



## Factors influencing food insecurity empathy: The role of service-learning

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### Abstract

*Prior studies have suggested that service-learning (S-L) courses may have several student benefits, including higher levels of academic learning, greater course satisfaction, and a deeper understanding of societal issues (Carnicelli & Boluk, 2017; Eyler et al., 1997; Moely & Illustre, 2019). One such societal issue is food insecurity—and increasing students' food insecurity empathy (FIE) may be one way that the field of family and consumer sciences (FCS) can improve community sustainability. Empathy has generally been linked to prosocial behaviors in service-oriented professions (Kou et al., 2020; Silke et al., 2018), and work by Harmon et al. (2017) found that course content may have a positive influence on FIE. Yet no known studies have examined the possible influence of S-L on FIE.*

*This study examines whether S-L courses and the type of S-L project can influence the FIE of students. During Spring 2021, 108 undergraduate students enrolled in FCS courses at a public university in the southern U.S. completed a survey both pre- and post-course. One course featured a direct S-L project, while the others featured a research-based S-L project. The survey included measures of FIE from Harmon et al. (2017) as well as a food insecurity screener.*

*Following Social Cognitive Theory (Bandura, 1977) questions concerning student behaviors, their environment, and cognitive factors were also included.*

*A binary logit model was used to examine the influence of student attributes, course attributes, and demographics on the odds of having food insecurity empathy. The odds of having food insecurity empathy were significantly higher for students who completed a direct S-L project, compared to a research-based S-L project. The odds of having food insecurity empathy were also significantly higher for students who had taken previous S-L courses. These results suggest that FCS courses that incorporate direct S-L projects may have a positive influence on the likelihood of students developing FIE. Taking multiple S-L courses may also benefit students' FIE, providing important implications for curriculum development in higher education and K-12, and for the development of sustainable communities.*

**KEYWORDS:** HOME ECONOMICS EDUCATION; FOOD INSECURITY; EMPATHY; SERVICE-LEARNING; CURRICULUM DEVELOPMENT; HIGHER EDUCATION; GOOD HEALTH AND WELLBEING; ZERO HUNGER

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## Introduction

While service-learning (S-L) is not a relatively new concept, there has been increasing interest in recent years in the various ways with which to integrate service-learning into higher education classrooms. The Family and Consumer Sciences (FCS)/Home Economics field is a particularly important field that can incorporate S-L. According to the American Association of Family and Consumer Sciences (AAFCS), the vision of FCS is for individuals, families, and communities to achieve optimal quality of life assisted by competent, caring professionals (About us, n.d.). According to McGregor (2022), S-L is a powerful tool for socializing the next generation of professionals as citizens in the workplace and community. According to the International Federation for Home Economics (IFHE) website, Home Economics draws its strength from a multi-level approach that includes advocacy for the concerns of individuals, families, and their communities (About home economics, n.d.).

One such way that S-L could impact those that participate in such educational opportunities is to provide a way to develop empathetic type of feelings or even behaviors. Empathy is a positive quality that is a contributing factor to prosocial behavior and is a behavior that is meant to help others (Eisenberg & Strayer, 1990). Developing educational opportunities that not only can impact the community but also could increase the student's empathy level is a win-win for not only those that receive the S-L programming but also for the student. Food insecurity empathy or having empathy towards those that are food insecure is one such sort of empathy that has been recently examined as a way to assess the feelings that individuals have regarding food insecurity (Harmon et al., 2017).

Food insecurity continues to be an issue globally, as well as in the United States. This study combines an S-L educational experience that exposes students to food insecurity and subsequently measures the empathy that students feel towards food insecure individuals in their community.

## Literature Review

### Service-Learning as an Instructional Approach

In recent years, there has been a growing interest in service-learning in higher education. The term service-learning (S-L) can be defined as an educational approach where students learn in the classroom while volunteering with an agency (usually a non-profit or service group). Once the service-learning is completed, students usually reflect to deepen their understanding of what was taught. Some refer to service-learning as philanthropy, civic engagement, or simply volunteerism (Elmhurst, 2019). However, it involves a combination of theories, practice, and reflection as students develop a deeper understanding of the community, agency, and themselves.

