A QUALITATIVE STUDY EXPLORING COLLEGE STUDENT NUTRITION BEHAVIORS WITHIN A SERVICE-LEARNING COURSE

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by

AMANDA W. GOWIN

Dr. Jennifer Fellabaum-Toston, Dissertation Supervisor

Dr. Casandra Harper Morris, Dissertation Supervisor

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The undersigned, appointed by the dean of the Graduate School, have examined the dissertation entitled

A QUALITATIVE STUDY EXPLORING COLLEGE STUDENT NUTRITION BEHAVIORS WITHIN A SERVICE-LEARNING COURSE

presented by Amanda W. Gowin,

a candidate for the degree of doctor of education,

and hereby certify that, in their opinion, it is worthy of acceptance.

Dr. Casandra Harper Morris

Dr. Jennifer Fellabaum-Toston

Dr. Laura Page

Dr. Marjorie Dorimé-Williams

DEDICATION

This dissertation is dedicated to my family.

To Katherine, Sam, Hope, Liv, and Matt; I am thankful for your understanding, patience, and support. I could not have made it through this process without you. Thank you for your love, encouragement, and humor through all of the time commitments and challenges.

To my mom; thank you for making education so important to my life. I am so happy to honor you through this achievement.

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Amanda W. Gowin

Dr. Jennifer Fellabaum-Toston & Dr. Cassandra Harper Morris, Dissertation Supervisors

ABSTRACT

This qualitative case study explored the influence that service-learning involvement has on undergraduate college students' cognitive, environmental, and behavioral factors related to nutrition. As higher education is looking for ways to improve student health behaviors, service-learning is an unexplored area that has tremendous potential. Utilizing the major constructs of the social cognitive theory (Bandura, 1997; Glanz et al., 2015), the research questions guided the investigation of how participants in a previously established nutrition service-learning course described their cognitive, environment, and behavioral influences related to nutrition throughout the course. Participants also described their nutrition self-efficacy after participating in a service-learning nutrition course. Participants described their experiences through a pre-post survey, reflections, and voluntary interviews. Based on these constructs, this service-learning course was found to improve knowledge, awareness, values, and behaviors related to nutrition for all study participants. Findings show positive changes in nutrition-related self-efficacy, especially related to the meaning-making experience of the service-learning. Results from this study suggest that intentional reflection questions related to health behavior factors in health-based service-learning courses may be utilized to influence behavioral outcomes.

Service-learning has been well established as a high-impact educational pedagogy (Astin et al., 2000; Kuh, 2015; Jacoby, 2015). As service-learning courses increase in

higher education, understanding their effectiveness beyond academic outcomes is crucial. Service-learning courses have been demonstrated to influence positive health behaviors in community populations (Gray et al., 2017; Himelein et al., 2010; Jarvis et al., 2004), yet service-learning course outcomes have not been explored for health promotion among the students that are delivering the service. There is limited research available for evidence-based, comprehensive approaches to promoting health and student health behavior change during the college years (ACHA, 2018). An additional method to support improved student health behaviors through self-efficacy development could be through service-learning courses.

Much of the research on non-environmental methods to influence health behaviors in college students is associated with self-efficacy development (Dinger, 1999; Kelly et al., 1991; O'Leary, 1985; Von Ah et al., 2004). Understanding student self-efficacy related to nutrition choices could be an indicator for positive nutrition behavioral changes (Bandura, 2004; Von Ah et al., 2004). The reflective methods already embedded into service-learning platforms can serve as a meaningful way to gather additional data related to the student experience, reflecting on health behaviors. Research has eluded to improved self-efficacy, growth, and self-understanding as a result from service-learning experiences (Astin, 2000; Jacoby, 2015; Kuh, 2015). Understanding students' personal factors such as values, beliefs, and attitudes towards nutrition-related behaviors before, during, and after a service-learning course related to nutrition, can provide an in-depth understanding of the student experience that might lead to behavior change. The purpose of this study is to deepen the understanding of how service-learning courses might impact nutrition-related behaviors among the students providing the service.

Section I: Introduction to the Dissertation-in-Practice

Background

Service-learning has been well established as a high-impact educational pedagogy, blending academic coursework, meaningful community experiences, and critical reflection to improve student learning outcomes (Astin et al., 2000; Kuh, 2015; Mabry, 1998). As service-learning courses have increased, they have been shown to improve student outcomes within social, civic, personal and professional development (Jacoby, 2015; Kuh, 2015), along with their intended course outcomes. Health behavior remains a student outcome left unexplored. Service-learning courses have led to positive health behavior change in community populations (Gray et al., 2017; Himelein et al., 2010; Jarvis et al., 2004), yet service-learning course outcomes have not been explored for health promotion among the students that are delivering the service.

There is limited research available for evidence-based, comprehensive approaches to promoting health and student health behavior change during the college years (ACHA, 2018). An additional method to support improved student health behaviors through self-efficacy development could be through service-learning courses. Service-learning courses improve student outcomes within social, civic, personal and professional development, as well as achieving academic learning objectives (Jacoby, 2015; Kuh, 2015).

Health promotion is a critical aspect of student success and should be prioritized within higher education goals and resource allotments (American College Health Association [ACHA], 2019; National Intramural and Recreational Sports Association [NIRSA], 2018). Health promotion within higher education settings has occurred since the 1800s and has become more comprehensive over the past couple decades (ACHA,

2018; Lederer & Oswalt, 2017); nonetheless, many health outcomes of college students continue to decline (ACHA, 2018; Baldwin, et al., 2017). Multiple avenues need to be explored for improving college-related nutrition behaviors as health promotion could lead to improved student outcomes, including positive change related to life-long health behaviors (CDC, 2017; U.S. Department of Health and Human Services, Office of Disease Prevention and Promotion [HHS ODPHP], 2020).

Lifestyle-related chronic diseases, such as obesity, cardiovascular disease, hypertension, diabetes, and cancer are diminishing the quality and quantity of life years. According to the Centers for Disease Control (2018), 900,000 Americans die prematurely each year from preventable chronic disease. Approximately 45% of the United States population suffers from one or more of these preventable conditions, which causes high health care expenditures and lower productivity (Raghupathi & Raghupathi, 2018). Several personal health behaviors are associated with increased rates of these diseases, with poor quality diet being a significant contributor to the early onset and life expectancy related to these chronic conditions (U.S. Department of Health and Human Service, 2019). The majority of unhealthy eating habits are established in early adulthood (Chan & Woo, 2010; Harris et al., 2006). Advancing health promotion models within higher education is an important public health measure for the overall health of society (Lederer & Oswalt, 2017; NIRSA, 2018).

Many young adults choose to attend higher education institutions. According to the Bureau of Labor Statistics (2019), college enrollment rates for 2018 high school graduates was 69.1%. The transition from high school to college is an opportune time to influence nutrition behaviors since young adults are learning new environments, meeting

new people, and taking on many new responsibilities, including food selection and preparation. Unfortunately, the majority of young college adults have poor diet quality, negative nutrition-related behaviors, and increased overweight and obesity rates (American College Health Association [ACHA], 2018; Driskell et al., 2005; Racette et al., 2005). Health behaviors taken up during college have a direct impact on quality of life and many remain beyond college (CDC, 2017; Kuh, 2015, Von Ah et al., 2004).

Much of the research on non-environmental methods to influence health behaviors in college students is associated with self-efficacy development (Dinger, 1999; Kelly et al., 1991; O'Leary, 1985; Von Ah et al., 2004). One way to improve self-efficacy and improve student health behaviors is through service-learning courses. Service-learning courses have been demonstrated to influence positive health behaviors in community populations (Gray et al., 2017; Himelein et al., 2010; Jarvis et al., 2004), yet service-learning course outcomes have not been explored for health promotion among the students that are delivering the service.

This study will explore student development outcomes as it relates to nutrition behavior change from a service-learning experience. Research has eluded to improved self-efficacy, growth, and self-understanding as a result from service-learning experiences (Astin, 2000; Jacoby, 2015; Kuh, 2015). There is a gap in the literature related to service-learning courses and their relationship to student health behaviors. The purpose of this study is to deepen the understanding of the student experience in service-learning courses especially as it relates to nutrition-related change.

Statement of the Problem

While strong evidence suggests that service-learning plays a role in college students' personal outcomes in regards to self-efficacy, self-understanding, and increased civic-involvement behaviors (Astin, 2000; Kuh, 2015), there is little research regarding its influence on health behaviors. With this study, I hope to contribute data related to service-learning outcomes and provide additional insight on college students' self-efficacy nutrition behaviors. As higher education is looking for ways to improve health behaviors, service-learning is an unexplored area that has tremendous potential. Reflective components embedded within service-learning courses provide rich data related to the student experience and can be framed to explore perceived health behavior efficacy. Additionally, understanding student self-efficacy related to nutrition choices could be an indicator for positive nutrition behavioral changes (Bandura, 2004; Von Ah et al., 2004).

Higher education institutions have academic and personal development goals strategically intertwined into their overall missions. As these institutions strive for innovative approaches to improve student outcomes, intellectual and personal development through high-impact practices will become the norm (Kuh, 2015). Kuh (2015) further describes holistic learning indicating that the mind, body, and spirit are mutually shaping, thus faculty are able to deepen learning through high impact learning strategies, such as service-learning. Although service-learning is typically used to demonstrate acquired knowledge, skills, and utilizing critical thinking to solve in-practice problems (Jacoby, 2015; Kuh 2015), it could be a meaningful platform for health behavior change.

Many colleges are attempting to improve negative health outcomes by increasing the number of health and nutrition courses offered (ACHA, 2018). Improving health-related knowledge among college students is a positive step towards improving health outcomes; however, long-term behavior changes are not happening at the pace needed. There has been some promise with nutrition behavior change among courses designed to improve skills, self-regulation and self-efficacy (Richards et al., 2006) but, traditional knowledge-based nutrition courses have not been shown to significantly change behaviors (Kelly et al., 2013; Poddar et al., 2010). Service-learning courses could be an additional model for influencing positive nutrition behaviors through self-efficacy improvement (Astin et al., 2000; Bandura, 2004; Buckworth, 2017; Jacoby, 2015; O'Leary, 1985; Von Ah et al., 2004). Nutrition service-learning courses have demonstrated improved nutrition behaviors of recipients (Gray et al., 2017; Himelein et al., 2010); although, there were no studies found that investigated how service-learning influences nutrition behaviors of the students providing the service experience.

Purpose of the Study

The purpose of this qualitative case study is to explore the influence that service-learning involvement has on undergraduate college students' self-efficacy for nutrition-related behaviors. The service-learning model is an evidence-based high-impact method to improve academic, personal, and professional outcomes among college students (Campus Compact, 2010; Jacoby, 2015). Criteria for service-learning courses includes a reflective component to connect the academic content to the service component. The reflective methods already embedded into service-learning platforms can serve as a meaningful way to gather additional data related to the student experience, reflecting on

health behaviors. Understanding students' values, beliefs, and attitudes towards health behaviors before, during, and after a service-learning course related to health, can provide an in-depth understanding of the student experience that might lead to behavior change. Additionally, understanding student self-efficacy related to nutrition choices could be an indicator for positive nutrition behavioral changes (Bandura, 2004; Von Ah et al., 2004).

A previously established nutrition-based service-learning course was utilized to explore self-efficacy among students enrolled in the course. Students in this course further described their experiences related to attitudes, values, and beliefs related to their nutrition behaviors through reflections and voluntary interviews. This study will provide a deeper understanding of how service-learning participation influences student nutrition self-efficacy and help to clarify the connections made between reciprocal learning, self-awareness, and behavior change.

Research Questions

This case study provides rich description into the nutrition-related factors described by students throughout the service-learning experience. The following questions, utilizing the major constructs of the social cognitive theory (Bandura, 1997; Glanz et al., 2015), guided the research:

(RQ1) How do undergraduate students participating in a nutrition service-learning course describe their cognitive, environmental, and behavioral influences related to nutrition throughout the course?

(RQ2) How do students describe their nutrition self-efficacy after participating in a service-learning nutrition course?

Conceptual/Theoretical Framework

Through service-learning experiences, students providing the service are viewed as professionals, leaders, and role models (Campus Compact, 2019). The reflective nature of the service-learning experience helps students express their personal and professional growth and further relate to the reciprocal impact of the experience (Astin et al, 2000; Jacoby, 2015). Social cognitive theory can explain the construct of reciprocal determinism taking place within service-learning, demonstrating that students can be both an agent for change and change themselves (Bandura, 1997; Jacoby, 2015).

This reciprocal experience influences efficacy beliefs, which influences change and adaptation (Bandura, 1997). Bandura (2004) describes the social cognitive theory as a "multifaceted causal structure in which self-efficacy beliefs operate together with goals, outcome expectations, and perceived environmental impediments and facilitators in the regulation of human motivation, behavior, and well-being" (p. 1). Social cognitive theory emphasizes the process among the behaviors, personal cognitive factors, and the environment as it influences self-efficacy (Bandura, 2004). The fundamentals of the theory suggest that a person's belief in efficacy is affected by psychosocial influences and that self-efficacy is important in behavior change (Bandura, 1977; Bandura, 2004). Furthermore, self-efficacy measures have been a consistent predictor of health-behavior change success (Bandura, 1997; Strecher et al., 1986)

The majority of health promotion research regarding influencing college student health behaviors uses self-efficacy measures within a social cognitive construct (Buckworth, 2017; O'Leary, 1985; Von Ah et al., 2004). Self-efficacy is a perceived belief in the ability to perform a given task (Bandura, 1993; Buckworth, 2017). High self-

efficacy has been correlated with improved health behaviors, lower rates of unhealthy behaviors, and sustained behavior changes (Bandura, 2004; Martinelli, 2002; Von Ah et al., 2004). Self-efficacy perceptions influence behavior change (Strecher et al., 1986).

Social cognitive theory provides context for understanding behavior change and self-efficacy beliefs affect each phase of personal change (Bandura, 1997). Efficacy beliefs are a strong determining factor for learning and motivation toward behavior change (Bandura, 1997; Clark & Zimmerman, 2014). Efficacy beliefs can be explored to better understand perseverance for behavior change and predict the maintenance of change over time (Bandura, 1997; Clark & Zimmerman, 2014). Reflective assignments within the service-learning experience can be shaped to highlight health behavioral developments and self-efficacy changes. Self-efficacy measures can predict what behavior goals are set and the motivational commitment for sustained change (Bandura, 1997; Bandura, 2004; Clark & Zimmerman, 2014). Thus, exploring self-efficacy, as a component to predict behavior change, can provide a deeper understanding of the experience. Student reflections that express motivation regulation, thought processes, emotional states, and behavior actions, are areas that could reflect self-efficacy (Bandura, 1997). These could also highlight challenges and barriers related to environmental conditions to assist in behavioral management (Bandura, 1997).

Social cognitive models have been utilized within service-learning courses as a means to improve self-efficacy. Self-efficacy improvement measures include mastery experiences, vicarious experiences, verbal persuasion, and states of emotion (Bandura, 1977; Bandura, 2004; Stretcher et al., 1986; van der Bijl & Shortridge-Baggett, 2001). These components are interconnected and each influence motivation and behaviors

(Bandura, 1997; Bandura, 2004). These factors can be explored through a nutrition-themed service-learning course including; knowledge of nutrition needs and benefits, perceived self-efficacy regarding control over the dietary habits, outcome expectations, health goals, and environmental factors (Bandura, 2004). The reflective component of the service-learning model is ideal for exploring influence on behavior change (Jacoby, 2015; Kuh, 2015). The reflective nature of service-learning experiences promotes the self-evaluative and observational learning components for self-efficacy changes. The process of self-evaluation allows individuals to express their values, beliefs, and attitudes and evaluate their experiences and thoughts through reflection (Bandura, 1977). These outcomes can be prompted for student self-efficacy evaluation.

Design of the Study

The primary goal of the study is to explore the students' experience of the service-learning as it relates to the major constructs of the social cognitive theory and self-efficacy for nutrition behaviors. Major constructs of the social cognitive theory include cognitive factors, environmental factors, and behavioral factors (Glanz et al., 2015 p. 160). A constructivist lens would be appropriate as this approach allows for multiple interpretations of experiences as reality is being socially constructed (Merriam & Tisdell, 2016; Patton, 2002). Creswell (2014) describes a constructivist approach to research from a complexity of views, seeking to find meanings that are often subjective through previous perspectives and social experiences. Patton (2002) adds that a constructivism approach examines the perceptions of the experience and those implications for their lives and interactions. Student perceptions of their health, attitudes, self-efficacy, values, and beliefs are subjective concepts. These concepts were explored through interaction

with the service-learning experience and assessed through targeted reflection prompts, surveys, and interviews designed to explore the multifaceted aspects of self-efficacy beliefs and components of the social cognitive theory.

Qualitative research methods were used to provide an in-depth understanding of student experiences through rich description described during and after the service-learning course. Qualitative case study design using multiple sources of information were collected and analyzed to provide an in-depth understanding of the role that service-learning courses could influence the students that participate in them (Patton, 2002). In this study, the outcomes examined are those influences of the service-learning experience on college students' self-efficacy, cognitive, environmental, and behavioral factors related to their own nutritional habits.

Site Description and Setting

A private, liberal arts undergraduate college in a small, rural town in Missouri will serve as the setting for this study. I work at the college as a faculty member and have an understanding of the service-learning relationships in the college and community. The college has *service* intertwined in its overall mission and vision along with a long history of community collaborations. Service-learning emerged as a high-impact teaching strategy at the college in the early 2000s. Although service-learning is not a required commitment for faculty, the vast majority of faculty believe it to be an important pedagogical tool and that the college should be encouraging service-learning. Furthermore, the majority of students participate in one or more service-learning course components during their time at the college (NSSE, 2017). Service-learning development is a component within the Center for Teaching and Learning (CTL), which provides

faculty training and connections to the Fulton community for the implementation of service-learning courses. The college is actively working to grow and strengthen service-learning experiences

I have taught this service-learning nutrition course since 2010. One local elementary school's third grade classes were selected as the site for the service-learning partnership. Nutrition education has previously been established as a need by the Callaway County Health Department (2008) and has been an approved area for partnership by the local school district. The third-grade classes at the partner school has a long-standing partnership with various health-related service-learning courses at the college and has agreed to continue in this capacity.

Participants

All students enrolled in the service-learning course were invited to participate in this study. Students enrolled in the course were given information regarding the research project during the first week of class and provided with an opportunity for consent for data collection. The participation was voluntary and the data collected was from required course assignments as part of the service-learning course objectives for all students. Students were also invited to participate in a post-experience interview, which was separate from the course expectations. Students were given the opportunity to consent for all, none, or partial participation in the data collection. Participation in the study or not did not affect their opportunity for success in the course. Twelve undergraduate students were enrolled in this course in the Fall 2020 semester, seven students consented for participation in the research study and five of those students were interviewed post-experience.

