity to increase messaging in places that students experiencing FI might visit regularly.

One aspect of utilization of food pantries on campus is awareness of their existence. Many universities have started food pantries in response to food insecurity on college campuses (Hagedorn et al., 2019). Just because the food pantry is available, stocked for use, and properly advertised, however, it does not mean the students will use the food pantry resource. Brito-Silva and researchers (2022) found half of the studied students at Texas Women's University were facing FI, but almost 90% had never visited the on-campus food pantry and almost half of the students were unaware of the food pantry existing. The researchers in the Brio-Silva study looked at the barriers that the student body perceived they were facing in access to an existing food resource. The students' reasons included transportation problems, limited hours of operation of the pantry, time considerations, and social stigma. My study results showed that 60% of the students using the CCFP were already on campus, which leaves 40% of the student body to rely on a form of transportation to access the CCFP. Finding transportation to campus would also have to be time managed with class times and the hours of operation of the pantry. The CCFP has a Grab'n'Go locker system where students can receive a locker combination by email and access the food lockers within the hours of the SAC (Student Activities Center), thus being able to receive some food assistance outside the normal CCFP operating

hours. Still, students need to know that these services exist. The minimal number of posts to social media and messaging placed in physical campus locations suggests that the CCFP could increase efforts to get the word out to students in need. Although posters may cost money to print, social media posts are relatively free. A student internship position could be established (e.g., communication, marketing, visual arts internship) and carry out duties that would likely be able to increase posting frequency and consistency.

Furthermore, El Zein and colleagues (2018) reported that despite 70% of the student body at the University of Florida being aware of their on-campus food pantry, almost a third of those studied reported FI. El Zein and others (2018) looked at the barrier's students reported to using the food pantry and found that inconvenient hours, insufficient information linked to the pantry, self-identity issues, and social stigma were the top four reasons reported. Again, in comparison to the data in our study, the CCFP has a Grab'n'Go system to alleviate time constrictions (and some potential social stigma concerns, as students can access them at low-traffic times of day or when they are by themselves rather than with friends), but the system only serves students if they are aware of the resource. Self-identity issues and additional social stigma concerns are two possible barriers to using the CCFP resources for UofL students facing FI. To further investigate this notion, a more qualitative study on the CCFP could be conducted.

In the second phase of my study, I was also interested in determining the extent to which CCFP used consistent branding and messaging elements in its in

outgoing communications to the UofL student body. I found that outgoing messages across platforms were inconsistent in terms of visuals of the sponsoring brand(s), food products available, intended audience, and reference to the CCFP location and hours of operation. The inconsistency could be due to the various groups and organizations posting outgoing communications that relate to the CCFP, such as the Commonwealth Credit Union and the Engage, Lead, Serve board. The CCFP is not the only organization that is sending out social media communication about the CCFP to the UofL student body. Furthermore, my study showed that logo use was sporadic with most of the logos being used belonging to organizations other than the CCFP in outgoing communications. The use of expected logos (UofL, CCU, CCFP) was inconsistent, particularly in messages sent out from other organizations. El Zein and colleagues (2018) pointed to inconsistent information being a barrier to use of the food resource by FI students. Given my findings and El Zein et. al.'s information on barriers to food pantry use, more consistent messaging could help CCFP ensure that students at UofL experiencing FI find and are able to access the CCFP. Additionally, my analysis of outgoing messages noted that the content tended to focus on calls to volunteer time and donate product to the CCFP. Most message content pointed toward the pantry being a place that needed volunteers and donations. Although these types of messages are useful for an organization that relies on donations to function, as they do alert the students and staff to the support efforts the CCFP needs to run a regular schedule and supply students with food resources, there was little messaging that suggested the CCFP was for

the person reading the message to utilize. Specifically, I noted that the on-going communication about the CCFP, particularly on social media, is infrequently geared toward letting students know they are the intended users of the CCFP.

One highlight from my study was in the use of hashtags. I found that CCFP had success in the use of hashtags consistently across social media platforms to make finding information about the CCFP quick and easy. Unfortunately, the CCFP may be posting to some platforms (e.g., Facebook) that most students do not use. Furthermore, the low frequency of posting to social media may hinder connection with students. Additional research is needed to better understand how to use social media to reach and connect with students more effectively.