There are several types of service-learning activities, but according to Elmhurst (2019), there are three main categories. The first category is called direct service to individuals. This includes those things that work with people such as serving meals and participating in community events. Educational fields often incorporate this type of service-learning into the curriculum. A typical project might be serving in a soup kitchen and assisting in providing for the needs of others (Aslanargun, 2012). The second category is indirect service to people, which may include providing services behind the scenes, such as conducting a research-based project. Organizing events, stocking foods at a food pantry, researching information, or even collecting donations are commonly associated with this type of service-learning. The third category is advocacy, where students actively participate in writing letters or educating others about important topics or causes. Just as there are several categories of service-learning, there are also several benefits to those who participate in service-learning opportunities. Whether it is incorporated

into the curriculum or a personal choice, the positive effects of service-learning can be far-reaching.

### **Benefits of Service-Learning**

Service-learning is important in the educational process because of the many benefits it has for students, educators, and the community. Far too often, students' experiences in higher education consist of absorbing facts and information passively (Meyers, 2009). However, when faculty use teaching strategies that incorporate service-learning, they help students make important connections between active learning in the classroom and real-life experiences. Wilson & Schwier (2009) state that the application of community-based approaches provides many real-life experiences for students as they prepare for their future careers. According to the Wisconsin Department of Public Instruction (n.d.), the strongest service-learning experiences occur when the service is meaningful to what is being learned and is a natural extension of the curriculum into the community. Students gain a deeper understanding of content, complex problems populations may face, and the ability to apply what they learn to new situations.

For teachers, service-learning can be incorporated into any discipline, but social sciences, in particular, seem to fit especially well with its design. Service-learning can be a powerful tool in preparing students for life after school and as future professionals. It exposes them to relevant real-life experiences and prepares them to be civic-minded professionals who use their respective fields to improve and advance the well-being of society (Yusop & Correia, 2012). Instructors can help shape and enhance a student's sense of professionalism well before they leave campus (Steffes, 2004). When teachers begin planning service-learning projects, the Wisconsin Department of Public Instruction (n.d.) states that the use of the IPARDC framework can be beneficial. The IPARDC framework is widely used by both educational and non-profit agencies working on service-related projects. It has five components that allow educators to blend instruction with authentic service-learning opportunities. These components include (1) Investigation, (2) Planning, (3) Action, (4) Reflection, and (5) Demonstration/Celebration. As teachers use this framework, it is important to remember that it is cyclical rather than linear in nature. This means revisiting plans as student needs and issues arise. For each component, teachers can carefully blend instruction with service-learning. The Colorado Department of Education (2009) reports that the benefits of service-learning for teachers include engagement of colleagues in collaborative practices, increased relevancy of education for students, and experiencing a renewed enthusiasm for teaching.

Communities can also benefit from service-learning because it not only builds relationships with institutions but provides invaluable services to those who utilize the services provided. The direct assistance and empowerment generated through the involvement of young people, including students can be invaluable. In order for these community partnerships to function well, reciprocity needs to exist between institutions and the community in order for students to experience full educational learning (Petri, 2015). Other benefits to the community include new ideas for organizations, revitalization of areas within the community, as well as helping advance community-focused goals.

### **Trends in Higher Education**

Much has been written on incorporating service-learning into higher education courses. The role of higher education in developing responsible citizens and promoting civic engagement continues to be an important debate in the United States and around the world (Arthur & Bohlin, 2005; Benson & Harkavy, 2000; Bok, 1982; Checkoway, 1997; Fisher, Fabricant, & Simmons, 2004). In fact, Campus Compact (2000) reported that the growth of service-learning in higher education relates to how students achieve both personal and academic goals. It also helps universities promote civic engagements and community outreach.