Data Collection Tools

To provide a comprehensive understanding of the students' experiences, data was collected from multiple sources including surveys, interviews, and class reflections. First, a pre-experience survey was given in class to provide data related to the demographic background, nutrition knowledge, nutrition environment, and brief fruit and vegetable self-efficacy measures. The self-efficacy measures were adapted from Bandura (2006) and Mainvil et al. (2009). The goals for the survey were to provide early insight to self-efficacy, attitudes, values, and beliefs regarding nutrition behaviors and to assist in the development of reflection discussion prompts and assignments throughout the course experience. Survey questions included open-ended questions and a self-efficacy scale for fruits and vegetables (see Appendix A).

Once the service-learning course began, service-learning reflection assignments were given every 2 weeks during the 8-week service-learning experience, providing four reflections total. Reflecting on the experience through a variety of reflection tools can allow students to express themselves and provide a more in-depth understanding to their experience (Kessler & Burns-Whitmore, 2011). Guided reflection responses were specific to nutrition behavior efficacy including connecting the elementary student lesson to their behaviors and overcoming barriers as a college student. Reflection prompts were tailored to the Campus Compact (2010) best practices, which uses the reflection guidelines of continuous, connected, challenging, and contextualized as a way to connect fully to the experience and assist in the student development process. Reflection prompts can be found in Appendix B.

After the service-learning experience, students were invited to participate in individual interviews. Interviews were conducted via the online platform, Zoom, to provide convenient scheduling and social distancing. These interviews were voluntary and followed an interview protocol. The interview questions were semi-structured to gather additional information regarding the change experience from the students. The interview script can be found in Appendix C.

Data Analysis

This study utilized qualitative case study investigation methods as outlined by Creswell (2014), Merriam and Tisdell (2016), and Patton (2002). The data collected from the interviews, surveys, and reflections were edited and organized to obtain a general sense of meanings generated by the experience. Data was further analyzed through a coding process to develop themes (Merriam & Tisdell, 2016).

The interviews were conducted and transcribed through the online platform, Zoom, using the Otter.ai software. Five interviews were conducted and these interviews were approximately 20-minutes in length. Data analysis of the interviews included examination of the transcriptions and interviewer notes through reading, notetaking, and summarizing. Document analysis of the reflection assignments included reading through the reflections, organizing the reflections into one document and sequential, and taking notes to summarize the responses. The survey data was used to develop demographic highlights of the participants and overall efficacy changes pre-post experience. Survey data was organized into one document demonstrating responses of each participant for each survey question.

Data was further organized through horizontalization of the data from the surveys, interviews, and reflections into emerging themes (Merriam & Tisdell, 2016). Axial coding was then utilized to explore relationships among the themes (Creswell, 2014). Triangulation of the data was utilized for further validity, including examining at different data sources, evidence from sources, and using it to justify the themes identified (Creswell, 2014; Patton, 2002). The outcome of the data analysis was a rich description (Creswell, 2014) of the student experience related to their service-learning course regarding nutrition-related factors within social cognitive theory constructs and self-efficacy.

Limitations

The institution site is a private-liberal arts college and service-learning courses can vary among colleges. Although generalizability is not a goal for qualitative studies (Merriam & Tisdell, 2016), there are methods to improve external validity. External validity and reliability of the findings was improved through providing thorough documentation of methods (Merriam & Tisdell, 2016). Creswell (2014) and Merriam and Tisdell (2016) stress the importance of using rich, thick description to improve the trustworthiness of the findings and transferability to other contexts.

This case study has limitations related to sampling, including situational, temporal, and selectivity, which are common in qualitative research (Patton, 2002). This case study was conducted during the COVID-19 pandemic, which impacted the service-learning experience. College students were not permitted into the area public schools as a precautionary measure to limit exposure. The service-learning experience was adapted and provided through virtual learning, which eliminated the direct contact. Questions

were built into the reflection activities to provide an opportunity for students to describe the potential impact of the virtual service.

Additional limitations include the short time frame for the case study and the population sampled. Many of the students were engaging in nutrition for the first time of their adult lives and asked to provide nutrition education to others. This may not have been enough time for them to fully grasp nutritional concepts and what they mean to their own lives. There might be limitations to their nutritional knowledge and understanding the impact it might have on self-efficacy. The participants are of varying educational backgrounds, some of which might have more vested interest in health education as it relates to their majors. Some students might not be as concerned with nutrition. This could impact their reflections, interest, and time spent on the service-learning experience. Additionally, this class was conducted as students are involved in additional coursework, social obligations, and interests. Analyzing the data from multiple sources and providing context for these limitations can contextualize these potential biases (Patton, 2002).

Trustworthiness

Qualitative research is based on multiple realities that stem from the participants and the researcher (Merriam & Tisdell, 2016), thus standards for rigorous data collection and analysis can assist with reliability and validity of the data. To improve the trustworthiness of the data the following recommendations as suggested by Creswell (2014) and Merriam and Tisdell (2016), will be employed; use of rich, thick descriptions, data triangulation, researcher positionality and thorough engagement and description of the data collection process. Multiple forms of data collection also allows for a variety of

interpretation outcomes. In this study, data will be collected from interviews, reflections, and observations.

Researcher Positionality

The researcher is the primary interpreter of the data, thus researcher bias is an important consideration. Although this bias cannot be eliminated, Merriam and Tisdell (2016) provide strategies to strengthen the internal validity of the research. Understanding and specifying this bias through reflexivity or researcher positionality can help bring awareness to the bias and how it could potentially impact data interpretation (Merriam & Tisdell, 2016, p. 249).

I began teaching courses in 2010 and have been teaching the service-learning nutrition-related course used in this study for the past 3 years. The service-learning course has collaborated with a local elementary school for the past decade, as an outcome from a healthy behavior community partnership. Nutrition education was identified as an area of need and third grade was chosen as being most appropriate for the school and the college students. I initially worked with the principal and the teachers to develop the service-learning course and was able to utilize best practices from our Center for Teaching and Learning (CTL) to design the course. I teach the course during the even years and another faculty member teaches it during the odd years. We have continually worked together and with the school, to adapt the course as needed. Our main objectives have been to provide nutrition-related teaching experiences to future educators. This course is a major requirement for physical education and health education majors.

My educational background is in nutrition and public health. I am a registered dietitian and am passionate about influencing nutrition at an individual and a community

level. Instructing service-learning courses provides me an opportunity to teach about and affect nutrition outcomes. This course has been a fun experience for our students, has helped provide nutrition education to children, along with meeting the learning objectives of the course. The student learning objectives for this course are related to lesson plan and teaching development, however, many of the students reflected on how teaching nutrition to the elementary students influenced their nutrition-related behaviors. The idea of influencing the nutrition-related behaviors of college students, along with teaching elementary students, is an exciting opportunity for health promotion in academic courses.

Utilizing the reflections of consenting students in this course, has helped me better understand their experiences as it relates to nutrition outcomes. All students provided reflections throughout the experience, however, only those consenting to be part of the research study, were analyzed. I was not aware of which students provided consent, until after the experience had concluded. Students were graded as complete or incomplete for their reflection assignments and the reflections were not a major portion of their final course grades. I then went back in and utilized the reflections of those consenting for this research. This helped to eliminate bias from the reflections, as I did not read those that were not part of the study and did not know which students were taking part in the research.

Using an interpretive or constructivist lens, I view reality as being socially constructed and that there are multiple interpretations of an event or experience (Merriam & Tisdell, 2016). People make meaning of their experiences through their previous experiences and perspectives (Baxter Magolda, 2004). Creswell (2014) describes a constructivist approach to research from a complexity of views, seeking to find meanings

that are often subjective through historical and social experiences. This bias is approached through reflection within the data collection process and analysis of data. According to Patton (2002), researchers that use conscious and committed reflexivity improve their trustworthiness and demonstrated competence.

Definitions of Key Terms

Case study: the analysis and in-depth description of a single-bounded unit (Merriam & Tisdell, 2016)

Reciprocity: The mutuality that exists between those involved in the service as those providing the service are achieving learning objectives and the learning objectives are providing a needed service (Prentice & Garcia, 2000).

Reflection: Self-expression to the meaning of the experience allowing for students to interpret, evaluate, and judge their learning and further connect to deeper levels of understanding (Bringle & Hatcher, 1999).

Self-efficacy: the perceived belief in the ability to perform a given task to accomplish a desired outcome and the motivation to persist (Bandura, 1993; Buckworth, 2017). Nutrition self-efficacy is the perceived ability to be successful in overcoming barriers to make positive nutritional choices.

Service-Learning: a form of experiential learning that blends academic coursework, meaningful community experiences, and critical reflection to improve student learning outcomes (Astin et al., 2000; Kuh, 2015; Mabry, 1998)

Significance of the Study

The primary goal of this study was to examine the influence of a nutrition-based service-learning course on undergraduates' nutrition self-efficacy. The implications of

this study could offer a more comprehensive, holistic approach to student wellness and promotion of health behavior change through coursework. Having additional health promotion models within educational systems to improve student health outcomes could lead to improved academic and life quality outcomes. Service-learning courses have a reciprocal influence on the communities they serve and those providing the service. Understanding if student health behaviors are influenced by providing health education to others, is a creative way for our learning communities to engage in health promotion together.

As service-learning courses are increasing in higher education and already have a reflective component in their design, using reflection as a means to improve self-efficacy and improve other areas of student growth can be an exciting opportunity. Finding creative ways to influence health promotion as a collective approach can be an opportunity for colleges to take a lead on. The results from this study show that service-learning courses can positively influence self-efficacy and personal factors related to nutrition behaviors. Additional research could further explore nutrition changes through service-learning courses and examine the potential for other health behavior influence.

Summary

As we strive to find solutions to the lifestyle-related health epidemics in the United States, educators and higher education systems will be an important partner for effective change. Although this study was small, the outcomes help our academic settings envision possibilities for future health promotion. A qualitative approach helps to better understand the student experience as part of the service-learning course in regards to their attitudes, beliefs, and values related to nutritional behavior change. Service-

learning courses are an untapped area for health behavior change, although they have been shown to influence course learning outcomes, self-efficacy, and increased community service among students. Using this platform for nutrition behavior change has potential for additional academic partnerships for holistic student development and potential avenues for additional health behavior areas.

Section II: Practitioner Setting for the Study

Westminster College is an undergraduate, private, liberal arts college, located in a small town of roughly 13,000 people. The mission of the College is to "educate and inspire all its students through distinctive liberal arts curriculum and a dynamic developmental experience; to challenge them to be critically aware, lifelong learners and leaders of character, committed to the values of integrity, fairness, respect and responsibility; and to prepare them for lives of success, significance and service" (*Mission and Values,* 2019). The College currently has an enrollment of about 700 students representing 22 states and 36 countries, of which 56% identify as male, with the institution going co-ed in 1979. The diverse student profile is promising for recruiting methods nonetheless; enrollment has steadily decreased over the past 5 years, similarly to other private, liberal arts colleges (*About Us,* 2019).

History of Organization

Westminster College, founded in the mid-1800s, serves as a historic landmark, with notable speakers that have brought global attention to the College and the town (*About Us,* 2019). The College also features several symbolic structures on its campus, each providing stories and meaning to Westminster and the Fulton community. Six columns remaining from a 1906 academic building fire serve as a rite of passage for new students to enter through the columns into campus and leave through the columns after graduating. The campus is home to a twelfth century church, designed by a famous architect and moved, brick-by-brick, to the small town. The church also serves as reminder of persistence and resilience after being rebuilt after a fire. The College also has

a large, 8-section piece of the Berlin Wall, providing symbolism of strength and freedom and the basis of the academic curriculum, *Breakthrough*, education with a purpose.

This rich heritage is interwoven throughout the college mission and values. It is a prime selling point to new students and their families, along with providing symbolism that alumnus cherish. These historic sites provide connection to the community and are often utilized for tourism and education. Westminster touts a "close-knit" community being primarily residential with 94% of students living on campus and 84% being involved in community service. (*About Us*, 2019). The mission and vision of the college seek to create "leaders in a global community".

Organizational Analysis

This close-knit community is also a prime factor to job satisfaction and employee retention. The college employs 150 staff and 80 faculty members whom are organized similarly to a Mintzberg (as cited in Bolman & Deal, 2013) model of organizational structure. The operating core is the faculty with departmental directors reporting to three division chairs (middle line) who coordinate with the dean of faculty. The dean of faculty coordinates with the president's cabinet who report to 40 members of the board of directors (Strategic Apex; *About Us*, 2019).

This relatively small employee base within a small town allows for greater social connectedness as community members are interacting more regularly (Putnam, 2000). According to Putnam (2000), improved connectedness or social capital, increases trust and cooperation, which allows for better communication and problem solving. Service, as included within the organizational mission, also strengthens these social ties. Providing

service that fulfills a need within the surrounding community allows stronger sense of meaning to work and further commitment to the organization (Campus Compact, 2016).

Service to the community is best viewed through the human resource lens as described for organizational analysis by Bolman and Deal (2013). Assessment of the institution through a human resource lens reveals an opportunity to build team-based infrastructure. A team-based workforce would create a more efficient, sustainable approach that promotes the overall goals and mission of the college and builds up service to the overall community. Bolman and Deal (2013) describe the human resource frame in a context where organizations exist to serve human needs and that people and organizations need each other. Working with employees from a human management approach allows individuals to find meaning and satisfaction in what they do, as they feel connected to the institution as part of a partnership for success (Bolman & Deal, 2013).

Westminster also has a strong symbolic foundation, which serves as a community focal point. There are many traditions, rituals, stories, and historic buildings that shape culture for its students. According to Bolman and Deal (2013), culture is a pattern of shared assumptions learned by a group as it solves external problems, adapts, and then teaches to new members as the norm. Students report feeling “bonded” to the college and their fellow students during the first week of orientation. No longer are they an individual, but part of the whole. Viewing the college through Bolman and Deal’s (2013) description of the symbolic frame, one can understand how students feel united and why Westminster has a higher student retention rate than similar institutions. Each area of the college is shaped by significant historic events and there are rituals and ceremonies that have continued for more than 150 years. This historic place within the community can

provide additional meaning, creating a culture that bonds people through collaborative service to strengthen both the community and the institution. Service-learning models are an ideal fit for Westminster College to promote high-impact learning, build relationships, and strengthen a culture of civic engagement.

Leadership Analysis

Westminster College is a large contributor to the town's economy and livelihood (Callaway Chamber of Commerce, 2019) and the community provides a host of partnerships in which the students and staff benefit from (*Community Engagement & Service-Learning*, 2019). This reciprocal relationship of the campus and community hosts an opportunity for strong service-learning partnerships (Campus Compact, 2009).

The college has made an institutional commitment to service-learning through its mission and leadership. Westminster has a long history of community collaborations that developed into some service-learning strategies in the early 2000s, along with the establishment of the Center for Leadership and Service, now known as the Office of Community Engagement and Service-Learning (OCE). The center provided leadership to support framework and structure for service-learning initiatives and stronger partnerships within the community. This establishment increased service-learning courses, civic engagement, and collaborative partnerships in the community. The programming reached a peak in 2007, but has since declined. This is partly due to financial constraints, staffing shortages, and employee turnover.

Campus community engagement is currently organized through the OCE. The goal of this office is to "foster mutually beneficial relationships between the college and of the larger community in which is resides" (*Community Engagement & Service-*

Learning, 2019). This office organizes college service days, volunteerism, and community-outreach. The OCE sets a goal of 10,000 service hours for each school year and has an online tracking system for students, staff, and faculty to report their hours (*Community Engagement & Service-Learning*, 2019). The OCE works closely with additional offices within student life and collaborates with the Center for Teaching and Learning (CTL) for service-learning initiatives.

In recent years, the Center for Teaching and Learning (CTL), within the Division of Academic Affairs, has attempted to revive service-learning courses. The CTL is an advocate for service-learning, providing in-service training opportunities for faculty and staff, faculty assessments, and funding to incentivize course development. The CTL works closely with the Center for Leadership & Service to link staff, faculty, and students to the Fulton community.

Service-learning is a form of experiential learning that blends academic coursework, meaningful community experiences, and critical reflection (Astin, Vogelgesang, Ikeda, & Yee, 2000; Kuh, 2015; Mabry, 1998). The service component seeks to solve problems within the community, thus a reciprocal impact is achieved (Astin, Vogelgesang, Ikeda, & Yee, 2000; Jacoby, 2015). Furthermore, service-learning provides an outlet to impact student and community health and fits within the overall organizational leadership agenda.

Implications for Research in the Practitioner Setting

Westminster College has civic engagement built into the first-year seminar courses; although, there are no required service-learning commitments for faculty or students. Service-learning courses at the college are provided through faculty interest and

vary greatly in structure. An informal survey of faculty by the Center for Teaching and Learning (CTL) in 2016 found that 80% of faculty believe that Westminster College should be encouraging service-learning courses for students and 65% feel that service-learning is an important pedagogical tool for their field. A 2017 National Survey of Student Engagement [NSSE] campus survey found that 67% of first-year students and 72% of seniors indicated at least some of their courses included a community-based service-learning project, however overall service-learning participation has decreased since 2013 (NSSE, 2017).

As mentioned previously, the OCE has regular involvement with community organizations and partners with the CTL to assist in making faculty connections within the community for service-learning initiatives. Unfortunately, only a small group of faculty provide regular service-learning projects (CTL, 2016). This research study will help the institution strategize further community involvement to link our student learning outcomes with meaningful community work through dissemination through the OCE and CTL. This project will provide a better understanding of service-learning for both our campus and community partnerships to better engage in service-learning projects, be creative with serving needs, and allow for better communication of service-learning work. This project comes at a time when we are able to build upon a foundation that has established service-learning as an important goal for our campus, along with strengthening our service-learning component to be more impactful.

Summary

The research site has a mission-driven commitment to community and service. Service-learning courses can strengthen relationships on campus and within the

community. Relationships within the community are important for stability and overall institutional success. Strong relationships are an important human resource for organizational success (Bolman & Deal, 2013). Furthermore, service-learning partnerships can provide meaning and satisfaction in work through connection to the community and the institution. The small size of both the college and community provide an ideal setting for meaningful collaborations and resource sharing.