Limitations of the Study

The quantitative data collected for this study was from the 2021-2022 academic year. The CCFP is now three years old, but they have only been collecting data for two years and will have the most current academic year (2022-2023) data by the end of 2023. This study shows a cross-sectional view of UofL students, those who use the CCFP and a random sample of those who do not. It does not ask about food insecurity itself. Additionally, I collected some of the outgoing communication data at the end of the school year, so some physical building locations could have had communication about the CCFP earlier in the semester, but not at the time I reviewed them. As such, if this study were repeated at a different point in time, it may yield different results. With only two years of collected data and one more year of data soon to be calculated, it is not

easy to establish patterns and trends that studies on other college campuses might be able to show. The communication audit tool was specially developed for this study and might be different from evaluations that other schools or organizations would choose. Future research could seek to validate the tool across other college campuses.

Recommendations and Implication for Practice

After collecting information relating to the CCFP, there are some recommendations I suggest based on the results of this study. Current data should be continuously gathered. The data are useful for evaluating predictors of the type of students using the pantry. The longer the data are collected, the better the ability to see patterns and trends over time. Once patterns and trends are analyzed, the CCFP can act accordingly to improve outreach to those in need of the CCFP's services. The current data collection uses the traditional demographics of gender as female and male. Future data collection could include those who wish to identify with the LGBTQ+ community. With this addition, researchers could use these data to better study FI among the transgender population.

The demographic questionnaire initially used by UofL students to sign in and shop for free could be re-evaluated for more data collection, particularly more nuanced demographic categories. For better cultural sensitivity, knowing more detailed demographic information about users could lead to better food selection by the CCFP for those who have diets other than traditional American diets. Knowing the marital status and number of children are useful data and can

help make sure the selection of food choices is a good fit for those who might be more likely to be FI.

Adding the visuals of the audience or a mention of the word "students" to outgoing messages about the CCFP could lead to an increase in awareness of the CCFP. Seeing pictures of those who resemble themselves in the communication for the CCFP could help some students to feel more included. Showing diverse and inclusive populations enjoying the services of the CCFP could relieve some of the stigmas some students might experience when considering visiting a food pantry for assistance.

Additionally, the CCFP could look at information concerning the housing of the students, and gear outgoing communications to areas of high use. For instance, knowing that Unitas is filled with approximately 300 first year students and is a 3-minute walk to the SAC (home of the CCFP) a whole communication campaign could be developed for those students to create awareness at the beginning of their college careers. Living spaces like the University Tower Apartments and others that are equipped with their own kitchens that might be more distal in location to the CCFP, could be targets for communication focused on CCFP-related topics, such as cooking classes and recipe contests incorporating foods available at the CCFP. On-campus living spaces like Denny Crum that have living-learning communities, could be home to cooking demonstrations held by the CCFP to help students become aware of the on-campus food resource.

In terms of consistent messaging, the CCFP could ask the various organizations sending information about the CCFP to include the logo representing the CCFP on their outgoing messages. Moreover, the CCFP logo should always be the largest logo on the communication. A message template could be designed by the members, workers, and/or volunteers of the CCFP to be used for outgoing communications to be consistent and disseminated to groups more likely to promote the CCFP (e.g., the Engage, Lead, Serve board). The message templates themselves could be constructed by the CCFP and then sent to the maintain consistency. To keep outgoing messages in physical placements up to date, a tracking system of the location of these outgoing communications could be easily developed and utilized. The addition of a student internship position for a Social Media coordinator could benefit the CCFP in its plan for consistent and current communication to the student body.

To spread the word about the CCFP, a strategic marketing campaign plan could be created that staggers promotion across the various departments and schools within the university. Miles, et al., (2017) did their study inside the School of Social Work to show that students were experiencing one of the very things they were going to school to learn how to help. Miles and colleagues argued that a certain amount of responsibility exists within departments to recognize students who might be experiencing FI and address those situations (Miles et al., 2017). Including the professors and instructors in professional training sessions and orientations to help them be aware of current issues facing the student body and might allow for them to become champions of the CCFP for students in need.