Colleges and universities have an important role in providing resources to communities through service-learning partnerships. Many serve the community by addressing local educational and health needs through experiential learning opportunities for students (Bringle & Hatcher, 1996). Experiential learning provides students with the opportunity to engage in authentic learning activities outside of the classroom. This is especially important for students in their late adolescence, which is considered an important time for the development of civic engagement (van Goethem et al., 2014). As higher education institutions incorporate service-learning into coursework, Griffith (2012) reported that in the United States, more than 80% of students voluntarily engage in community service. However, in some higher education institutions or countries, participation is mandatory (van Goethem et al., 2014). Regardless of whether service-learning is mandatory or volunteer-based, it can be used as an effective and cost-effective instructional strategy.

Service-learning can offer students, communities, and institutions of higher education with authentic learning opportunities where content learned in the classroom is put into practice. More importantly, service-learning equips institutions with educational practices that can provide meaningful and influential life experiences for their students. Prior research has suggested that students engaging in service-learning (S-L) courses can ultimately develop higher levels of academic learning, greater course satisfaction, and a deeper understanding of societal issues (Carnicelli & Boluk, 2017; Eyler et al., 1997; Moely & Ilustre, 2019).

### **Food Insecurity in the United States**

Food insecurity (FI) continues to be one such societal issue that S-L courses may be able to positively impact. FI is defined by the United States Department of Agriculture (USDA) as having “limited or uncertain access to an adequate and safe food supply” (Coleman-Jensen et al., 2018). According to a 2018 report by the USDA-Economic Research Service (ERS), 11.8% of U.S. households were food insecure (Coleman-Jensen et al., 2018). This prevalence of FI is even higher for U.S. households at or below the federal poverty line, households with children, households headed by a single parent, and single individuals living alone (Coleman-Jensen et al., 2018).

Minority households, and those in principal cities or nonmetropolitan areas, are also at higher risk of FI (Coleman-Jensen et al., 2018). Households in the Southern U.S. report the highest prevalence of FI (13.4%), where states such as Arkansas rank second in the country in terms of FI households (Ziliak & Gunderson, 2018). Given the high prevalence of food insecurity in Arkansas, S-L courses in this part of the country may be particularly well-suited to develop future family and consumer science professionals who are actively engaged with societal health and wellbeing.

### **Food Insecurity Empathy**

Increasing students’ food insecurity empathy (FIE) may be one way that the field of family and consumer sciences can actively improve community sustainability. Empathy is often thought of as a positive quality as it contributes to prosocial behavior (Eisenberg & Strayer, 1990). Empathy in general helps individuals reflect on how their actions might influence others (Ryder & Decker, 2010), and has been linked to prosocial behaviors in service-oriented professions (Kou et al., 2020; Silke et al., 2018). Food insecurity empathy has been measured previously among college students by Harmon et al. (2017) and Schichtl (2020) through the use of the Food Insecurity Empathy (FIE) Survey and can be used to examine changes in student empathy levels.

Prior research by Harmon et al. (2017) found that course content may have a positive influence on FIE levels. Yet to the knowledge of the authors, no research has yet to examine the possible influence of S-L on students’ food insecurity empathy. This study examines whether S-L courses

and the type of S-L project can influence the FIE of college students enrolled in undergraduate family and consumer science courses.

## Methodology

To examine the impact of an S-L family and consumer science course on food insecurity empathy levels, the objectives of this study were to: 1) determine whether the type of S-L project (direct or research-based S-L) impacted the likelihood of having food insecurity empathy, and 2) examine whether student demographics impacted FIE. Given that prior efforts by Harmon et al. (2017) suggest course content may influence FIE, it is hypothesized that the type of S-L project will significantly influence FIE, although it is unclear whether direct or research-based S-L may be more effective. It could be that direct S-L, such as those discussed by Aslanargun (2012), may influence FIE due to the direct service being provided to individuals during the S-L project. It is also hypothesized that upperclassmen, and students who had previously taken S-L courses, may be more likely to exhibit food insecurity empathy.

During the Spring 2021 semester, undergraduate students enrolled in three different FCS courses at a 4-year public university in the Southern U.S. were invited to participate in an online survey administered via Qualtrics survey software. These three courses each represented different FCS topics: personal finance, nutrition, and family and consumer sciences education. However, each course incorporated related S-L projects that were affiliated with the American Heart Association's Healthy for Life (HFL) program. Each S-L project focused on a different aspect of a series of cooking demonstrations being conducted at a food pantry close to campus.