Section III: Scholarly Review for the Study

Poor lifestyle choices, such as low fruit and vegetable intake, diets high in processed foods, low physical activity levels, tobacco use, and excessive alcohol use are behaviors that begin in early adulthood and impact the overall quality and productivity of life (Chan & Woo, 2010; Harris et al., 2006). According to the World Health Organization (2018), adult diseases are attributed to health behaviors that begin in adolescence. Unhealthy diets are associated with increased non-communicable diseases such as cardiovascular disease, diabetes, chronic respiratory diseases, and some cancers, which are top contributors to morbidity and mortality rates in the United States (Centers for Disease Control [CDC], 2017; Chan & Woo, 2010; World Health Organization [WHO], 2018). Even with large scale preventative efforts, these behaviors and the subsequent chronic disease are continuing to increase (CDC, 2018; Harris et al., 2006; HHS ODPHP, 2020; WHO, 2018). Transitioning from high school to college is an opportune time to influence these behaviors, as young adults are becoming independent and have more freedom for choices.

Unfortunately, the majority of college student health behaviors are not good (American College Health Association [ACHA], 2018; CDC, 2018; Crombie et al., 2009). Narrowing down health behaviors to nutritional choices, college students tend to have unhealthy diets that are high in fat, sodium, and sugar and low in several vital nutrients (ACHA, 2018; CDC, 2018; Sogari et al., 2018). The 2018 ACHA report found that only 5% of college students get the recommended five servings of fruits and vegetables each day and that 44% of college students were not at a healthy weight. Many students gain unhealthy weight during their time in college due mostly to poor nutritional

choices and inadequate physical activity levels (Crombie et al., 2009; Deforche et al., 2015; Sogari et al., 2018). The HHS ODPHP 2020 health objectives, related to nutrition, are not on target (HHS ODPHP, 2020). These objectives include increasing fruits, vegetables, and whole grains and decreasing salt, sugar, and dietary fat (HHS ODPHP, 2020). The health behaviors taken up during college have a direct impact on the quality of life, and many of these habits remain beyond college (CDC 2017; Kuh, 2015; Sogari et al., 2018; Von Ah et al., 2004).

Improving nutrition behaviors during the college years could promote life-long health. With many of these behaviors being shaped in early adulthood, colleges and universities have an essential role in influencing these outcomes. While personal responsibility is important, additional factors that influence self-efficacy, attitudes, and values towards health can further influence these personal health behaviors (Bandura, 1977; Bandura, 2004). Service-learning courses have been shown to influence self-efficacy, attitudes, values, and change behaviors related to students' civic engagement (Jacoby, 2015); however, little research has been found examining the influence of service-learning on health behaviors. If service-learning courses can improve health-related skills, self-efficacy, attitudes, and values, they can be an additional resource for colleges and universities to utilize as methods to enhance health outcomes. Therefore, the purpose of this study is to investigate the influence of service-learning on the self-efficacy of the students who are providing the service. The rich description into the students' experiences in the service-learning nutrition course, especially as it relates to nutrition behavior self-efficacy, will add to the service-learning literature. Understanding student's descriptions of their nutrition self-efficacy after participating in a service-

learning course can provide additional opportunities to improve nutrition behaviors of college students.

Transformations in development occur through the interactions of experiences and perspectives (Baxter Magolda, 2004). Perceptions of health, attitudes, self-efficacy, values, and beliefs are subjective concepts, thus, could be further explored through interaction with the service-learning experience. The reflective nature of the service-learning platform is ideal for meaning-making and further examining those student experiences through a qualitative lens (Merriam & Tisdell, 2016). In this case, students enrolled in the nutrition service-learning course would reflect on their experiences during the experience. The reflection prompts will be examined for influence of the experience on undergraduate college students' self-efficacy, attitudes, values, and beliefs related to their nutritional habits.

Review of the Literature

Service-Learning

Service-learning has been well established as a high-impact educational pedagogy, blending academic coursework, meaningful community experiences, and critical reflection to improve student learning outcomes (Astin et al., 2000; Kuh, 2015; Mabry, 1998). Service-learning combines community-based projects as part of the academic course structure as a means to improve civic responsibility and academic learning goals (Jacoby, 2015; Kuh, 2015; Williams et al., 2002). Service-learning, as viewed through a constructivist learning theory, can provide better understanding of the academic course content by aligning learning objectives and reflective activities through the student experience (Dorsey, 2001; Jacoby, 2015).

Service-learning course criteria include the integration of academic curriculum within the experience, reflection, and reciprocity of the benefits among students' learning and the community service to the partner (Jacoby, 2015; Mabry, 1998; Williams et al., 2002). Service-learning courses vary in length and engagement levels. These courses appear to be most impactful when students engage in at least 15 hours of service and have regular contact with those receiving the service (Mabry, 1998). Chabot and Holben (2003) describe Weigert's elements of service-learning to include meaningful service related to course objectives and reflective assignments that are assessed and evaluated based on learning outcomes. Meaningful service is described as service that fills a community need based on that reported by the entity served (Chabot & Holben, 2003).

The reflection component of the service-learning course is essential to connect the academic content to the experience (Astin et al., 2000). The reflection components can include journaling, written assignments, questionnaires, in-class discussions among students and faculty, and one-on-one discussions with faculty (Astin et al., 2000; Campus Compact, 2017). Furthermore, the reflective component can connect the student to additional observations of self and experience (Astin et al., 2000; Mabry, 1998). One study examined different reflection tools on undergraduate students in a general nutrition course. The outcomes were that there was not one reflection tool that was more effective over others and that a variety of options is helpful for students to express their thoughts (Kessler & Burns-Whitmore, 2011). Kessler and Burns-Whitmore (2011), used a variety of reflection tools using prompts for academic, civic, and personal outcome responses. Students enjoy a variety of reflection techniques to fully engage in their learning process (Kessler & Burns-Whitmore, 2011). As knowledge is created by the transformation of

experience (Kolb & Kolb, 2009), it could be helpful to provide a variety of reflection options, along with allowing some openness to the guided reflection prompts.

Service-learning courses improve student outcomes within social, civic, personal and professional development, as well as achieving academic learning objectives (Jacoby, 2015; Kuh, 2015). A longitudinal study by Astin et al. (2000) found that service-learning had positive impacts on self-efficacy, leadership, academic performance, personal values, and civic engagement. Student development outcomes from service-learning experiences have included improved self-efficacy, growth, and self-understanding (Jacoby, 2015). Additional work on self-efficacy and service-learning by Williams et al. (2002), found significant changes in perceived self-efficacy in social work students after engaging in only one service-learning course. Though, research demonstrates that service-learning influences self-efficacy (Astin et al., 2000; Jacoby, 2015; Kuh, 2015), there is little research regarding a service-learning course on the influence of health behavior outcomes for those delivering the service. While service-learning has typically been used to demonstrate acquired knowledge, skills, and utilizing critical thinking to solve in-practice problems (Kuh 2015), it could be a meaningful platform for health behavior change.

Nutrition Education in Higher Education Settings

Many colleges are attempting to improve negative health outcomes by increasing the number of health and nutrition courses offered (ACHA, 2018). Improving health-related knowledge among college students is a positive step towards improving health outcomes, although, long-term behavior changes are not happening at the pace needed. There has been some promise with nutrition behavior change among courses designed to improve skills, self-regulation and self-efficacy (Richards et al., 2006), however,

traditional knowledge-based nutrition courses have not been shown to significantly change behaviors (Kelly et al., 2013; Poddar et al., 2010).

Academic interventions to influence nutrition behaviors with college students have been studied; yet, these findings have varied and have had many limitations. For instance, a research review by Kelly et al. (2013) found that nutrition education alone did not impact dietary changes much and that the changes were not maintained longer than four months. The findings did suggest that a self-regulation component with nutrition education might be more effective for behavior change (Kelly et al., 2013). Richards et al. (2006), similarly found that the student group receiving motivational interviewing, along with nutrition education improved their fruit and vegetable intake while the group only receiving nutrition education did not significantly change their diet (Richards et al., 2006). Another study attempting to improve dairy consumption in college students found that nutrition education through an online course did not improve outcomes, although, adding a behavior checklist and tailored feedback increased dairy consumption and self-efficacy (Poddar et al., 2010).

Some studies have shown an improved diet related to nutrition knowledge among college students, but that knowledge was not sufficient alone to produce needed changes. A review by Worsley (2002) found that nutrition education has a small impact on nutrition behaviors, however motivational factors need to be considered. The findings suggested that nutrition knowledge is necessary for improved nutritional choices, yet, not sufficient to improve outcomes. Furthermore, nutrition behavior change is related to nutrition education along with improving nutrition skills, self-efficacy, attitudes, and values (Worsley, 2002). Mitchell (1990) found that 45% of students enrolled in a basic

nutrition course reported improving their diets' adequacy, fat levels, and lowering supplement use based on the information that they learned. This study also suggests that knowledge alone may not improve nutrition behaviors, as 55% of students in this study did not report dietary change (Mitchell, 1990).

Yahia et al. (2016) did an online assessment of undergraduate students that had not taken a nutrition course at the University and found that those scoring higher on a nutrition knowledge questionnaire also had a lower intake of dietary fat. Yahia et al. did not consider other dietary motivators for a lowered fat intake such as athletic performance, weight management, or vegetarianism. All studies reviewed suggested that nutrition education is important, still additional avenues should be explored to improve nutrition behaviors in college students.

Service-Learning and Health Education

The majority of research related to health education courses that use service-learning, examine the course's impact on knowledge acquisition or specific job skill development. For example, The University of Colorado added a nutrition service-learning component for their pharmacy students (Jarvis et al., 2004). Pharmacy students were partnered with second and fourth grade elementary students to provide a series of seven nutrition education classes. The learning objectives for the pharmacy students were to improve health promotion skills related to communication, leadership, and working with diverse populations. The pharmacy students and the elementary students were given surveys at the end of the experience to demonstrate improved learning of nutrition concepts, which both groups did improve. As mentioned previously, improved

knowledge does not necessarily reflect changes in behavior and this course did not examine behavior change outcomes.

Similarly, a service-learning course developed for general education majors with interest in health or psychology, worked with community families to decrease childhood obesity (Himelein et al., 2010). The goals of this course were to develop undergraduates' skills for working with the community and promoting health by mentoring a volunteer family. The families and students exercised together weekly for seven weeks. The students contacted the families via phone and email throughout the week to provide additional support, strategies and goal development related to improving exercise. The outcomes demonstrated a behavior change in the families, by improving family exercise time and continuing regular exercise, after the service-learning course was completed. The course did not measure behavior change in the students performing the service-learning—they were assessed on the impact of the overall program on their personal development with leadership, communication, and health promotion knowledge.

Service-learning has frequently been added to nutrition courses as a way to improve course learning objectives and to influence nutrition behaviors among those receiving the service. One community nutrition course had students develop and implement programming to improve the nutrition needs of the community (Gray et al., 2017). The researchers found an improved intake of vegetables among those receiving the service and that the students providing the service developed better public health skills (Gray et al., 2017). Rasberry (2006) outlines how to incorporate service-learning into nutrition courses with the primary goal being improved knowledge of nutrition (e.g.,

create a healthy meal, establish healthy eating behaviors), but behaviors related to improved nutritional meals were not assessed.

Service-learning has also been used within dietetics programs to increase job-related nutrition therapy skills, such as cultural competence, counseling, and leadership (Arnold et al., 2012; Bogle, 2011; Christaldi & Bodzio, 2013; Heiss et al., 2012). Research on the impacts of these service-learning courses has mostly been descriptive and related to the achievement of learning outcomes for the students. There is a gap within the research to explore how the knowledge gained during a service-learning course may influence behavior change.

Service-learning courses related to health education can provide opportunities to explore students' values, beliefs, and attitudes towards health behaviors and a better understanding of the student experience that might lead to behavior change. Additionally, utilizing student self-efficacy development related to nutrition choices could be an indicator of positive nutrition behavioral changes (Bandura, 2004; Von Ah et al., 2004). Service-learning courses could be an additional model for influencing positive nutrition behaviors through self-efficacy improvement (Astin et al., 2000; Bandura, 2004; Buckworth, 2017; Jacoby, 2015; O'Leary, 1985; Von Ah et al., 2004). Nutrition service-learning courses have demonstrated improved nutrition behaviors of recipients (Gray et al., 2017; Himelein et al., 2010); however, there were no studies found that investigated how service-learning influences nutrition behaviors of the students providing the service experience.

Self-Efficacy and Social Cognitive Theory

As students engage in service-learning through community outlets being viewed as professionals, leaders, and role models through service-learning opportunities, their views of themselves change (Astin et al., 2000; Jacoby, 2015). Social cognitive theory can explain the construct of reciprocal determinism taking place within service-learning, demonstrating that students can be both an agent for change and experience change themselves. These changes and reinforcements can be used to promote healthier behaviors. Bandura (2004), describes this theory as a "multifaceted causal structure in which self-efficacy beliefs operate together with goals, outcome expectations, and perceived environmental impediments and facilitators in the regulation of human motivation, behavior, and well-being" (p. 34). Social cognitive theory emphasizes the process among the behaviors, personal cognitive factors, and the environment as it influences self-efficacy (Bandura, 2004). Major constructs for the social cognitive theory include cognitive, environmental, and behavioral factors (Glanz et al., 2015 p. 160). The self-efficacy component in the social cognitive theory can be examined separately as the primary influencer of thought, motivation, and action (Bandura, 2004). The self-efficacy component is affected by psychosocial influences and is an important determinant to behavior change (Bandura, 1977; Bandura, 2004).

Much of the research on influencing health behaviors in college students is associated with self-efficacy development (Buckworth, 2017; O'Leary, 1985; Von Ah et al., 2004). Self-efficacy is a belief in the ability to perform a given task (Bandura, 1993; Buckworth, 2017). As self-efficacy increases, so does persistence in behavior changes (Bandura, 1993; Buckworth, 2017). Improving self-efficacy could predict health-

promoting behavior as studies have shown high self-efficacy is correlated with improved health behaviors, lower rates of unhealthy behaviors, and maintaining behaviors through barriers (Bandura, 2004; Martinelli, 2002; Von Ah et al., 2004). Martinelli (2002) found that self-efficacy was the strongest predictor of health behaviors among college students. Furthermore, self-efficacy can be influenced in college students to improve lifestyle habits, as those habits are not firmly established (Martinelli, 2002). Von Ah et al. (2004) also found self-efficacy to be a predictor of both health promoting behaviors and a deterrence to unhealthy behaviors. It was recommended that future health promotion programs for college students to use interventions to improve self-efficacy (Von Ah et. al., 2004). Self-efficacy improves through an individual's perceived improvement of skill development that assists them overcome barriers and challenges of behavior changes (Bandura, 1993). Once self-efficacy improves in an area, it improves successes and future continuation of the change (Bandura, 1993; Buckworth, 2017; Martinelli, 2002).

A service-learning model promoting nutrition behavior change by influencing self-efficacy, fits the social cognitive theory well. Through this service-learning course, students utilize the core concepts of the social cognitive model as it pertains to their cognitive, environmental, and behavioral factors related to nutrition. These concepts would include demonstrated knowledge of nutrition factors and benefits, goal development, perceived self-efficacy related to those goals, and environmental factors that would influence their nutrition behaviors (Bandura, 2004). The reflective nature of service-learning experiences promotes the self-evaluative and observational learning components of the social cognitive theory. Bandura (1977) describes the process of self-

evaluation as allowing individuals to express control over their values, beliefs, and attitudes and evaluate their experiences and thoughts.

Efficacy beliefs differ on level, generality, and strength (Bandura, 1997). Bandura (1997) highlights modalities to assess each of these areas. Level can be assessed through perceived capabilities of performing the behaviors through varying levels of task demand among various challenges. Generality measures include assessment of behavior through different situations. Finally, strength of perceived self-efficacy can be assessed for each of the different skills and situations. Having stronger self-efficacy in areas indicate high levels of perseverance of the activity and higher predictability of success (Bandura, 1997). Each of these areas can be drawn out through qualitative measures in reflection prompts and semi-structured interviews (Bandura, 1997). Individualized reflections could include describing things that would make it difficult to be successful with different tasks or required activities. Measures of self-efficacy would include individuals' judgement regarding their ability to overcome the difficulties and be successful at the required behavior (Bandura, 1997).

Improvement of self-efficacy measures include "mastery experiences, vicarious experiences, verbal persuasion, and states of emotion" (Bandura, 2004, p. 79). A service-learning experience allows students to develop mastery experiences by learning and delivering health promotion. Students can practice the health behaviors, receive feedback, and participate in targeted discussions regarding barriers, challenges, and overcoming obstacles, to increase self-efficacy (Bandura, 2004). Vicarious experiences are heightened through the reciprocity of the service-learning experience. The sharing of the experience can be prompted through group discussions and collaborative learning strategies that

demonstrate role modeling (Bandura, 2004). Verbal persuasion and emotional states can be influenced by the faculty's role in the service-learning experience. Faculty feedback, instruction, and reflection/assessment prompts can explore these areas to further understand and strengthen for improved self-efficacy. All components of this model can be targeted through the reflective and assessment elements of the service-learning experience.

Understanding self-efficacy is not about specific skill development, but more about the belief one has about their abilities to enact that skillset, especially under different conditions and through various challenges (Bandura, 1997). Self-efficacy beliefs are individualized experiences and are complex as they might be different among task demands in multiple areas (Bandura, 1997). The beliefs have different levels dependent upon these task demands, perceived barriers for success, and perceptions of difficulty (Bandura, 1997). Bandura's (1997) research demonstrates that increased efficacy beliefs are durable. Influencing nutrition efficacy among college students through service-learning course is an opportunity for improved nutrition efficacy after college.

Summary

As educators and higher education systems collaborate on solutions to the lifestyle-related health epidemics in the United States, this partnership will be essential for effective change. Multiple avenues for health influences are needed for impact that is more substantial. Influencing health behaviors in college can promote life-long health benefits. By connecting service-learning to student health behavior outcomes, additional models for this educational method can be employed to create more meaningful learning strategies for our students. Understanding students' values, beliefs, and attitudes towards

health behaviors before, during, and after a service-learning course related to health, could provide an in-depth understanding of the student experience that might lead to behavior change.

Service-learning courses are an untapped area for health behavior change. Service-learning courses have been shown to improve student self-efficacy. Improved health self-efficacy is a predictor for positive health behavior change, which makes it plausible for health-related service-learning course participation to improve health behaviors. The service-learning model is an evidence-based method to improve learning outcomes among college students and having a better understanding of how it influences self-efficacy and health behaviors can strengthen its use and increase research in this area.