In addition to strategic campaigns targeted at each department/school of the university, outreach programs could also include helping students to apply to receive Supplemental Nutrition Assistance Program (SNAP) benefits. The CCFP has inquired about training for students to understand eligibility criteria and the process of applying for SNAP benefits. Fausto (2022) reports that mitigating FI on college campuses requires short and long-term solutions. Universities that develop relationships with the city's human services may be better positioned to provide their student body with emergency resources and longer-term care situations.

The Cardinal Cupboard Food Pantry should consider a promotional content over-haul that capitalizes on its value to the student body as a food pantry. It should promote this value as the focal point of their outgoing advertising and marketing communication. The use of logos and wall decor could be re-designed to make the CCFP logo the most prominent logo displayed. The wall décor adjacent to the CCFP could be re-designed to suggest more of a food pantry aesthetic over the current visual (that portrays more of a bank setting).

Conclusion

With respect to predictors of FI from past studies at other colleges and universities, the CCFP appears to be serving those in need. The users of the CCFP reflected what I expected, and I was able to confirm nearly all of my hypotheses. When reviewing the results of this study in comparison with those at other universities, it is important to note that the COVID-19 pandemic could have contributed to some of the statistical differences noted between my hypotheses

and statistical outcomes. In general, though, the establishment of the CCFP appears to have been successful at UofL. It is serving the UofL student body as a food resource and a place of opportunity to develop leadership skills and volunteer. In fact, The CCFP is still in its beginning stages, being only three years old. As the CCFP continues to grow, more data can be collected which can allow the CCFP to look at predictors and indicators of FI in students and design consistent, regular communication initiatives aimed at helping students experiencing FI connect with the support CCFP can provide. As noted by the communication audit, there is ample room for tailored out-going communication to be improved and to grow awareness of the CCFP among students at UofL.

The CCFP also has a strategic plan to guide future programs and decisions. Regular meetings are held and attended by UofL staff and student organizers. Weekly reports are made by the various members of the meeting and a plan of action concludes each meeting. University events are also attended by various organizers and workers in the CCFP to improve CCFP outreach. There is a movement toward the CCFP presenting on the Health Science Campus. The first step is the placement of CCFP Grab'n'Go lockers to serve the students facing FI. The future of CCFP operations and outgoing communication strategies looks positive.

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APPENDICES

Appendix A: Coding

Branding

a. Logos

- UofL (University of Louisville) logo...Exists and properly used (according to UofL brand identity guidelines), Exists and improperly used (according to UofL brand identity guidelines), Does not exist

- Commonwealth Credit Union logo...Exists, Does not exist

- Cardinal Cupboard logo... Exists, Does not exist

- UofL Organization logo...One exists, Two exist, More two exist, Does not exist

b. Use of Hashtag...Exists, Does not exist

c. Brand tone...Inclusive (reference to UofL student, faculty & staff), Non-specific or Positive (helpful, understanding of circumstances, approachable), Neutral (donate, volunteer), Negative (shameful, pitiful, stigmatizing)

Content

a. Visual Elements:

    1. Visuals...Visual present, Not present (only text)

    2. Visual of product available (food items)...Present, Not present

    3. Visual of audience….Present, Not present

b. Textual/verbal elements:

    1. Audience...Mentioned, Not mentioned

    2. Main message…Awareness, Volunteer, Donate, Operational, Student

message

    3. Location mentioned…Yes, No

    4. Hours of operation mentioned…Yes, No

Appendix B

Photo 1. Schneider Hall CCFP Communication.

Photo 2. West column at SAC.

Photo 3. Hallway visibility and entrance to the CCFP located W312 SAC.

Photo 4. Continuation of CCFP entrance hallway.

Photo 5. CCFP Grab'n'Go Lockers located next to the entrance door on the 3rd floor of the SAC.

Photo 6. CCFP sign hanging from ceiling in the entrance hallway.