Students in each course also completed the same pre- and post-reflection assignments for their S-L project. Due to the COVID-19 pandemic, students in all three courses participated in their S-L project virtually. Students also all viewed the same virtual tour of the food pantry that was affiliated with the S-L projects, which was pre-recorded by the Food Pantry Director. Each faculty member also outlined what their students' responsibilities would be for the SL component of the project. The final three S-L projects (and their corresponding course) that students completed consisted of:

- a. researching and virtually demonstrating via pre-recorded videos four HFL recipes to local food pantry participants (family and consumer sciences education course),
- b. researching and budgeting the cost of the corresponding ingredients and cooking equipment needed to make the four HFL recipes (personal finance course), and
- c. directly providing the food pantry clients with the corresponding ingredients and cooking equipment needed to prepare each recipe (nutrition course).

Once students had completed the S-L post-reflection assignment, the survey invitation was sent virtually to the student from a researcher who was not the students' instructor, so as to avoid any potential instructor bias, and took an estimated 10-15 minutes to complete. Students were informed that their participation in the survey was voluntary, and whether or not they participated in the survey would in no way impact their academic standing in the course. No cash or course credit participation incentive was offered to students for completing the survey.

Across all three courses, 108 undergraduate students participated in the survey (79% response rate). The survey included measures of food insecurity empathy following Harmon et al. (2017) as well as a series of food insecurity screening questions. Following Social Cognitive Theory (Bandura, 1977), questions concerning student behaviors, their social environment, and a

cognitive measure of food insecurity understanding were also included similar to Schichtl (2020). Lastly, the survey included standard student demographics. The study protocol was approved by the University's Institutional Review Board for research on human subjects, with informed consent obtained from all respondents.

### Statistical Model

A binary logit model was used to estimate the effect of the type of S-L project, whether the student had taken a prior S-L course, and student attributes, on the likelihood of having food insecurity empathy. Student responses to the food insecurity empathy survey statements were coded following Harmon et al. (2017) with 50.9% of respondents exhibiting FIE. A binary logit was determined to be an appropriate fit for the collected survey data, due to the relatively even split of FIE scores. Comparing coefficient estimates between the binary logit, and a similarly specified binary probit, yielded similar parameter estimates and variable significance. Both AIC and BIC statistics were obtained post estimation for each model. Slightly lower AIC and BIC statistics were observed for the ordered logit, indicating a slightly better model fit.

Parameter estimates obtained from the binary logit were next used to calculate odds ratios, in order to examine the odds of having FIE for each model variable, and were estimated in Stata 17.0 (StataCorp, 2021). Proportional odds ratios for each model variable can be viewed in Table 1, with robust standard errors reported in order to control for any possible heteroscedasticity in the error structure.

## Results and Discussion

The proportional odds of the binary logit can be generally interpreted as the number of students exhibiting food insecurity empathy for every student who did not exhibit FIE. As displayed in Table 1, the odds of having food insecurity empathy were 29.67% higher ( $p = 0.073$ ) for students who completed the direct S-L project, compared to students who completed one of the research-based, indirect S-L projects. This finding has interesting implications for S-L curriculum, as it suggests that courses incorporating direct S-L projects into their curriculum may be more associated with higher odds of exhibiting FIE. Those who indicated they had donated to a food pantry in the past year were 2.10 times more likely ( $p = 0.002$ ) to have food insecurity empathy, compared to those who had not donated. Given that the field of family and consumer sciences is often referred to as a service-oriented, "helping" profession—prior involvement with food aid distribution may be a sign of students who are perhaps already more integrated into the profession, and thus may have FIE as a result. However, additional research as to the effect of food aid distribution behaviors on FIE is warranted.