Section IV: Contribution to Practice

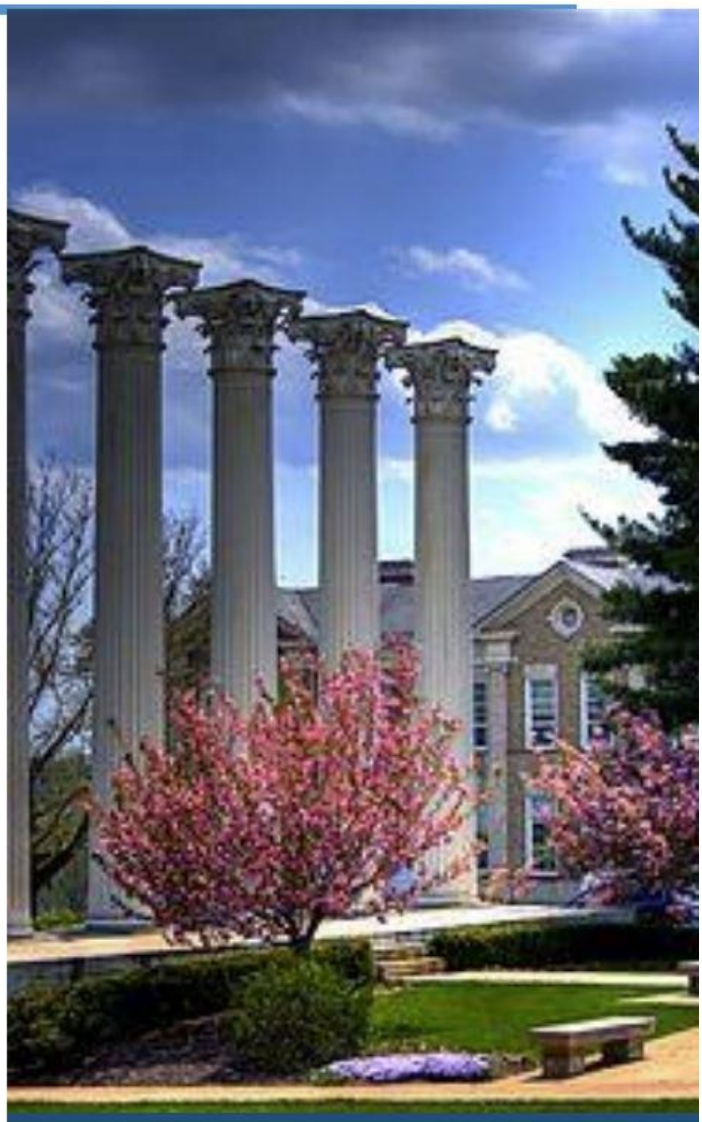
Plan for Dissemination

The primary goal of this study was to examine the influence of a nutrition-based service-learning course on undergraduates' nutrition self-efficacy. The implications of this study could involve academics in a more comprehensive, holistic approach to student wellness and promotion of health behavior change. Areas of the college community that would be particularly interested in these outcomes would include The Center for Teaching and Learning (CTL); the Office of Student Engagement and Service-Learning; and the Department of Health and Exercise Science. These departments are strong partners for service-learning course development and student health. For example, the Center for Teaching and Learning works regularly with the Office of Student Engagement to improve service-learning strategies and collaboration.

The outcomes of this research will be provided as part of a service-learning workshop organized by the Center and the Office of Student Engagement. The research project will be presented in April, 2021. The workshop will include a collaborative component to develop strategies for academics and student life to improve student health outcomes. Additionally, an executive summary on the research findings of this study was developed and will be disseminated. The CTL is the primary leader for academic service-learning and teaching strategies (CTL, 2019). The Center hosts workshops and provides resources for teaching-related issues and special topics in higher education. These resources include print and multimedia, geared towards improving collaborative approaches.

A QUALITATIVE STUDY EXPLORING COLLEGE STUDENT NUTRITION BEHAVIORS WITHIN A SERVICE-LEARNING COURSE

Executive Summary



APRIL 2021

Westminster College
Amanda W. Gowin

A QUALITATIVE STUDY EXPLORING COLLEGE STUDENT NUTRITION BEHAVIORS WITHIN A SERVICE-LEARNING COURSE

As higher education is looking for ways to improve student health behaviors, service-learning is an unexplored area that has tremendous potential. Utilizing the major constructs of the social cognitive theory (Bandura, 1997; Glanz et al., 2015), this study explored how participants in a previously established nutrition service-learning course described their cognitive, environment, and behavioral influences related to nutrition throughout the course. Participants also described their nutrition self-efficacy after participating in a service-learning nutrition course. Participants described their experiences through a pre-post survey, reflections, and voluntary interviews. Based on the social cognitive theory constructs of cognitive, environmental, and behavioral influences, this service-learning course was found to improve knowledge, awareness, values, and behaviors related to nutrition for all study participants. Findings show positive changes in nutrition-related self-efficacy, especially related to the meaning-making experience of the service-learning. Results from this study suggest that the use of intentional reflection questions related to health behavior factors in health-based service-learning courses could influence behavioral outcomes.

Through service-learning experiences, students providing the service are viewed as professionals, leaders, and role models (Campus Compact, 2019). The reflective nature of the service-learning experience helps students express their personal and professional growth and further relate to the reciprocal impact of the experience (Astin et al, 2000; Jacoby, 2015). Social cognitive theory can explain the construct of reciprocal determinism taking place within service-learning, demonstrating that students can be both an agent for change and experience change themselves (Bandura, 1997; Jacoby, 2015).

The reflective methods already embedded into service-learning platforms can serve as a meaningful way to gather additional data related to the student experience, reflecting on health behaviors. Research has eluded to improved self-efficacy, growth, and self-understanding as a result from service-learning experiences (Astin, 2000; Jacoby, 2015; Kuh, 2015). The purpose of this study was to deepen the understanding of how service-learning courses might impact nutrition-related behaviors among the students providing the service.

Students can be both an agent for change and experience change themselves (Bandura, 1997)

This case study provides rich description into the nutrition-related factors described by students through surveys, reflections, and interviews throughout the service-learning experience.

Research Questions

- How do undergraduate students participating in a nutrition service-learning course describe their cognitive, environment, and behavioral influences related to nutrition throughout the course?
- How do students describe their nutrition self-efficacy after participating in a service-learning nutrition course?

These concepts were explored through interaction with the service-learning experience and assessed through targeted reflection prompts, surveys, and interviews designed to explore the multifaceted aspects of nutrition-related behaviors and self-efficacy beliefs.

Qualitative research methods were used to provide an in-depth understanding of student experiences through rich description described during and after the service-learning course.

Twelve undergraduate students were enrolled in this course in the Fall 2020 semester. Seven students consented for participation in the research study and five were interviewed post-experience.

Findings

Through the analysis of the reflections and interviews, student reported influences were categorized into cognitive, environmental, and behavioral influences. Cognitive influences included knowledge, awareness, values, and attitudes. Environmental influences included physical and social factors within the environment. Behavioral influences included skills, intentions, and reinforcements (Glanz, Rimer, & Viswanth, 2015). Self-Efficacy influences were described as a separate concept. The social cognitive theory (SCT) thematic findings are summarized in Table 1.

Table 1

SCT Construct Themes

Influences		
	Categories	Units
Cognitive		
	Knowledge	Primary learning outcomes included; • Minimum of 5 servings of fruits and vegetables daily • How to read a food label • Eating regularly and consistently throughout the day • Limiting sugar consumption; especially through drinks.
	Awareness	Increased methods to incorporate fruits and vegetables in the diet Nutrition-related rationale provided motivation Nutrition-related rationale most important to teaching
	Values	Teaching nutrition was important and impactful Rationale was valued for behavior change Hands-on skill development added meaning to lesson plans
Environmental		
	Barriers	The main barriers for not eating healthy were categorized into three main areas: • Time (convenience, cooking methods, frequency of meals) • Taste (preference of unhealthy options) • Cost (more expensive than junk food) Overcoming barriers included: • Planning • Rationale for change • Teaching to 3rd graders
Behavioral		
	Skills	Skill-related changes: • increasing fruits and vegetables • reading food labels • decreasing sugar intake • eating breakfast

Intentions	All students reported expecting continued and additional nutrition-related changes over next couple months
Reinforcements	Nutrition change was strengthened by: • Teaching nutrition to youth • Improved nutrition among roommates • Athletic involvement

Self-Efficacy
The self-efficacy survey indicated a positive change for confidence in nutrition-related abilities in 10 out of 14 indicators assessed. Survey indicators with 4 or more students (out of 7) indicating positive change (vs. staying the same or decreasing), included: • I can eat at least two different vegetables during my main meal on most days. • I can eat vegetables as part of my lunch on most days. • I can eat vegetables as a snack at least once a day. • I can eat fruit as part of my lunch on most days The measures with the least change in confidence were from areas that were not part of the 3rd grade education objectives including; • I can still eat some fruit or vegetables when I do not have much money. 2 increased, 3 same, 2 decreased) • I can eat fruit and vegetables when I am eating out. (1 increased, 3 same, 3 decreased) Personal connection to the materials and rationale for change were reported as primary reasons for improved confidence in abilities through the reflections and interview responses.

Based on the social cognitive theory constructs of cognitive, environmental, and behavioral themes, this service-learning course was found to improve self-efficacy, awareness, values, attitudes, and behaviors related to nutrition for all study participants. The experience improved the participants' confidence in making needed nutrition changes and indicated intentioned for continued behavior change post-experience. Self-efficacy beliefs, along with knowledge, goals, perceived barriers, and expected outcomes, work together to influence behavior change (Bandura, 2004).

The additional skill development and reflective activities related to the service-learning experience can impact behavior change along with meeting the academic objectives. The results from this study are similar to other research showing improved academic objectives for nutrition-related service learning courses (Gray et al., 2017; Rasberry, 2006); however, they have not been used previously to examine behavior changes related to that knowledge. Self-efficacy changes were described by all study participants through skill development, planning, goal setting, behavior changes, and advocacy

awareness. The reflection activities enhanced the understanding of the nutrition concepts related to the service-learning experience and self-awareness.

Similar to other research on service-learning courses, this study adds to the literature demonstrating that service-learning experiences allow for students to develop a better understanding of themselves along with the material they are studying (Salimbene et al., 2005, p. 337). Service-learning courses have been shown to be transformative experiences related to improved self-awareness and self-development (Astin et al., 2000; Bandura, 1977). The results from this study extend this idea to include nutrition behavior change through these self-efficacy improvements.

Implications for Service-Learning Health-Related Courses

Nutrition behavior changes are related to increasing nutrition education along with improving nutrition skills, self-efficacy, attitudes, and values (Worsley, 2002). Findings from this current study show that establishing meaning was the most reported influence related to nutrition behavior change.

- "Meaning making" was related to personal outcomes and reciprocal learning.
- Self-efficacy develops through meaningful experiences (Bandura, 2004; Chen et al., 2018).
- The intentional reflective component for service-learning courses connects the learning to the service (Campus Compact, 2010), promoting "meaning-making."
- Reflective components can be tailored for health behavior and expression related to SCT.
- Service-learning courses should be used more frequently as a method to influence nutrition knowledge and influence the needed nutrition changes among the college-student populations.
- More research is needed to examine other areas of health-behavior influence.

Summary

Transitioning from high school to college is an opportune time to influence health behaviors, and ultimately promote life-long health. While personal responsibility is important, additional factors that influence self-efficacy, attitudes, and values towards health can further influence these personal health behaviors (Bandura, 1977; Bandura, 2004). The reflective and reciprocity are meaning-making factors that are already present as a part of best practices for service-learning courses (Campus Compact, 2010). The results from this study suggest the addition of intentional assessment for health behavior change in health-related service-learning courses could improve self-efficacy and health-related behavior changes among students.

As educators and higher education systems collaborate on solutions to the lifestyle-related health epidemics in the United States, this partnership will be essential for effective change. Multiple avenues for health influences are needed for impact that is more substantial. Influencing health behaviors in college can promote life-long health benefits. By connecting service-learning to student health behavior outcomes, additional models for this educational method can be employed to create more meaningful learning strategies for our students.

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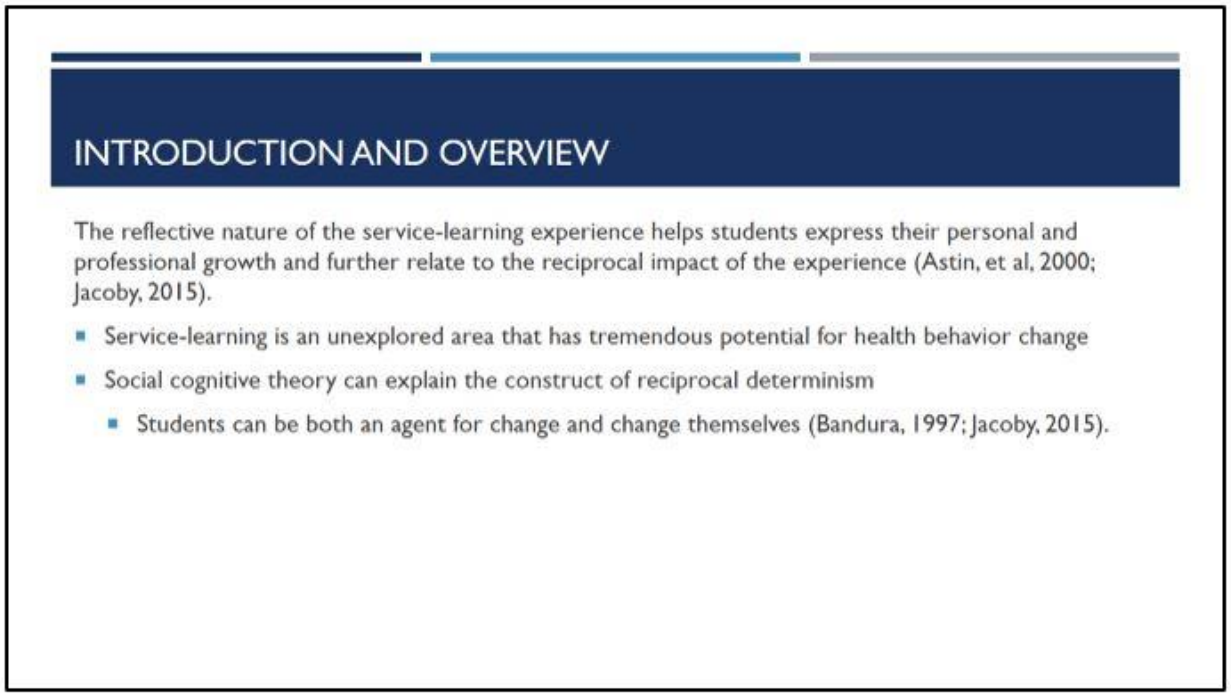
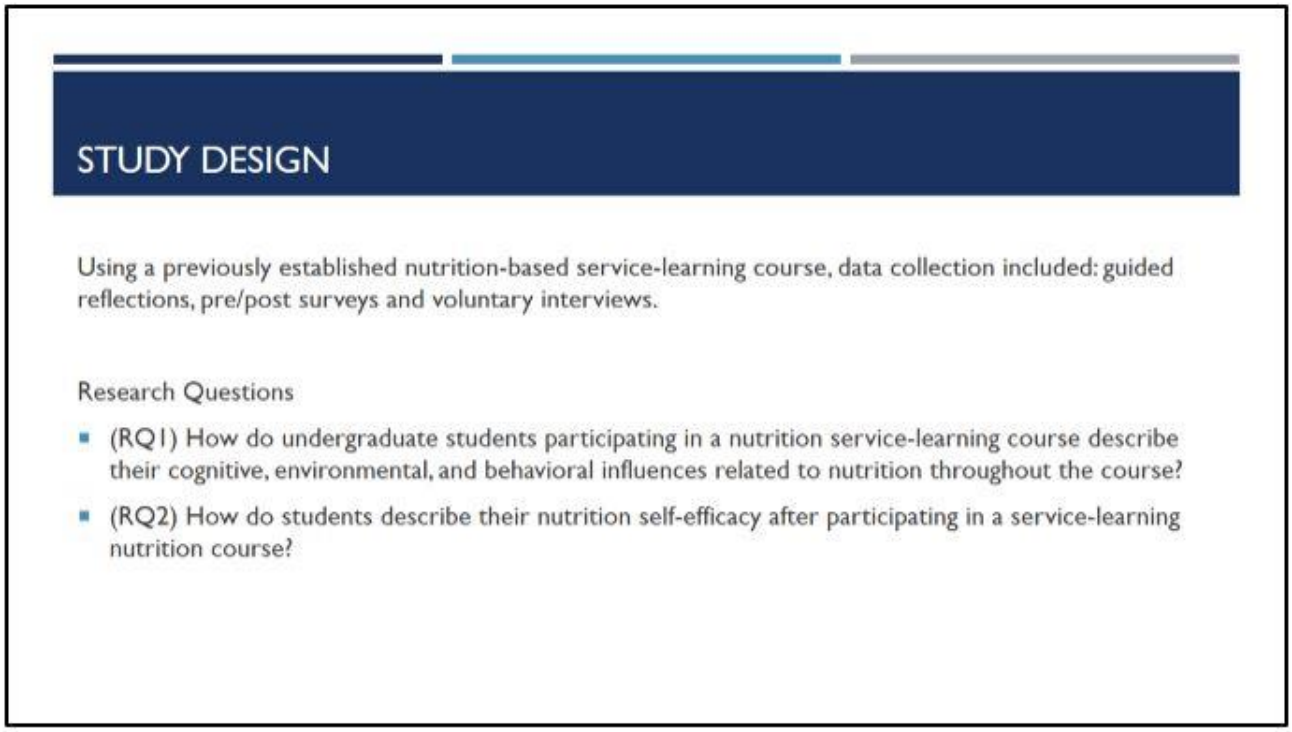
A QUALITATIVE STUDY EXPLORING
COLLEGE STUDENT NUTRITION BEHAVIORS
WITHIN A SERVICE-LEARNING COURSE
AMANDA W. GOWIN
1851
WESTMINSTER
COLLEGE
THE POWER IN PURPOSE

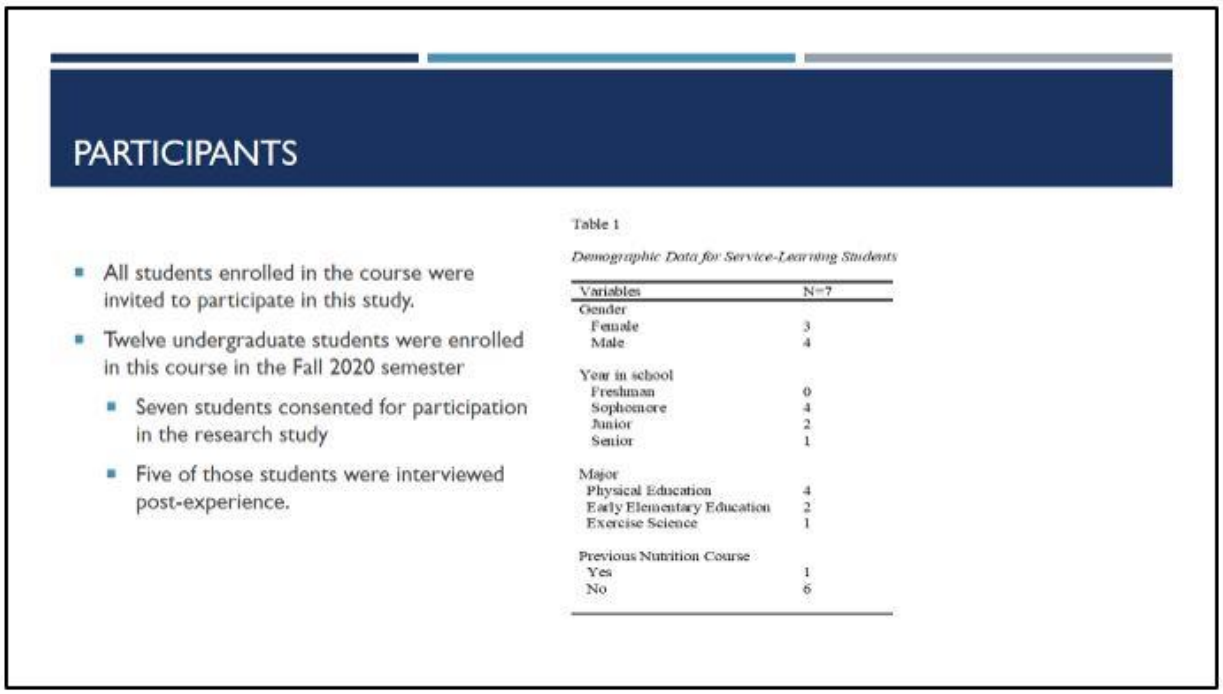


As higher education is looking for ways to improve student health behaviors, service-learning is an unexplored area that has tremendous potential.
Through service-learning experiences, students providing the service are viewed as professionals, leaders, and role models (Campus Compact, 2019).
Social cognitive theory can explain the construct of reciprocal determinism taking place within service-learning, demonstrating that students can be both an agent for change and change themselves (Bandura, 1997; Jacoby, 2015). The reflective methods already embedded into service-learning platforms can serve as a meaningful way to gather additional data related to the student experience, reflecting on health behaviors.