Photo 7. Screenshots of Twitter post announcing National Food Bank Day.
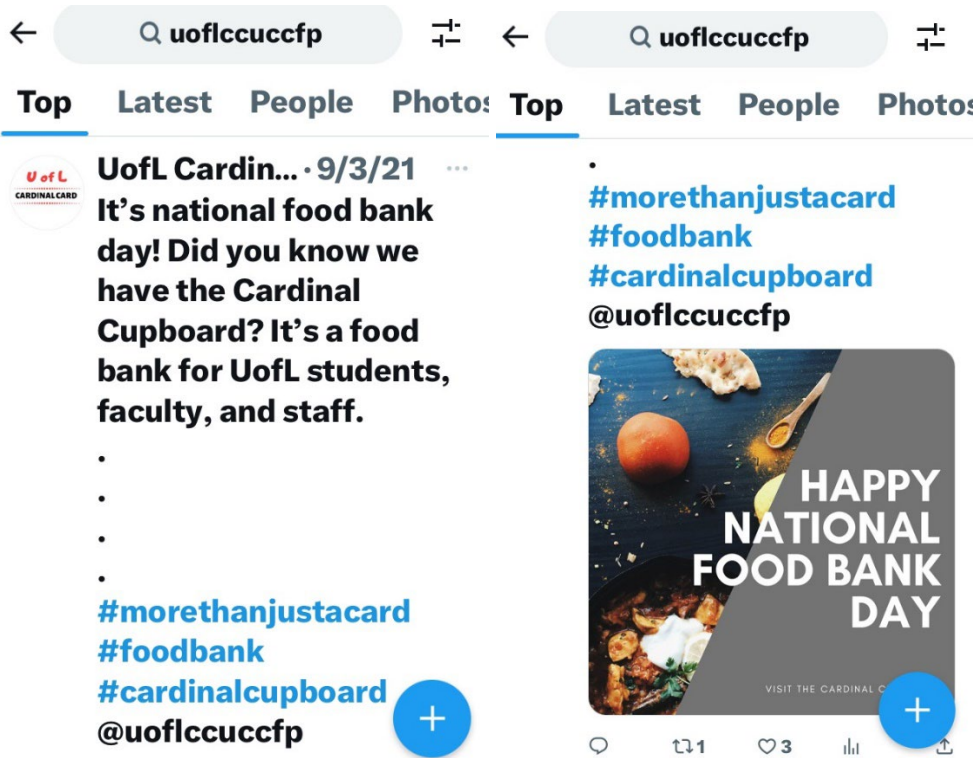
Photo 8. Screenshots of Twitter post announcing a donation opportunity.
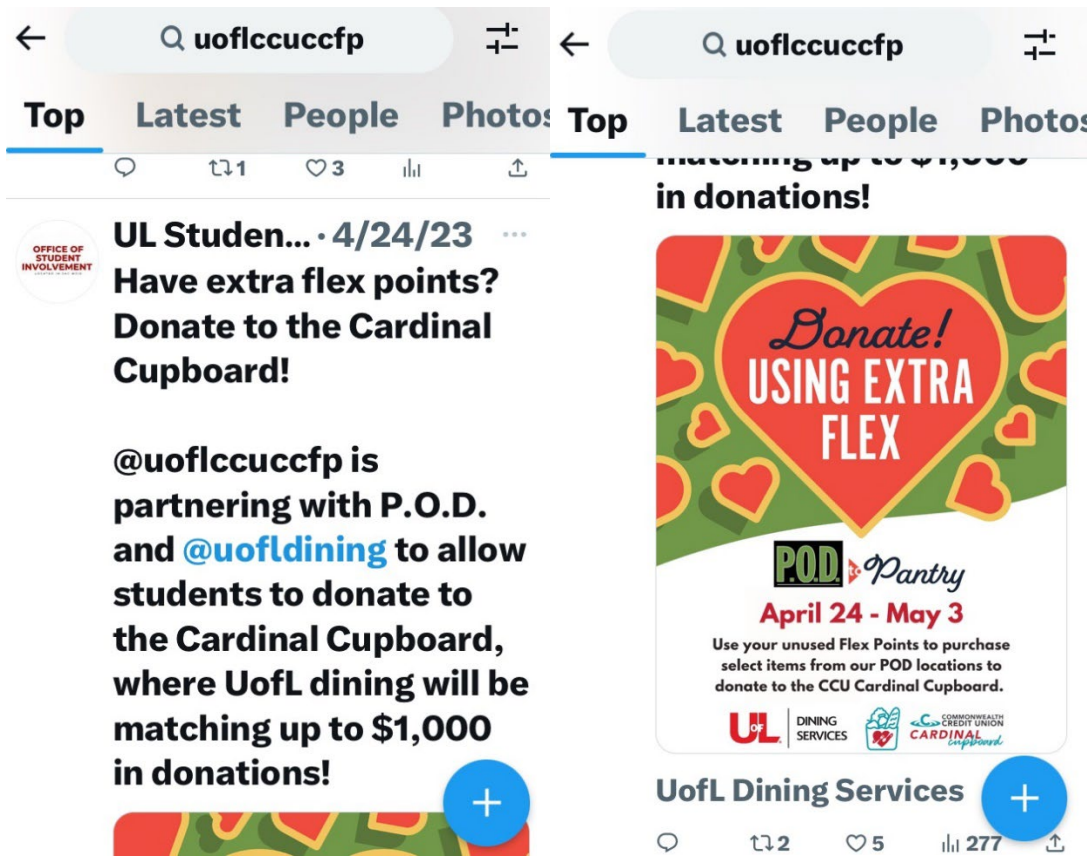