The odds of having food insecurity empathy were also 5.4% higher ( $p = 0.024$ ) for students who had previously taken an S-L course, suggesting a possible modest influence of S-L instruction over time. It is important to note though that a limitation of this study is that the amount of time since the student took a prior S-L course was not collected. Future research efforts should examine the potential impact of prior S-L courses on FIE. These preliminary findings however certainly lend support to the idea that incorporating S-L into an undergraduate FCS curriculum program may positively support certain types of pro-social behaviors, such as food insecurity empathy. Additional research concerning the impact of S-L curriculum on the pro-social behaviors of FCS undergraduate students is needed.

TABLE 1. Binary Logit Model and Odds Ratios, Exhibiting Food Insecurity Empathy (FIE) (N = 108)

Variable	Odds Ratio	robust se	p-value
CompletedDirectS-LProject	1.2967	0.6927	<b>0.073</b>
HasTakenPriorS-LCourse	1.0544	0.4643	<b>0.024</b>
DonatedFoodPantryPastYear	2.0972	0.6928	<b>0.002</b>
FoodInsecure	0.412	0.7839	0.599
SupportiveSocialEnvironment	1.0927	0.5379	<b>0.042</b>
CognitiveMeasureOfFoodInsecurityUnderstanding	0.7779	0.5421	0.151
Female	0.8131	0.8368	0.331
BIPOC	1.5885	0.5713	<b>0.005</b>
Upperclassman	0.1965	0.4124	0.634
Constant	5.4492	1.9151	<b>&lt;0.001</b>
<i>Log pseudolikelihood</i>	-27.54		
<i>Wald chi<sup>2</sup>(9)</i>	27.94		
<i>Prob &gt; chi<sup>2</sup></i>	0.001		

NOTE: Variables in bold are significant at the 10% level or better

Following Social Cognitive Theory (Bandura, 1977), some evidence of the impact of the student having a supportive social environment on FIE was observed. The odds of having food insecurity empathy were 9.27% higher ( $p = 0.042$ ) for those who indicated that their friends or family members would encourage them to use a food pantry if they needed to, compared to students who did not indicate having that type of social environment. In terms of student demographics, the odds of having FIE were 58.85% higher ( $p = 0.005$ ) for racial minority (BIPOC) students, compared to Caucasian students. Given that food insecurity in the U.S. is often experienced at higher rates in minority households (Coleman-Jensen et al., 2018), it could be that some BIPOC students have already developed FIE prior to stepping into the college classroom. It is important to note that the study here does not examine FIE empathy levels pre-post. A limitation of this study is that it is possible that students had an existing baseline level of FIE prior to participating in the S-L project for their respective course. Although the model in Table 1 attempts to control for additional student characteristics beyond the attributes of the S-L course they completed, it is possible that some students had already developed some levels of FIE prior to the course. Future efforts may wish to measure the change in FIE levels pre-post.

Lastly, several factors were found to not have a statistically significant influence on the odds of food insecurity empathy. These factors included one's class standing, identifying as female, being classified as food insecure, and a cognitive measure of food insecurity understanding. As the study reported here focused solely on undergraduate FCS students, future efforts may wish to explore the likelihood of food insecurity empathy being exhibited among both graduate students, and in K-12 settings, where service-learning is incorporated into the existing curriculum.

## Conclusions

This study finds preliminary evidence that FCS courses that incorporate direct S-L projects may have a positive influence on the likelihood of students developing FIE. Taking multiple S-L courses may also benefit students' FIE, providing important implications for curriculum development in higher education and K-12, and for the development of sustainable communities. Although additional research is warranted, these preliminary results are important for several reasons. First, it can be valuable for FCS educators to understand the

implications of the S-L projects in higher education, and their impact on students. Secondly, providing opportunities for students in the college setting to explore situations in which they can exhibit behaviors such as empathy, and particular food insecurity empathy, is also important for their future professional careers. Many students in Family and Consumer Sciences types of courses often later find themselves in careers working with the community, the general public, in educational settings, and perhaps even with those in lower socioeconomic situations, where food insecurity is a persistent problem. Providing a safe opportunity for students to explore societal issues in their community, while in the confines of the college classroom, can translate into students that interact in a community-minded way when they are ultimately placed in their future roles as FCS professionals after graduation.

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