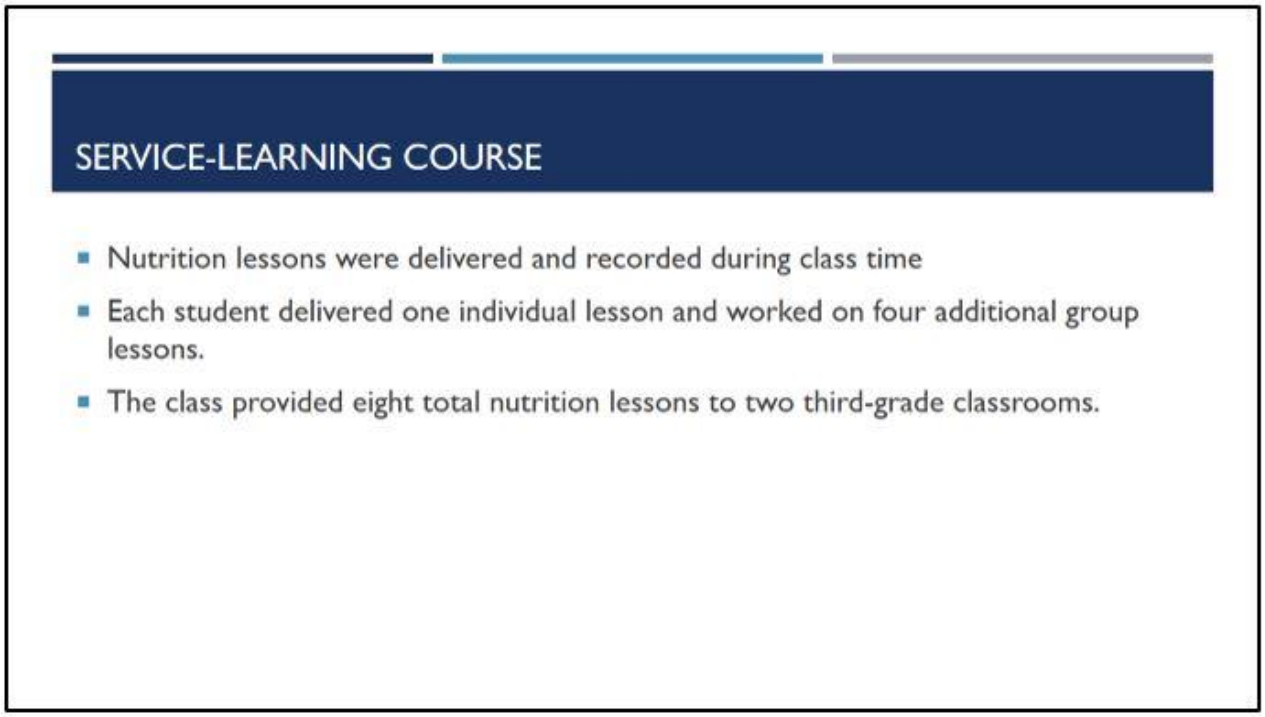


This course was used to further explore concepts from the social cognitive theory among student participants enrolled in the course.

This case study provides rich description into the nutrition-related factors described by students throughout the service-learning experience. The following questions, utilizing the major constructs of the social cognitive theory (Bandura, 1997; Glanz, Rimer, & Viswanth, 2015), guided the research:



The participation was voluntary and the data collected was from required course assignments as part of the service-learning course objectives for all students.
Students were also invited to participate in a post-experience interview, which was separate from the course expectations.
Students were given the opportunity to consent for all, none, or partial participation in the data collection.
Participation in the study or not did not affect their opportunity for success in the course.



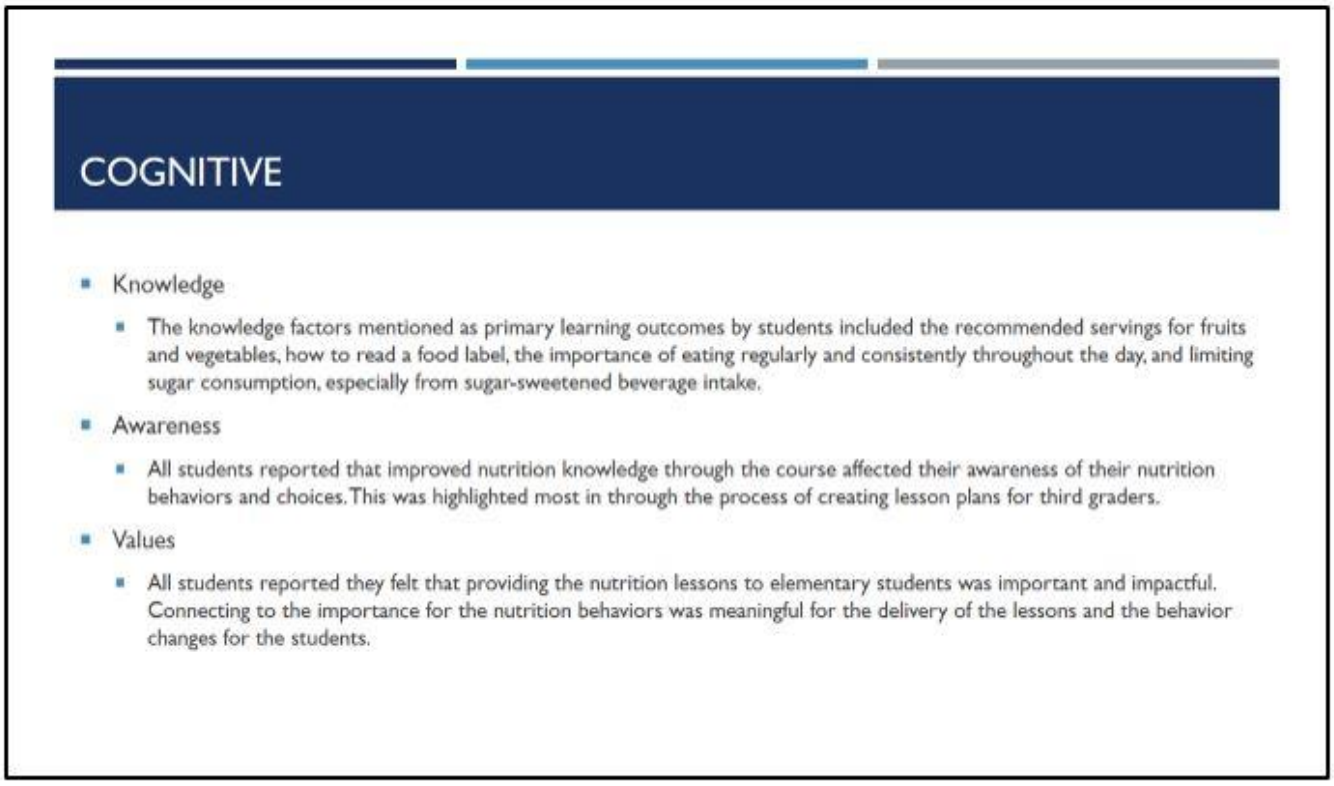
The course is a required course for education majors, but was also available for general education elective credit.
Fall semester 2020 course: 16-weeks in length, with eight weeks of the service-learning experience.
The service-learning experience began in week five with virtual introductions among the site and the students.

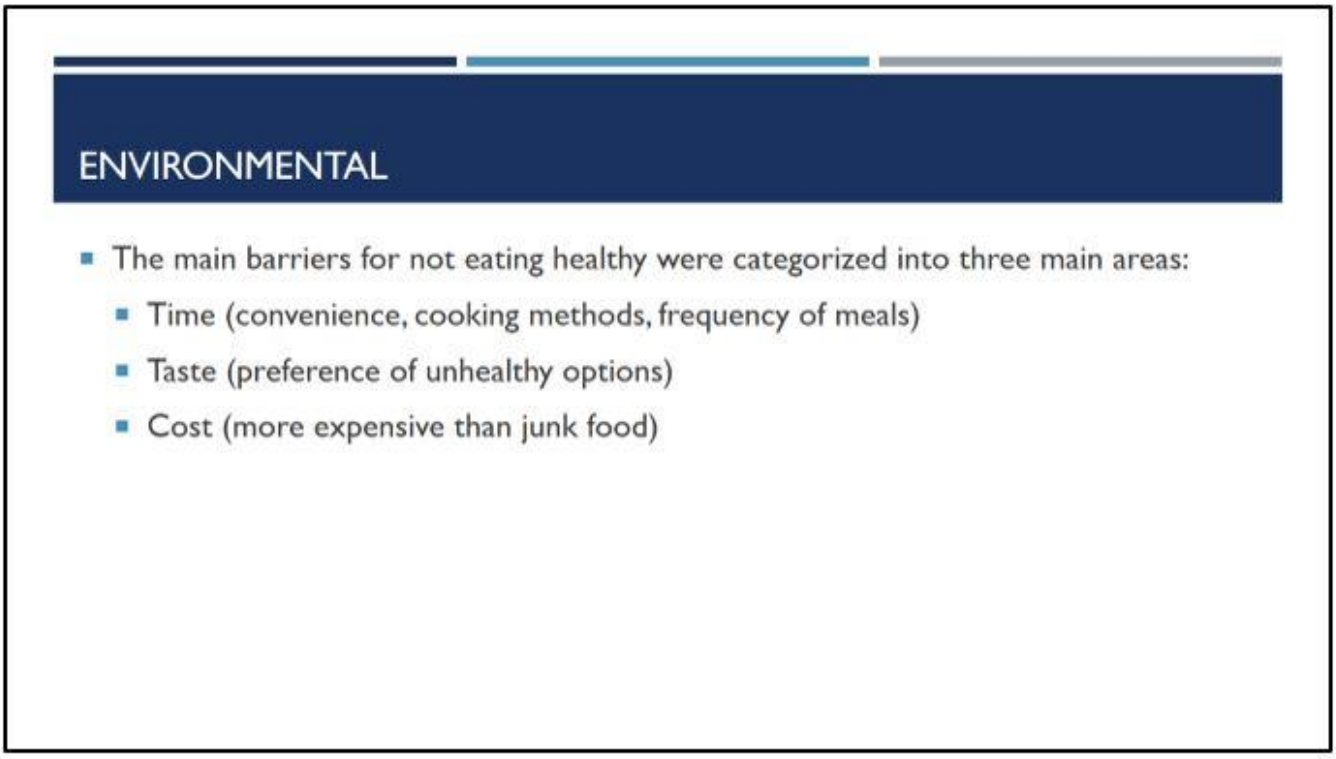
FINDINGS

- Student reported influences were categorized into cognitive, environmental, and behavioral influences.
- Cognitive influences included knowledge, awareness, values, and attitudes.
- Environmental influences included physical and social factors within the environment.
- Behavioral influences included skills, intentions, and reinforcements (Glanz, Rimer, & Viswanth, 2015).
- Self-Efficacy influences were described as a separate concept.

RESEARCH QUESTION 1

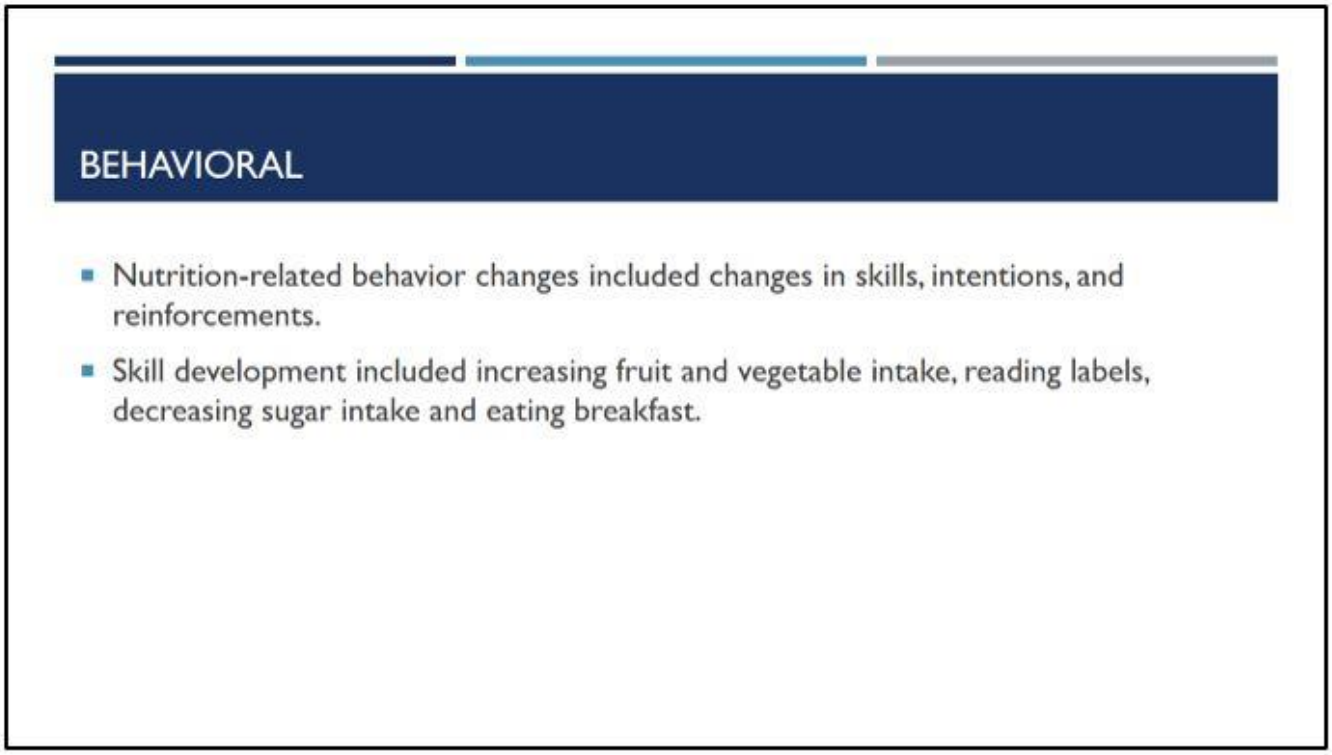
- (RQ1) How do undergraduate students participating in a nutrition service-learning course describe their cognitive, environment, and behavioral influences related to nutrition throughout the course?
  - All students indicated positive changes in cognitive factors including knowledge, awareness, and values.

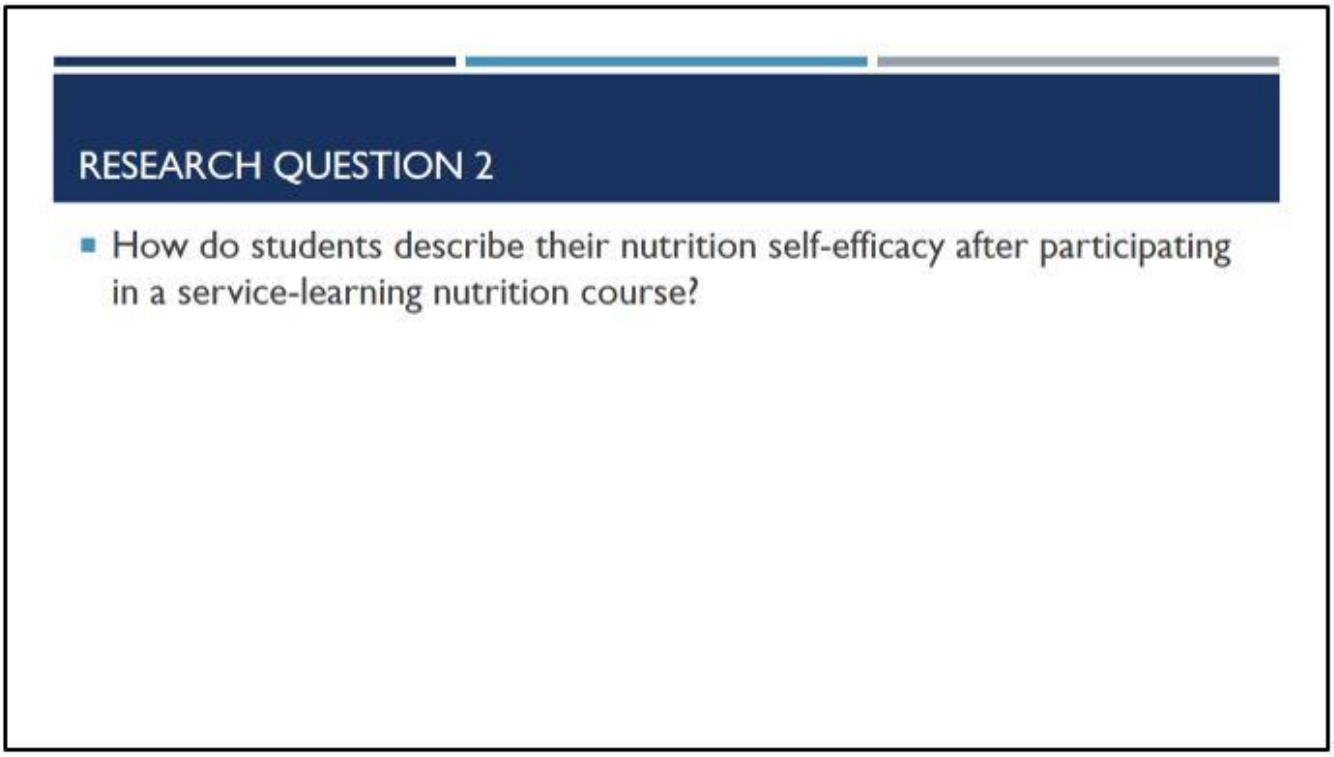

COGNITIVE
Knowledge
The knowledge factors mentioned as primary learning outcomes by students included the recommended servings for fruits and vegetables, how to read a food label, the importance of eating regularly and consistently throughout the day, and limiting sugar consumption, especially from sugar-sweetened beverage intake.
Awareness
All students reported that improved nutrition knowledge through the course affected their awareness of their nutrition behaviors and choices. This was highlighted most in through the process of creating lesson plans for third graders.
Values
All students reported they felt that providing the nutrition lessons to elementary students was important and impactful. Connecting to the importance for the nutrition behaviors was meaningful for the delivery of the lessons and the behavior changes for the students.