Photo 9. Screenshots of Twitter post from announcing the opening of the CCFP.
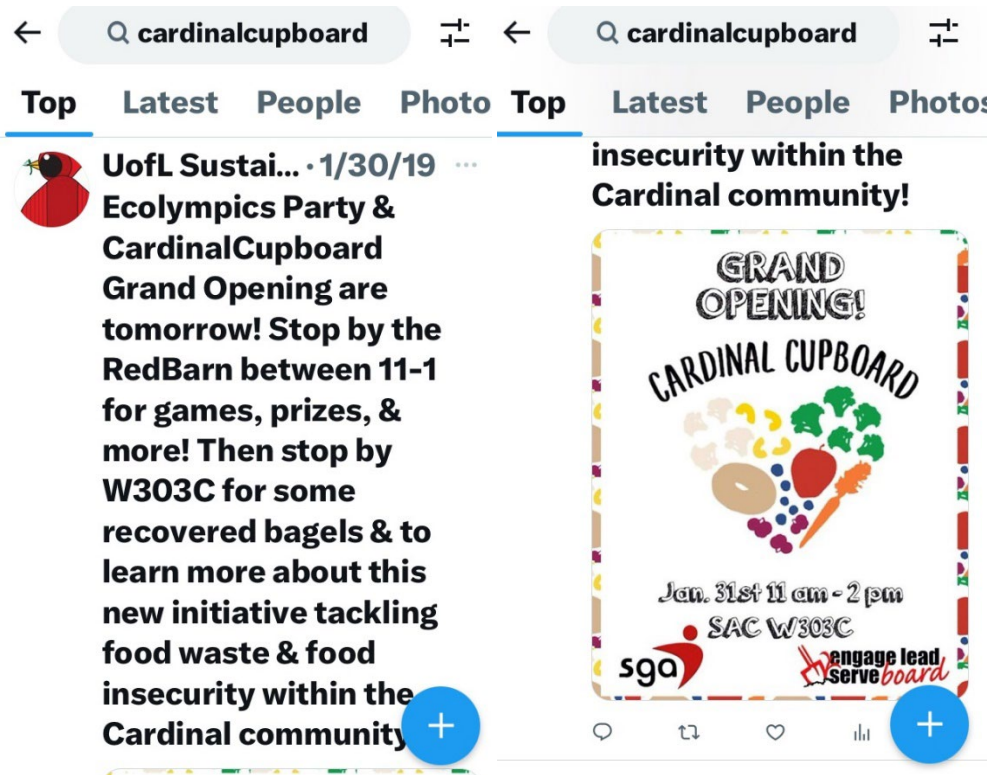
Photo 10. Screenshot of Twitter post announcing CCFP summer hours.