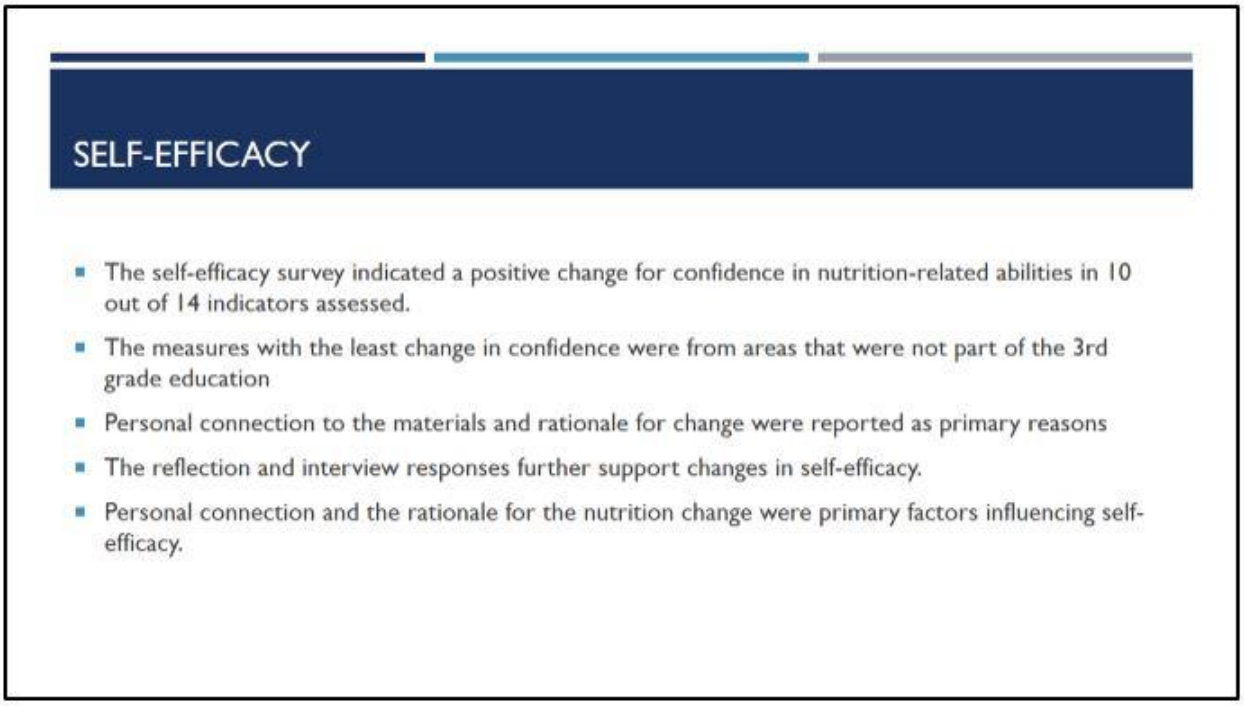
Overcoming barriers was the primary environmental factor assessed in this study as a primary factor for self-efficacy measures (Bandura, 1993). All participants reported the perceived ability to overcome these barriers through planning. Learning the rationale for nutrition changes helped them prioritize nutrition, which was related to planning.

Several participants also mentioned that teaching 3rd graders how to specifically improve nutrition behaviors helped them do it themselves.


BEHAVIORAL
Nutrition-related behavior changes included changes in skills, intentions, and reinforcements.
Skill development included increasing fruit and vegetable intake, reading labels, decreasing sugar intake and eating breakfast.



Understanding self-efficacy is not about specific skill development, but more about the belief one has about their abilities to enact that skillset, especially under different conditions and through various challenges (Bandura, 1997).
Self-efficacy improves through an individual's perceived improvement of skill development that assists them overcome barriers and challenges of behavior changes (Bandura, 1993). Once self-efficacy improves in an area, it improves successes and future continuation of the change (Bandura, 1993; Buckworth, 2017; Martinelli, 2002).

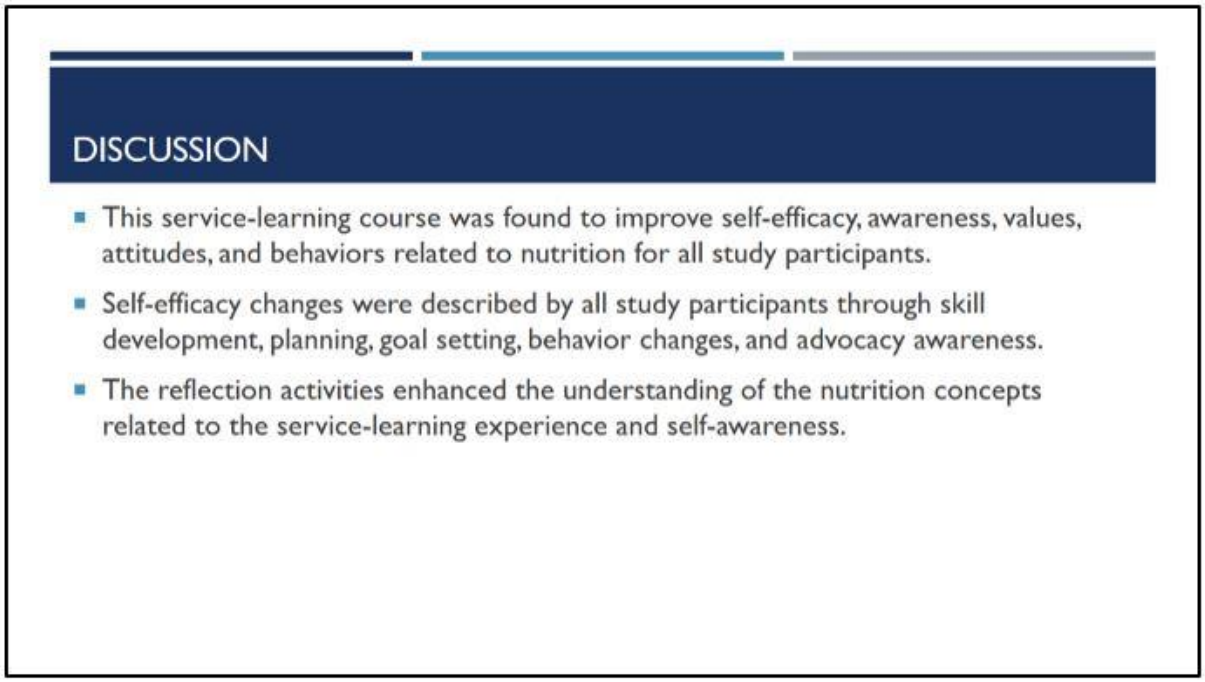


Survey indicators with 4 or more participants (out of 7) indicating positive change (vs. staying the same or decreasing), included:

I can eat at least two different vegetables during my main meal on most days.
I can eat vegetables as part of my lunch on most days.
I can eat vegetables as a snack at least once a day.
I can eat fruit as part of my lunch on most days

objectives including;

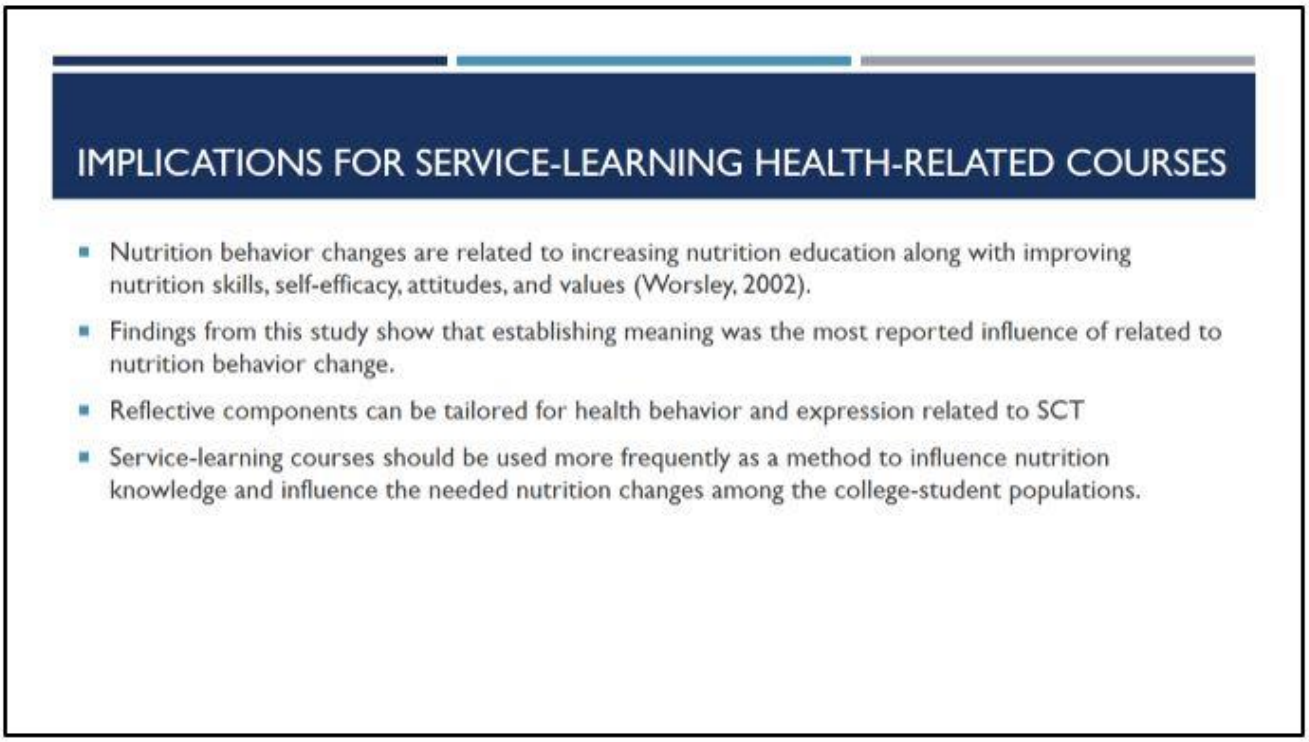
I can still eat some fruit or vegetables when I do not have much money. 2 increased, 3 same, 2 decreased)
I can eat fruit and vegetables when I am eating out. (1 increased, 3 same, 3 decreased)



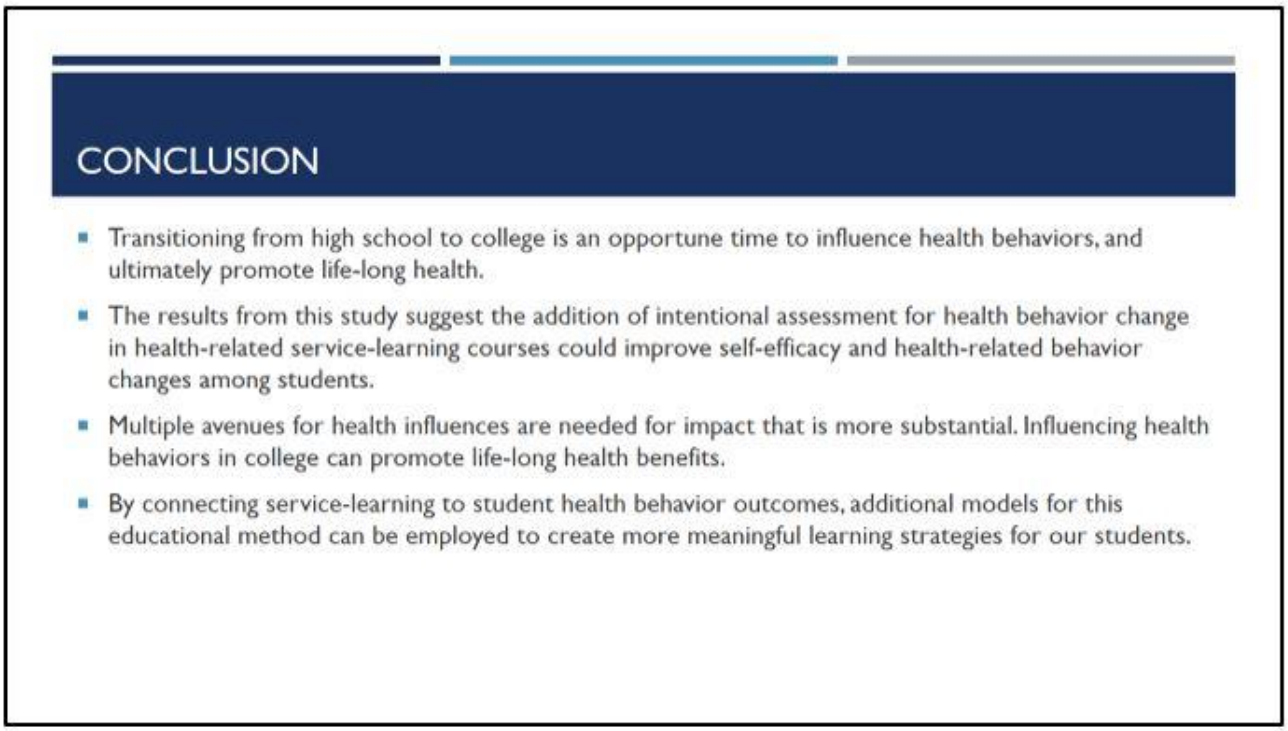
The experience improved the participants' confidence in making needed nutrition changes and indicated intentioned for continued behavior change post-experience. The additional skill development and reflective activities related to the service-learning experience can impact behavior change along with meeting the academic objectives.

Similar to other service-learning courses, this study adds to the literature demonstrating that service-learning experiences allow for students to develop a better understanding of themselves along with the material they are studying (Salimbene, Buono, Van Steenberg Lafarge, & Nurick, 2005, p. 337).

Service-learning courses have been shown to be transformative experiences related to improved self-awareness and self-development (Astin, et al., 2000; Bandura, 1977). The results from this study extend this idea to include nutrition behavior change through these self-efficacy improvements.



"Meaning making" was related to personal outcomes and reciprocal learning.
Self-efficacy develops through meaningful experiences (Bandura, 2004; Chen, Snell, & Wu, 2018).
The intentional reflective component for service-learning courses connects the learning to the service (Campus Compact, 2010), promoting "meaning-making".
More research is needed to examine other areas of health-behavior influence



The reflective and reciprocity are meaning-making factors that are already present as a part of best practices for service-learning courses (Campus Compact, 2010). As educators and higher education systems collaborate on solutions to the lifestyle-related health epidemics in the United States, this partnership will be essential for effective change.


QUESTIONS
Amanda W. Gowin
Amanda.gowin@westminster-mo.edu
(573)826-1547
1851
WESTMINSTER
COLLEGE
THE POWER IN PURPOSE

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Section V: Contribution to Scholarship

Preface

Service-learning is being utilized as an effective pedagogy in the majority of institutions for higher education. This research study will add to the literature and potentially expand additional research in the areas of health promotion for students participating in service-learning. The following manuscript was prepared using submission guidelines for the Journal of Service-Learning in Higher Education (JSLHE). This is journal is an online, peer-reviewed journal for providing information on effective approaches within institutional and community partnerships. I plan to submit to this journal with hopes that it will reach service-learning professionals in an effort to expand usage and research for additional avenues for improved student outcomes.

Submission-Ready Journal Article

A QUALITATIVE STUDY EXPLORING COLLEGE STUDENT NUTRITION BEHAVIORS WITHIN A SERVICE-LEARNING COURSE

Amanda Gowin, University of Missouri-Columbia

Abstract

This qualitative case study explored the influence that service-learning involvement has on undergraduate college students' cognitive, environmental, and behavioral factors related to nutrition. As higher education is looking for ways to improve student health behaviors, service-learning is an unexplored area that has tremendous potential. Utilizing the major constructs of the social cognitive theory (Bandura, 1997; Glanz et al., 2015), the research questions guided the investigation of how participants in a previously established nutrition service-learning course described their cognitive, environment, and behavioral influences related to nutrition throughout the course. Participants also described their nutrition self-efficacy after participating in a service-learning nutrition course. Participants described their experiences through a pre-post survey, reflections, and voluntary interviews. Based on these constructs, this service-learning course was found to improve knowledge, awareness, values, and behaviors related to nutrition for all study participants. Findings show positive changes in nutrition-related self-efficacy, especially related to the meaning-making experience of the service-learning. Results from this study suggest that intentional reflection questions related to health behavior factors in health-based service-learning courses may be utilized to influence behavioral outcomes.

Service-learning has been well established as a high-impact educational pedagogy (Astin et al., 2000; Kuh, 2015; Jacoby, 2015). As service-learning courses increase in

higher education, understanding their effectiveness beyond academic outcomes is crucial. Service-learning courses have been demonstrated to influence positive health behaviors in community populations (Gray et al., 2017; Himelein et al., 2010; Jarvis et al., 2004), yet service-learning course outcomes have not been explored for health promotion among the students that are delivering the service. There is limited research available for evidence-based, comprehensive approaches to promoting health and student health behavior change during the college years (ACHA, 2018). An additional method to support improved student health behaviors through self-efficacy development could be through service-learning courses.