Photo 11. Screenshots of Twitter post announcing a themed donation party.

Photo 12. Screenshots of Twitter post announcing a food drive.

Photo 13. Screenshots of Instagram post announcing basketball ticket giveaway.
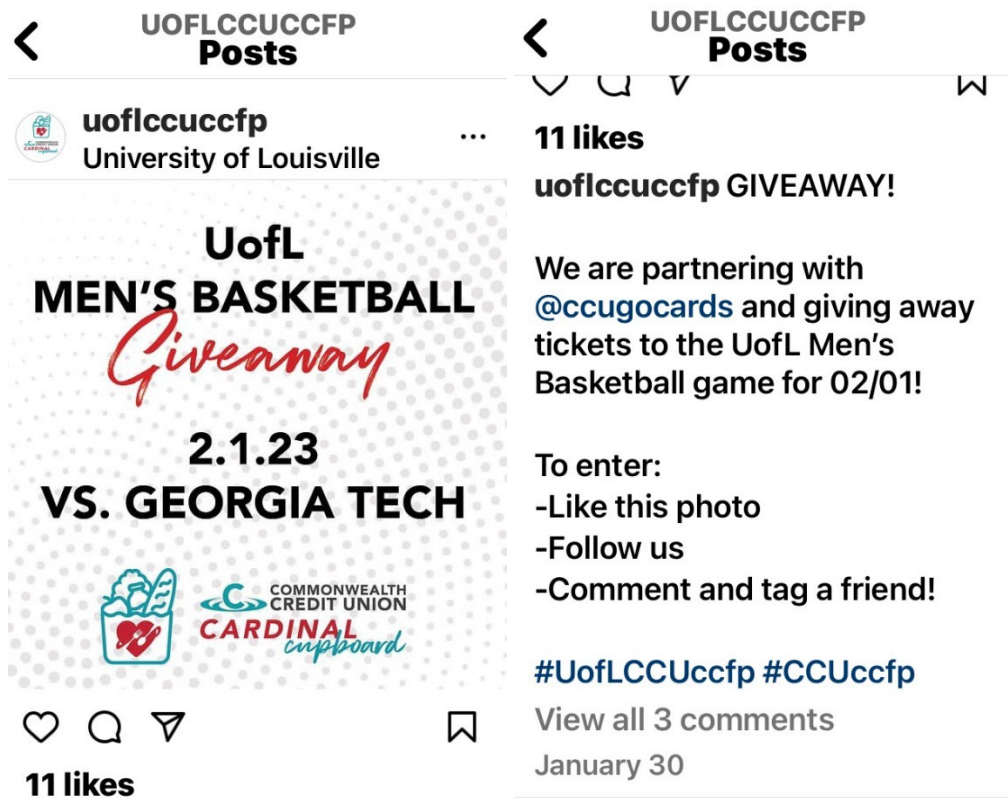
Photo 14. Screenshots of Instagram post announcing recipe contest.
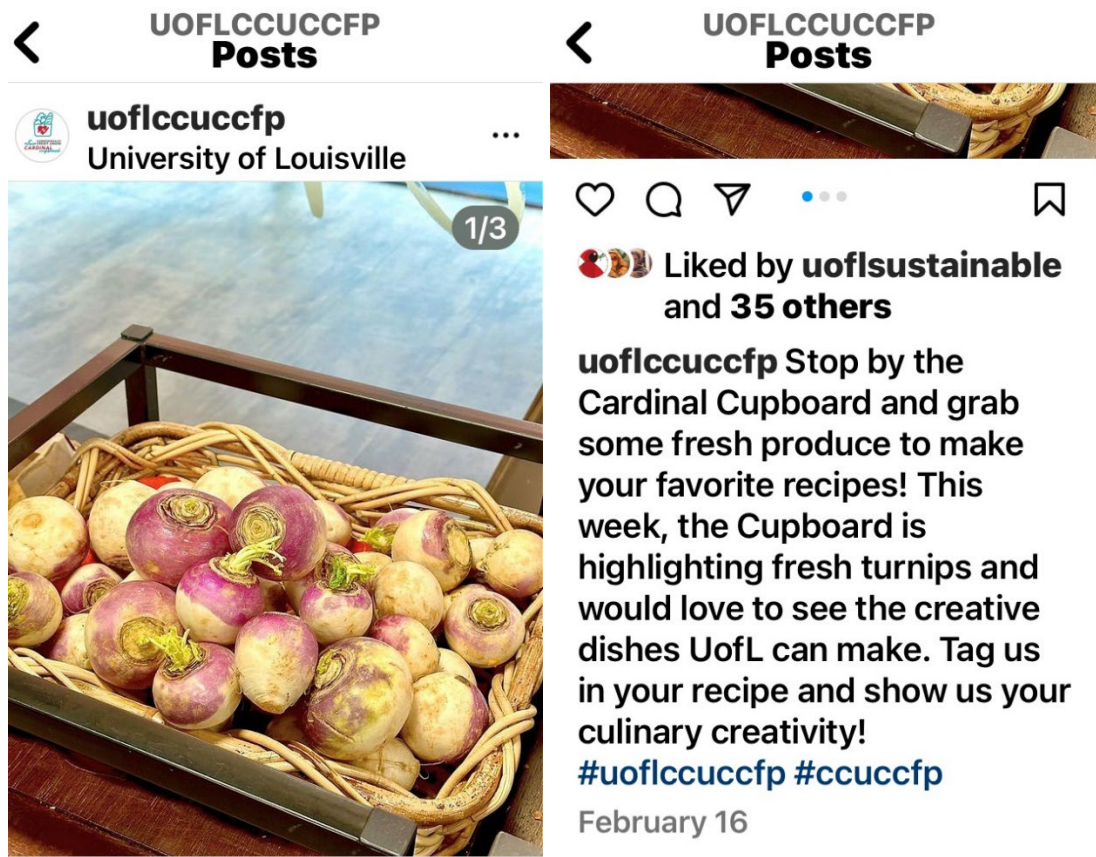
Photo 15. Screenshots of Instagram post saying thank you for packing grab'n'snack bags.

bags.

Photo 16. Screenshots of Instagram post saying thank you for the donation.

Photo 17. Screenshots of Instagram post announcing Spring Break closure.
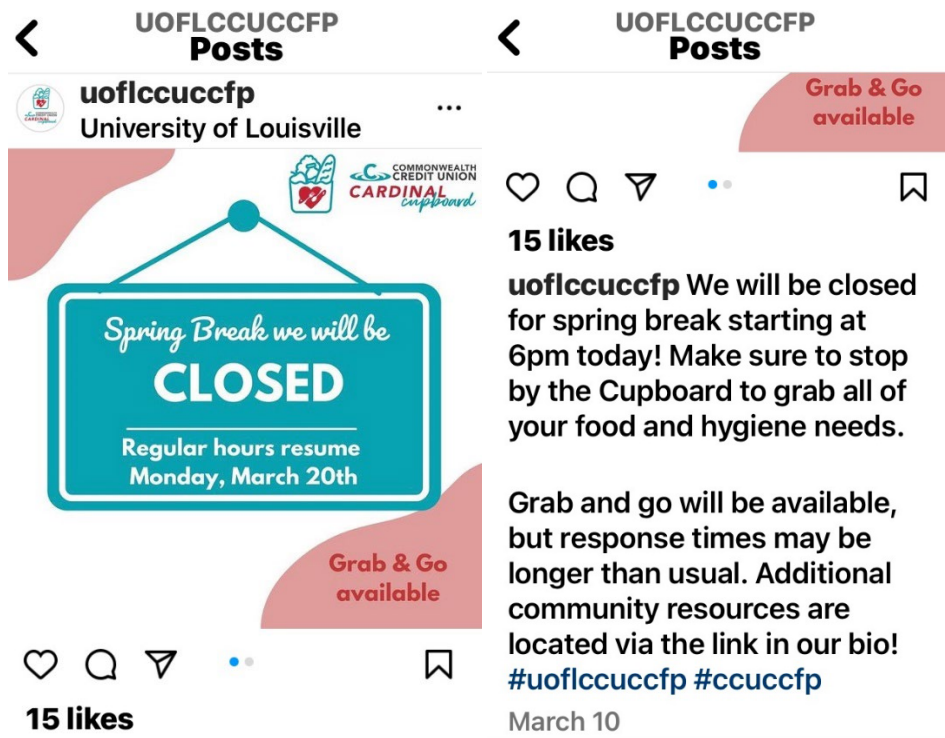
Photo 18. Screenshots of Instagram post announcing Food Prevention Week.