Much of the research on non-environmental methods to influence health behaviors in college students is associated with self-efficacy development (Dinger, 1999; Kelly et al., 1991; O'Leary, 1985; Von Ah et al., 2004). Understanding student self-efficacy related to nutrition choices could be an indicator for positive nutrition behavioral changes (Bandura, 2004; Von Ah et al., 2004). The reflective methods already embedded into service-learning platforms can serve as a meaningful way to gather additional data related to the student experience, reflecting on health behaviors. Research has eluded to improved self-efficacy, growth, and self-understanding as a result from service-learning experiences (Astin, 2000; Jacoby, 2015; Kuh, 2015). Understanding students' personal factors such as values, beliefs, and attitudes towards nutrition-related behaviors before, during, and after a service-learning course related to nutrition, can provide an in-depth understanding of the student experience that might lead to behavior change. The purpose of this study is to deepen the understanding of how service-learning courses might impact nutrition-related behaviors among the students providing the service.

Background

Poor dietary lifestyle choices, such as low fruit and vegetable intake and diets high in processed foods, are behaviors that begin in early adulthood and impact the overall quality and productivity of life (Chan & Woo, 2010; Harris et al., 2006). Unhealthy diets are associated with increased non-communicable diseases such as cardiovascular disease, diabetes, chronic respiratory diseases, and some cancers, which are top contributors to morbidity and mortality rates in the United States (Centers for Disease Control [CDC], 2017; Chan & Woo, 2010; World Health Organization [WHO], 2018). Even with large scale preventative efforts, these behaviors and the subsequent chronic disease are continuing to increase (CDC, 2018; Harris et al., 2006; HHS ODPHP, 2020; WHO, 2018). Transitioning from high school to college is an opportune time to influence these behaviors, as young adults are becoming independent and have more freedom for choices.

Unfortunately, the majority of college student nutrition behaviors are not good (American College Health Association [ACHA], 2018; CDC, 2018; Crombie et al., 2009). College students tend to have unhealthy diets that are high in fat, sodium, and sugar and low in several vital nutrients (ACHA, 2018; CDC, 2018; Sogari et al., 2018). The health behaviors taken up during college have a direct impact on the quality of life, and many of these habits remain beyond college (CDC 2017; Kuh, 2015, Sogari et al., 2018; Von Ah et al., 2004).

Improving nutrition behaviors during the college years could promote life-long health. With many of these behaviors being shaped in early adulthood, colleges and universities have an essential role in influencing these outcomes. While personal

responsibility is important, additional factors that influence self-efficacy, attitudes, and values towards health can further influence these personal health behaviors (Bandura, 1977; Bandura, 2004). Bandura (1997) defines self-efficacy as a person's perceived beliefs in their abilities to carry out an action. Service-learning courses have been shown to influence self-efficacy, attitudes, values, and change behaviors related to students' civic engagement (Jacoby, 2015); however, little research has been found examining the influence of service-learning on health behaviors. If service-learning courses can improve health-related skills, self-efficacy, attitudes, and values, they can be an additional resource for colleges and universities to utilize as methods to enhance health outcomes. Therefore, the purpose of this study is to investigate the influence of service-learning on the nutrition-related personal factors, behaviors, and self-efficacy of the students who are providing the service. The rich description into the students' experiences in the service-learning nutrition course, especially as it relates to nutrition behavior self-efficacy, will add to the service-learning literature. Examining nutrition self-efficacy would include understanding students' beliefs in their abilities to choose healthier foods and overcome perceived barriers (Bandura, 1997). Understanding student's descriptions of their nutrition self-efficacy after participating in a service-learning course can provide additional opportunities to improve nutrition behaviors of college students.

Through service-learning experiences, students providing the service are viewed as professionals, leaders, and role models (Campus Compact, 2019). The reflective nature of the service-learning experience helps students express their personal and professional growth and further relate to the reciprocal impact of the experience (Astin, et al, 2000; Jacoby, 2015). Social cognitive theory can explain the construct of reciprocal

determinism taking place within service-learning, demonstrating that students can be both an agent for change and experience change themselves (Bandura, 1997; Jacoby, 2015). This reciprocal experience influences efficacy beliefs, which influences change and adaptation (Bandura, 1997). Bandura (2004) describes the social cognitive theory as a "multifaceted causal structure in which self-efficacy beliefs operate together with goals, outcome expectations, and perceived environmental impediments and facilitators in the regulation of human motivation, behavior, and well-being" (p. 1).

Social cognitive theory emphasizes the process among the behaviors, individual, and the environment as it influences self-efficacy (Bandura, 2004). Major constructs for the social cognitive theory include cognitive factors, environmental factors, and behavioral factors (Glanz et al., 2015 p. 160). The fundamentals of the theory suggest that a person's belief in efficacy is affected by psychosocial influences and that self-efficacy is important in behavior change (Bandura, 1977; Bandura, 2004). Furthermore, self-efficacy measures have been a consistent predictor of health-behavior change success (Strecher et al., 1986).

The majority of health promotion research regarding influencing college student health behaviors uses self-efficacy measures within a social cognitive construct (Buckworth, 2017; O'Leary, 1985; Von Ah et al., 2004). Self-efficacy is a perceived belief in the ability to perform a given task (Bandura, 1993; Buckworth, 2017). High self-efficacy has been correlated with improved health behaviors, lower rates of unhealthy behaviors, and sustained behavior changes (Bandura, 2004; Martinelli, 2002; Von Ah et al., 2004). Self-efficacy perceptions influence behavior change (Strecher et al., 1986).

Reflective assignments within the service-learning experience can be shaped to highlight major constructs within the social cognitive theory, along with self-efficacy changes. Self-efficacy measures can predict what behavior goals are set and the motivational commitment for sustained change (Bandura, 1997; Bandura, 2004; Clark & Zimmerman, 2014).

Thus, exploring the major constructs of social cognitive theory and self-efficacy, as a component to predict behavior change, can provide a deeper understanding of the experience. These could also highlight challenges and barriers related to environmental conditions to assist in behavioral management (Bandura, 1997). These factors can be explored through a nutrition-themed service-learning course including: knowledge of nutrition needs and benefits, perceived self-efficacy regarding control over the dietary habits, outcome expectations, health goals, and environmental factors (Bandura, 2004). The reflective component of the service-learning model is ideal for exploring influence on behavior change (Jacoby, 2015; Kuh, 2015).

As educators and higher education systems collaborate on solutions to the lifestyle-related health epidemics in the United States, this partnership will be essential for effective change. Multiple avenues for health influences are needed for impact that is more substantial. Influencing health behaviors in college can promote life-long health benefits. By connecting service-learning to student health behavior outcomes, additional models for this educational method can be employed to create more meaningful learning strategies for our students. Understanding students' experiences as they relate to cognitive, environmental, and behavioral factors regarding nutrition, could provide an in-depth understanding of the student experience. Examining the student experience before,

during, and after a service-learning health course can assist in understanding factors that could lead to improved health behaviors because of service-learning courses.

Methodology

This case study provides rich description into the nutrition-related factors described by students through surveys, reflections, and interviews throughout the service-learning experience. The following questions, utilizing the major constructs of the social cognitive theory (Bandura, 1997; Glanz et al., 2015), guided the research:

(RQ1) How do undergraduate students participating in a nutrition service-learning course describe their cognitive, environment, and behavioral influences related to nutrition throughout the course?

(RQ2) How do students describe their nutrition self-efficacy after participating in a service-learning nutrition course?

Design of the Study

The primary goal of the study was to explore the students' experience of the service-learning as it relates to major constructs of the social cognitive theory and self-efficacy for nutrition behaviors. Major constructs for the social cognitive theory include cognitive factors, environmental factors, and behavioral factors (Glanz et al., 2015 p. 160). A constructivist lens was appropriate as this approach allows for multiple interpretations of experiences as reality is being socially constructed (Merriam & Tisdell, 2016; Patton, 2002). Creswell (2014) describes a constructivist approach to research from a complexity of views, seeking to find meanings that are often subjective through previous perspectives and social experiences. Patton (2002) adds that a constructivist approach examines the perceptions of the experience and those implications for their

lives and interactions. Student perceptions of their health, attitudes, self-efficacy, values, and beliefs are subjective concepts. These concepts were explored through interaction with the service-learning experience and assessed through targeted reflection prompts, surveys, and interviews designed to explore the multifaceted aspects of nutrition-related behaviors and self-efficacy beliefs.

Qualitative research methods were used to provide an in-depth understanding of student experiences through rich description described during and after the service-learning course. A qualitative case study design was used, with multiple sources of information that were collected and analyzed to provide an in-depth understanding of how service-learning courses could influence the students that participate in them. In this study, the outcomes examined are those influences of the service-learning experience on college students' self-efficacy and cognitive, behavioral, and environmental factors; as part of the major constructs of the social cognitive theory.

Participants

All students enrolled in a previously established nutrition-related service-learning course at a small private liberal arts college in the Midwest were invited to participate in this study. Students enrolled in the course were given information regarding the research project during the first week of class and provided with an opportunity for consent for data collection. The participation was voluntary and the data collected was from required course assignments as part of the service-learning course objectives for all students. Students were also invited to participate in a post-experience interview, which was separate from the course expectations. Students were given the opportunity to consent for all, none, or partial participation in the data collection. Participation in the study or not

did not affect their opportunity for success in the course. Twelve undergraduate students were enrolled in this course in the Fall 2020 semester. Seven students consented for participation in the research study and five of those students were interviewed post-experience. As shown in Table 1, there were four males and three females surveyed. These gender terms were identified by the students completing the survey. Of the seven students, four were sophomores, two were juniors, and one was a senior. They ranged in majors with four being physical education majors, two elementary education majors, and one exercise science major. Only one of the students had taken a nutrition course prior to this semester.

Table 1

Demographic Data for Service-Learning Students

Variables	N=7
Gender	
Female	3
Male	4
Year in school	
Freshman	0
Sophomore	4
Junior	2
Senior	1
Major	
Physical Education	4
Early Elementary Education	2
Exercise Science	1
Previous Nutrition Course	
Yes	1
No	6

Course Content

The course is a required course for education majors but was also available for general education elective credit. The course was 16-weeks in length, with 8 weeks consisting of the service-learning experience. The course started with pre-service material for 4 weeks, including background information regarding nutrition and service-learning. The instructor explained the research project during week one and two of the course, providing a consent form in week two. Students had the option to consent for survey data, reflection content, and post-experience interview options. The service-learning experience began in week five with virtual introductions among the site and the students. Following introductions, students, in groups of three, selected a pre-created evidenced-based nutrition lesson for third graders to review and adapt for the first nutrition lesson. The subsequent nutrition lessons were developed through student-selected topics based on their interests along with the needs of third graders. Prior to presenting these self-selected lessons, students went through a peer-reviewed process. Nutrition lessons were then delivered and recorded during class time and sent electronically to the elementary classrooms. Each student delivered one individual lesson and worked on four additional group lessons. The class provided eight total nutrition lessons to two third-grade classrooms.

Service-Learning Site

A local elementary school's third grade classes were selected as the site for the service-learning partnership. Nutrition education has previously been established as a need by the County Health Department (2008) and was an approved area for partnership by the local school district. The third-grade classes at the partner school has a long-

standing partnership with various health-related service-learning courses at the college and has agreed to continue in this capacity. The service aspect was adapted during this experience for COVID social distant learning needs. College students performed the lessons via video and the lesson were given to the students from their respective teachers.

Data Collection Tools

To provide a comprehensive understanding of the students' experiences, data was collected from multiple sources including surveys, interviews, and class reflections. First, a pre-experience survey was given in class to provide data related to the demographic background, nutrition knowledge, nutrition environment, and brief fruit and vegetable self-efficacy measures. The self-efficacy measures were adapted from Bandura (2006) and Mainvil et al. (2009). The goals for the survey were to provide early insight to self-efficacy, attitudes, values, and beliefs regarding nutrition behaviors and to assist in the development of reflection discussion prompts and assignments throughout the course experience. Survey questions included open-ended questions and a self-efficacy scale for fruits and vegetables and can be found in Appendix A.

Once the service-learning course began, service-learning reflection assignments were given every 2 weeks during the 8-week service-learning experience, providing four reflections total. Reflecting on the experience through a variety of reflection tools can allow students to express themselves and provide a more in-depth understanding to their experience (Kessler & Burns-Whitmore, 2011). Guided reflection responses were specific to nutrition behavior efficacy including connecting the elementary student lesson to their behaviors and overcoming barriers as a college student. Reflection prompts were tailored to the Campus Compact (2010) best practices, which uses the reflection

guidelines of continuous, connected, challenging, and contextualized as a way to connect fully to the experience and assist in the student development process. Reflection prompts can be found in Appendix B.

After the service-learning experience, students were invited to participate in individual interviews. Interviews with five students were conducted via the online platform, Zoom, to provide convenient scheduling and social distancing. These interviews were voluntary and followed an interview protocol. The interview questions were semi-structured to gather additional information regarding the change experience from the students. The interview script can be found in Appendix C.

Findings

Through the analysis of the reflections and interviews, student reported influences were categorized into cognitive, environmental, and behavioral influences. Cognitive influences included knowledge, awareness, values, and attitudes. Environmental influences included physical and social factors within the environment. Behavioral influences included skills, intentions, and reinforcements (Glanz et al., 2015). Self-efficacy influences were described as a separate concept. The social cognitive theory (SCT) thematic findings are summarized in Table 2.

Table 2

SCT Construct Themes

Influences	Categories	Units
Cognitive		
	Knowledge	Primary learning outcomes included: • Minimum of 5 servings of fruits and vegetables daily • How to read a food label

		• Eating regularly and consistently throughout the day • Limiting sugar consumption; especially through drinks.
	Awareness	Increased methods to incorporate fruits and vegetables in the diet Nutrition-related rationale provided motivation Nutrition-related rationale most important to teaching
	Values	Teaching nutrition was important and impactful Rationale was valued for behavior change Hands-on skill development added meaning to lesson plans
Environmental		
	Barriers	The main barriers for not eating healthy were categorized into three main areas: • Time (convenience, cooking methods, frequency of meals) • Taste (preference of unhealthy options) • Cost (more expensive than junk food) Overcoming barriers included: • Planning • Rationale for change • Teaching to 3rd graders
Behavioral		
	Skills	Skill-related changes: • increasing fruits and vegetables • reading food labels • decreasing sugar intake • eating breakfast
	Intentions	All students reported expecting continued and additional nutrition-related changes over next couple months
	Reinforcements	Nutrition change was strengthened by: • Teaching nutrition to youth • Healthy options in home • Athletic involvement

Self-Efficacy

The self-efficacy survey indicated a positive change for confidence in nutrition-related abilities in 10 out of 14 indicators assessed. Survey indicators with 4 or more students (out of 7) indicating positive change (vs. staying the same or decreasing), included:

- I can eat at least two different vegetables during my main meal on most days.
- I can eat vegetables as part of my lunch on most days.
- I can eat vegetables as a snack at least once a day.
- I can eat fruit as part of my lunch on most days

The measures with the least change in confidence were from areas that were not part of the 3rd grade education objectives including:

- I can still eat some fruit or vegetables when I do not have much money. 2 increased, 3 same, 2 decreased)
- I can eat fruit and vegetables when I am eating out. (1 increased, 3 same, 3 decreased)

Personal connection to the materials and rationale for change were reported as primary reasons for improved confidence in abilities through the reflections and interview responses.

As we turn to the findings, a reminder of the first research question: *How do undergraduate students participating in a nutrition service-learning course describe their cognitive, environment, and behavioral influences related to nutrition throughout the course?* Beginning with cognitive factors, all students indicated positive changes in their nutrition-related knowledge, awareness, and values. For example, the knowledge factors mentioned as primary learning outcomes by students included the recommended servings for fruits and vegetables, how to read a food label, the importance of eating regularly and consistently throughout the day and limiting sugar consumption (especially from sugar-sweetened beverage intake).

The improvements in these knowledge factors influenced students' awareness of their nutrition behaviors and choices. This was highlighted most through the process of creating lesson plans for third graders. One student commented, "My lesson was over

healthy snacks. Through teaching 3rd graders about eating fruits and veggies as snacks and making it fun, I have learned about how to do that more myself."

Another highlighted student comment was,

> "I learned the amount of fruits and veggies that I needed and the importance of breakfast. Learning and teaching it at the same time was cool and it helped me think about my behaviors more and start changing some things."

Finally, one student mentioned that making his lesson hands-on, helped him visually understand portion-size. "Using your hand as a guide for portion-sizes and knowing that ½ your plate should be veggies was helpful for me to do this myself."

Most students noted that connecting to the rationale of eating more fruits and vegetables was helpful in motivating them to do it themselves and rationale was most important for them to teach it to 3rd graders. For instance, one student stated, "Learning more about the "why" of eating healthy along with the what to eat was the most important factor to teach to third graders. Learning more about the nutrient's impact in the body." Similarly, another student mentioned how it was most important to teach third graders "...how nutrition helps their body. Not only focusing on weight, that [nutrition] does many other things to improve their well-being. Learning more about nutrients in food and what they do for the body."

Furthermore, improvements in value were described through student reflections and interviews. All students reported they felt that providing the nutrition lessons to elementary students was important and impactful. Connecting to the importance for the nutrition behaviors was meaningful for the delivery of the lessons and the behavior changes for the students. Students mentioned the importance of teaching nutrition to

others included prevention of disease, strength, improved academic ability, improved athletic performance, and improved energy. Students also mentioned that skill development through hands-on learning added meaning to their lessons and behaviors. One student wrote about using food labels for learning how to read and calculate nutrients made it more meaningful. Another mentioned that hands-on learning was more fun and related to their lives. The combination of the cognitive factors of knowledge, awareness, and value were intertwined throughout the experience and influenced one another.

Along with cognitive factors, the influence of environmental factors were also noted during the analysis. The primary environmental factor assessed in this study was overcoming barriers, identified by Bandura (1993) as a primary aspect for measuring self-efficacy. The main barriers to healthier eating included time (convenience, cooking methods, frequency of meals), taste (preference of unhealthy options), and cost (more expensive than junk food). These barriers emerged during the analysis of the student responses and were categorized by the researcher as primary themes. All participants reported the perceived ability to overcome these barriers through planning. Learning the rationale for nutrition changes helped them prioritize nutrition, which was related to planning. Several participants also mentioned that teaching 3rd graders how to specifically improve nutrition behaviors helped them do it themselves.

Finally, all participants reported nutrition-related behavior changes. After analyzing the reflections and interview responses, the themes of skills, intentions, and reinforcements were categorized by the researcher as the primary behavioral outcome areas. Skill development included increasing fruit and vegetable intake, reading labels,

decreasing sugar intake and eating breakfast. One student reported, “learning about healthy eating behaviors definitely had an impact on my life. I began to focus more on my meals and swap the to-go desserts from the dining hall for the fruit to-go.” Another participant shared:

> …before learning more about nutrition and completing the service-learning process, I didn’t really know much about nutrition or think that it was that big of a deal in my own personal life. Now, after this, I have noticed myself reading nutrition labels. I have started to care a little more and put more effort into my own health and nutrition. After stressing so much to the younger students that they should care about their own nutrition, it started to hit me that I should be doing the same. Not only to be a good influence, but also for myself.

Many participants reported intentions of healthier eating related to teaching others about nutrition. The service-learning experience helped them make the needed nutrition changes as well. One highlighted quote was, “For influencing nutrition, in order to educate others, it starts with you. If you’re not taking care of yourself, it would be harder for others to believe in what you’re teaching or see you as a credible source.” Additionally, a participant stated, “teaching a 3rd grader made me think if a third grader can do it, I definitely can.” Finally, one participant stated, “trying to teach others about health and nutrition forces you (in a good way) to sit down and truly think about your diet and eating habits.”

Participants also reported improved nutrition-related reinforcements in their lives. Reinforcements described by three of the participants included healthier options in their

residence for snacks and breakfast items. As noted by one of these participants, “If you don’t have healthy snacks, it makes it extremely hard to make a healthy change.” Additionally, two participants mentioned athletic involvement reinforcing their healthy eating behaviors.

The results for the second research question: *How do students describe their nutrition self-efficacy after participating in a service-learning nutrition course?*, was a separate analysis related to cognitive factors (Bandura, 1997). This item was analyzed separately, as self-efficacy improvements, specifically, are related to successes and future continuation of the change (Bandura, 1993; Buckworth, 2017; Martinelli, 2002). Self-efficacy measures are influenced through improved perceptions of skill development and overcoming barriers (Bandura, 1993). The survey results from this study indicated a positive change for confidence in nutrition-related abilities in 10 out of 14 indicators assessed. Survey indicators with 4 or more participants (out of 7) indicating positive change (vs. staying the same or decreasing), included:

- I can eat at least two different vegetables during my main meal on most days.
- I can eat vegetables as part of my lunch on most days.
- I can eat vegetables as a snack at least once a day.
- I can eat fruit as part of my lunch on most days

The measures with the least change in confidence were from areas that were not part of the 3rd grade education objectives including:

- I can still eat some fruit or vegetables when I do not have much money. 2 increased, 3 same, 2 decreased)

- I can eat fruit and vegetables when I am eating out. (1 increased, 3 same, 3 decreased)

Personal connection to the materials and rationale for change were reported as primary reasons for improved confidence in abilities through the reflections and interview responses. These responses assisted in the creation of the reflection assignments and interview questions. The majority of the nutrition education with the 3rd grade class was related to fruits and vegetable intake, so narrowing the self-efficacy measures to this area was helpful in gathering data from the undergraduate students.

The reflection and interview responses further support changes in self-efficacy. Most participants reported the primary reason for improved confidence in abilities related to nutrition behaviors was related to personal connection and the rationale for the nutrition change. One participant highlighted this connection: “I care more about nutrition through learning about [it] and then connecting it to my life.” Another participant connected to their future profession as a P.E. teacher, supporting the importance of eating healthier now to their future goals: “I think I need to do a better job at adding more fruits and vegetables in. I want to teach P.E. courses and I need to be healthier to teach better.”

All participants reported additional improved nutrition behaviors were expected over the next couple of months. This was mostly because of having a break in academics, having athletic events/performance needs, and having healthier options at home with less temptations for unhealthy eating. Two participants mentioned planning more for healthier eating in the spring semester, by practicing healthy eating meal prepping and cooking.

Discussion

The purpose of this study was to deepen the understanding of how service-learning courses might impact nutrition-related behaviors among the students providing the service. Utilizing the major constructs of the social cognitive theory (Bandura, 1997; Glanz et al., 2015), the research questions examined how students participating in a nutrition service-learning course described their cognitive, environment, and behavioral influences related to nutrition throughout the course and how students described their nutrition self-efficacy after participating in a service-learning nutrition course. Based on these constructs, this service-learning course was found to improve self-efficacy, awareness, values, attitudes, and behaviors related to nutrition for all study participants. The experience improved the participants' confidence in making needed nutrition changes and indicated intentioned for continued behavior change post-experience. Self-efficacy beliefs, along with knowledge, goals, perceived barriers, and expected outcomes, work together to influence behavior change (Bandura, 2004).

Nutrition education was provided to student participants through lecture, class discussion, and independent research. Previous research on nutrition courses has shown that education alone has not been enough to influence behaviors (Kelly et al., 2003; Poddar et al., 2010; Richards et al., 2006; Worsley, 2002). Findings from this study show that additional learning objectives among the students were influenced through their service-learning related projects. For example, the process of developing the lesson plans influenced skill development and methods for overcoming perceived barriers to nutrition-related behaviors. The additional skill development and reflective activities related to the service-learning experience can influence behavior change along with meeting the academic objectives. The results from this study are similar to other research showing

improved academic objectives for nutrition-related service-learning courses (Gray et al., 2017; Rasberry, 2006), however, they have not been used previously to examine behavior changes related to that knowledge.

Nutrition behavior changes are related to increasing nutrition education along with improving nutrition skills, self-efficacy, attitudes, and values (Worsley, 2002). Findings from this study show that establishing *meaning* was the most reported influence of related to nutrition behavior change. The "meaning-making" described in this study was related to personal outcomes for needed nutrition changes and strengthening those outcomes with the reciprocal learning in the service-learning experience. The intentional reflective component for service-learning courses connects the learning to the service (Campus Compact, 2010). Using the major concepts from the social cognitive theory for prompts, the reflections were intentional to assess nutrition-related personal factors, environment, and the service-related work. The reflective and reciprocity are meaning-making factors that are already present as a part of best practices for service-learning courses (Campus Compact, 2010). The results from this study suggest the addition of reflection prompts related to these social cognitive concepts for health behavior change could improve self-efficacy and health-related behavior changes among students.

Furthermore, the addition of reflection prompts related to self-efficacy could enhance the meaning-making connections. Self-efficacy develops through meaningful experiences (Bandura, 2004; Chen et al., 2018). Self-efficacy changes were described by all study participants through skill development, planning, goal setting, behavior changes, and advocacy awareness. The reflection activities enhanced the understanding of the nutrition concepts related to the service-learning experience and self-awareness. Similar

to other service-learning courses, this study adds to the literature demonstrating that service-learning experiences allow for students to develop a better understanding of themselves along with the material they are studying (Salimbene et al., 2005, p. 337). Service-learning courses have been shown to be transformative experiences related to improved self-awareness and self-development (Astin et al., 2000; Bandura, 1977). The results from this study extend this idea to include nutrition behavior change through these self-efficacy improvements. Service-learning courses should be used more frequently as a method to influence nutrition knowledge and influence the needed nutrition changes among the college-student populations.

Summary

Although this was a small study in short duration, the findings suggest that service-learning courses can positively impact self-efficacy and personal factors related to nutrition behaviors. More research is needed to further explore nutrition-related changes through service-learning courses and measuring long-term nutrition changes after the service-learning experience. There is also potential for examining other health-related behavior change through the use of service-learning courses.

Section VI: Scholarly Practitioner Reflection

As a public health practitioner, teaching service-learning courses has allowed me to benefit the health of the community that I live in while providing students practical experiences to meet course learning objectives. I am thankful for the opportunity to further research the influence of these courses through the dissertation process. This process has expanded my scope as an educational leader by incorporating scholarly practice. A scholarly practitioner bases decisions and actions on knowledge and *disciplined inquiry* (Jenlink, 2010). The dissertation process has given me the disciplined inquiry and given my work a stronger influence among others in an academic setting.

Before the dissertation process, I was using evidence-based research from others to inform my practice. The dissertation has given me the ability to contribute to practice and further understand my role as an educational leader. In order to be an effective leader, with a health-promoting agenda, using data is essential (Datnow & Park, 2014). Through the data collection process, I am sharing information specific to my work. This is an empowering process and gives additional insight towards my role as a change agent.

Health leadership is an area not pursued by many professionals in my setting. I work and live in a small, rural town. My community, like many in the United States, has many lifestyle-related negative health outcomes (Callaway County Health Department, 2008). I have been working to improve these health outcomes through volunteer work and providing service-learning courses. The dissertation process has allowed me to expand my reach through engaging others in new approaches and collaborations towards health improvements. The role as a scholarly practitioner has given me a stronger voice to advocate and enlist for health promotion. This process has given me new insight towards my strengths as a leader and new insight towards a systems-based approach

(Datnow & Park, 2014). Not only using quality data, but also creating and expanding it, gives me more influence for impacting change (Datnow & Park, 2014).

To be a better leader within higher education, evidence and practical action steps to move forward, together, are my vision of change. Leadership promotes collective action and a shared vision through combined knowledge and expertise and distributed responsibilities and reciprocity (Algahtani, 2014; Datnow & Park, 2014; Hughes et al., 2019). My vision remains that of better health outcomes for students and the community. I now have more opportunities to influence these outcomes through my role as a scholarly practitioner.

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Appendix A

Informed Consent

Project Title: A qualitative study exploring college student nutrition behaviors within a service-learning course

Purpose of the Study: The purpose of this case study is to better understand nutritional behaviors, attitudes, values, and beliefs among students enrolled in the HES207 Fall semester Westminster College course.

Request for Participation: You are being asked to volunteer to participate in a research study. Components of the research collection include pre- and post- surveys, reflections, and interviews. You may choose to volunteer for all areas, some areas, or not volunteer. You can also agree to participate and then opt out of participating at any time.

If you decide not to participate, you will not be penalized in any way. You can also decide to skip any question or stop answering questions at any time, without penalty.

Description of the Research Method:

This study will take place during the Fall 2020 semester. All students in the Fall HES207 course will be asked to participate. The research components would include surveys, reflections, and one interview. The surveys and reflections are part of the regular class content and would not take any additional time obligations. The interview would take place after the service-learning component has concluded and be conducted outside of the class-time.

> Pre- and post- surveys: The surveys will be given during class, as part of a class assignment, before and after the service-learning component. The surveys provide preliminary assessment for use in class reflections and assignments and

post experience assessment of learning. Your consent would allow these results to be included in the research analysis.

Reflections: Reflection prompts will be used during the service-learning experience for journaling as part of the regular course content. Your consent would allow for your reflections to be included in the research analysis.

Interview: You will be invited to participate in a 30-minute interview, after the service-learning component has concluded. The interview portion will not be part of the course content and would be volunteer time. The interview would be recorded and transcribed for use in the data analysis. The time would be agreed upon to be convenient for your schedule.

Confidentiality: Your identity and participation will remain confidential. Names and any identifying information will be coded for additional confidentiality. Information collected for the research study will not be used or distributed for future research studies.

Explanation of Risks: The risks involved by participating in this research are no more than minimal.

Explanation of Benefits: The results from this study will be used to develop additional reflection prompts for HES207 and to strengthen the service-learning experience.

Identification of Investigators: For additional questions or concerns related to this research you can contact:

Amanda Gowin, University of Missouri ELPA Ed.D.Student
501 Westminster Ave. Fulton, MO 65251
573-826-1547 or aws061@umsystem.edu

Additional Questions Regarding Rights, Concerns, Complaints, or Comments About This Research:

If you have questions about your rights as a research participant, please contact the University of Missouri-Columbia Institutional Review Board at irb@missouri.edu or 573-882-3181

If you want to talk privately about your rights or any issues related to your participation in this study, you can contact University of Missouri Research Participant Advocacy by calling 888-280-5002 (a free call), or emailing MUResearchRPA@missouri.edu

A copy of this informed consent form will be given to you before you participate in the research.

SIGNATURES

I have read this consent form and my questions have been answered. My signature below means that I do want to participate in the research study. I agree to participate in the following research methods. I know that I can remove myself from the study at any time without any problems.

_____Pre-survey

_____Post-survey

_____Service-learning Reflections

_____Post-service-learning Interview

_____ _____

Your Signature Date

Appendix B

Pre- and Post- Assessment Fruit and Vegetable Intake

In-Class Survey

Demographic information:

Gender: Age: Major:

Expected Graduation Year:

Where do you live while at Westminster College:

List previous courses in nutrition:

How many cups of fruits do you eat in a typical day?

What are your favorite fruits?

What are barriers to getting enough fruit servings?

How many cups of vegetables do you eat in a typical day?

What are your favorite vegetables?

What are barriers to getting enough vegetable servings?

Where do your fruits and vegetables come from while attending classes at Westminster College? (list on-campus and off-campus places)

Self-efficacy Scale Fruit and Vegetables

Adapted from Bandura (2006) & Mainvil, Lawson, Horwath, McKenzie, and Reeder (2009).
Given the situation listed, rate in each of the blanks on the column how certain you are that you are able to eat fruits and vegetables on a regular basis.

Rate your degree of confidence by recording a number from 0 to 100 using the scale below:

0	10	20	30	40	50	60	70	80	90	100
Cannot do at all					Moderately can do				Highly certain can do	

Confidence to eat fruits and vegetables in differing situations. Please rate the following statements using the scale above (0-100)

_____I can eat vegetables even when I have to prepare them myself.

_____I can eat at least two different vegetables during my main meal on most days.

_____I can eat vegetables even on days when I am in a rush.

_____I can eat vegetables as part of my lunch on most days.

_____I can eat vegetables as a snack at least once a day.

_____I can eat fruit as a snack at least once a day.

_____I can eat fruit as part of my lunch on most days.

_____I can eat fruit even on days when I am in a rush.

_____I can eat fruit even when the only type available needs to be peeled and cut.

_____I can eat fruit in the morning.

_____I can eat fruit and vegetables when I am eating out.

_____I can still eat some fruit or vegetables when I do not have much money.

_____I can eat other fruit and vegetables when the type I like are unavailable.

_____I can eat fruit and vegetables when I am feeling unwell.

Appendix C

Reflection Prompts

(Adapted from Bandura, 2004; Bandura, 2006; Campus Compact, 2019)

Reflection prompts were organized to assess self-efficacy measures within mastery experiences, vicarious experiences, and states of emotion or physiological feedback.

Reflection #1:

- After reviewing the healthy eating objectives for our 3rd graders – what do you hope to teach them?
- How are your eating habits?
- Do you think that your eating habits will help with teaching 3rd graders about nutrition? (why/why not)

Reflection #2:

- Describe what you have learned about your nutrition as a result from these lesson plans. (write 1 paragraph)
- What have you learned about the nutrition of your population? (write 1 paragraph)
- What more do you need to know about nutrition with 3rd grade?
- What more needs to happen for your nutrition behaviors to change?

Reflection #3:

- Reflect on your final nutrition/healthy eating lesson for our 3rd graders. Do you think your lesson will make an impact on the 3rd graders? Explain your response.
- As you were working on your lesson plan, what new information did you learn about nutrition/healthy eating?
- Did working on this lesson plan change the way that you think about your own nutrition habits? Explain.

Reflection #4:

- After completing the post assessment for fruits & vegetables, reflect on any changes that you noticed in your eating behaviors over the past few weeks. Did you feel that learning about healthy eating changed your behaviors? Why or why not?
- Reflect on the service-learning process - did teaching 3rd graders about nutrition, influence your initial thoughts or behaviors for nutrition? Please explain.
- Finally, do you think differently about nutrition environment and influencing nutrition behaviors? How can you incorporate changes in the environment that might influence yourself or others?

Appendix D

Interview Protocol

The goals for this interview are to provide insight to self-efficacy, attitudes, values, and beliefs regarding nutrition behaviors, after participating in a service-learning experience with elementary students. Interview questions would be semi-structured to elicit information about their service-learning experience and its relationship, if any, to their current nutritional choices, attitudes, beliefs, and opportunities for nutrition improvements. Additional questions regarding perceived barriers and confidence in making nutrition decisions could explore previous ideas regarding nutrition behavior change.

Welcome

Introduce myself.
Thank you for taking time to participate in this interview. The purpose of this interview is to better understand students' nutrition knowledge, attitudes, and behaviors. During this interview, you will be asked questions regarding your insight and opinions. There are no right or wrong responses. You may choose to not answer any of the questions and you may choose to stop your participation at any time. The interview procedure will involve audio recording and verbatim transcription. Your responses will be confidential and you will not be identified individually.

Background

To get started, I would like you to help me learn more about your nutrition behaviors at Westminster College.

Demographic information: gender, age, year in school, major

1. What is your experience with nutrition?
2. How would you describe your nutrition-related behaviors at Westminster College?
3. How many fruit servings are recommended per day? How many vegetable servings are recommended?
4. What is your typical intake of fruits? (How many servings? What kind?)
5. What is your typical intake of vegetables? (How many servings? What kind?)

6. Why is eating fruits and vegetables important to health?
7. Describe your access to fruits and vegetables at Westminster College. (Variety, convenience)
8. Fruit and vegetable intake is typically low among all age groups. What do you think are the main barriers to eating fruits and vegetables?
9. What is one thing that would need to change for you to eat more fruits or vegetables?
10. Please describe any changes that you noticed in your nutritional behaviors this semester.
11. What additional nutrition behaviors do you expect to happen over the next couple months?

Service-Learning Questions

Next, I'd like to learn more about your service-learning experience during this course.

12. Tell me about your service-learning experience. How did this relate to previous service-learning experiences?
13. What do you believe is most important for 3rd graders to know about fruits and vegetables?
14. Do you feel that teaching 3rd graders about nutrition impacted your nutritional behaviors? If so, please describe.
15. How do you think differently about nutrition after participating in this experience?

Closing

That is all the questions I have for you. I want to thank you for sharing with me; I have really enjoyed hearing your thoughts and opinions. Do you have anything to add? Do you have any other questions for me? I want to assure you of the confidentiality of your responses. If you have questions that come up later, you can contact me at (phone number). Thank you again.

VITA

Amanda W. Gowin is a public health educator and registered dietitian who's path led to teaching in higher education. Her undergraduate degree includes Medical Dietetics and Nutritional Sciences from the University of Missouri and a Master's degree in Education with an emphasis in Health Education from the University of Missouri. Her work began as a public health practitioner working in prevention work specific to nutrition, tobacco, and breastfeeding in a county health department. She transitioned to higher education in 2006, first as providing health education programming for campus, then into a teaching position in Health Sciences. She found ways to incorporate students into public health practice through service-learning strategies in a variety of courses for Health Sciences.

Her love for service-learning and teaching led her back to school to complete her Doctoral degree in Education, Leadership, and Policy Analysis from the University of Missouri. The completion of her doctoral education and dissertation expanded her teaching and research skills. She aspires to grow her public health service in the community and academic realm through scholarly-based practice. She can be contacted through email at amandaWgowin@gmail.com.