Photo 19. Screenshots of Instagram post announcing partners for Food Prevention Week.
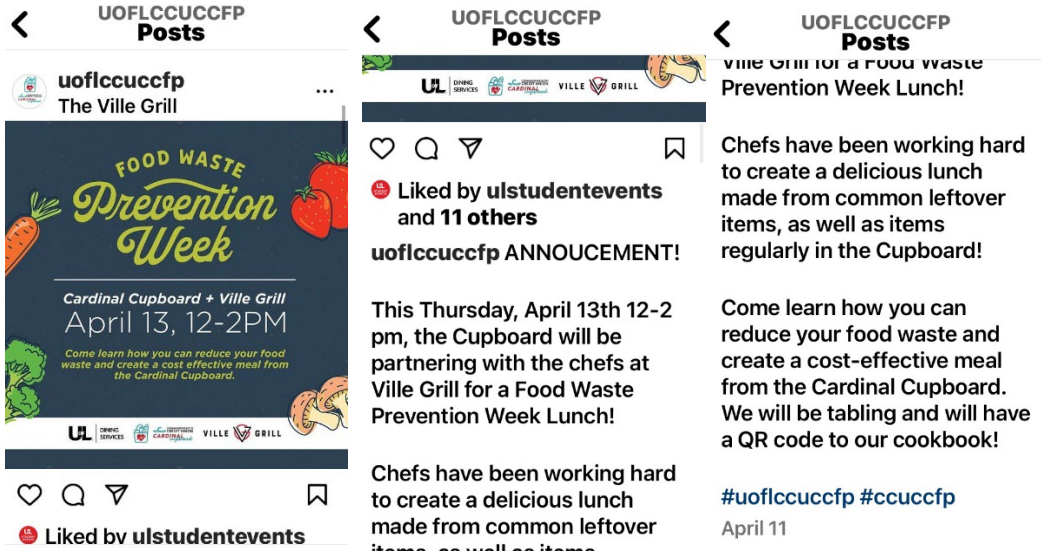
Photo 20. Screenshots of Instagram post announcing food drive at baseball game.

Photo 21. Screenshots of Instagram post announcing flex card food donation.
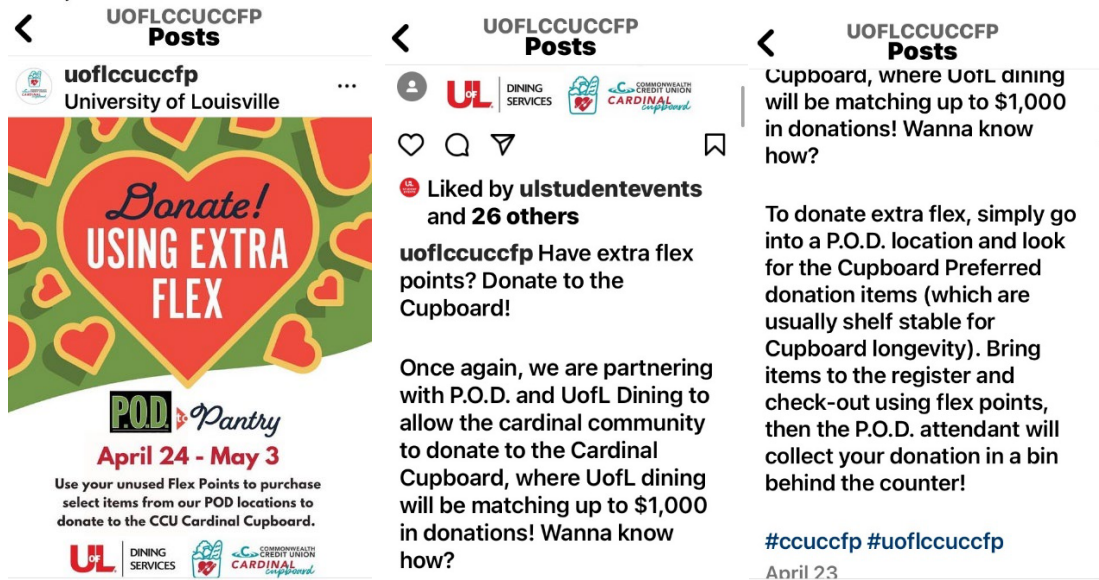
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