

# Evaluation of a Community Nutrition Service-Learning Program: Changes to Student Leadership and Cultural Competence<sup>1</sup>



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## Abstract

Faculty at the University of Connecticut introduced an advanced service-learning course in community nutrition with the goal of delivering nutrition education and enhancing students' leadership skills, cultural competence, and understanding of contributing factors for childhood overweight in minority, low-income populations. Prior to enrollment, students completed a prerequisite community nutrition service-learning course. A mixed-methods design was used to evaluate perceptions of self-growth in leadership and cultural competence. Students demonstrated statistically significant improvement from pre-to-post semester on the overall score and several measures from the Student Leadership Practices Inventory (SLPI) and the Cross-Cultural Adaptability Inventory (CCAI). The significant changes to SLPI suggest improvements in teamwork, inspiring support, recognizing others' contributions, and collaboration. Analysis of reflections and discussion group transcripts suggest the students' opportunity to overcome obstacles and find affirmation in their growing capability played an important role building confidence. Students' noted self-growth in flexibility, adaptability, teamwork, risk-taking, self-confidence and the importance of being open-minded. They became aware of lifestyle differences and similarities with the multicultural children they served. Students made new connections about family food choices and childhood obesity. They realized sometimes their assumptions about the lives of the children were correct and other times they were not. Findings informed curriculum modifications.

## Introduction

For decades agricultural programs have incorporated experiential learning where learners are situated within simulated or real world contexts as an opportunity to apply knowledge, problem solve and cultivate decision-making skills (Andreason, 2004; Marshall et al, 1998). Although experiential learning supplies a venue for hands-on learning that may enhance desired traits among graduates, service-learning moves one step further and has become widely popular across academic environments and majors. Service-learning is supported as a teaching strategy that fosters critical thinking, builds a sense of civic and social responsibility (Bailey, Carpenter and Harrington, 2002), and cultivates leadership skills (Dugan and Kornives, 2011) including collaboration, teamwork and communication (Eyler et al., 2001). Students who participate in service-learning show increased tolerance and appreciation of other cultures, reduced stereotyping, and recognition of the importance of social justice (Eyler et al., 2001). These traits mirror expectations of the Academy of Nutrition and Dietetics (AND, 2004; Accreditation Council for Education in Nutrition and Dietetics, 2008) and the American Association of Agricultural Education (AAAE).

Service-learning moves beyond experiential learning as a structured learning opportunity which connects classroom learning with the real world in a project addressing human or community needs while encouraging students to examine their attitudes and values relative to others (Bailey et al., 1999;

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Nokes et al., 2005). Structured learning objectives, thoughtful use of reflection, reciprocity of learning between students and recipients of the service, and opportunities to discover knowledge, skills and values are core components in the service-learning model (Seifer, 1998; Ozier et al., 2010). Educators have suggested that sequenced service-learning courses may be particularly effective as students can build on previous experiences and better integrate their service activities with academic objectives (Berle, 2006).

The Center for Public Health & Health Policy (CPHHP) at the University of Connecticut (UConn) coordinates sequenced undergraduate service-learning courses to deliver Husky Programs (HP); a nutrition education outreach initiative named after the university's canine mascot. Each course encompasses the key components for incremental skill building described in the service-learning, including a minimum of 15-20 hours in the field every semester, on-site training and supervision, high quality and quantity of reflective activities, and the ability to apply the service to the academic content of a class (Eyler and Giles, 1997; Jacoby, 1996). HP typically enrolls about 120 undergraduate participants annually to deliver weekly programs primarily in Hartford, a Connecticut city where the predominant race and ethnicity is African American/Black and Latino. The poverty rate and proportion of childhood overweight in Hartford far exceed national averages with 30% of children overweight in a random sample of 203 three-year olds (Goodell et al., 2009).

The entry-level HP course, introduced in 2000 and modeled after the national Reach Out and Read literacy program offers experiential learning where students promote healthy eating habits and physical activity through reading nutrition themed books with children. Students interact with the child and accompanying adult(s) in WIC clinics, health clinics and pre-school or day care settings. Undergraduates who successfully complete Husky Reads may enroll in a second-level course, Husky Nutrition, where students deliver cooking classes in after-school programs or guide food exploration in preschool programs following established curricula. HP presents students with the opportunity to apply classroom-based knowledge in the "real world," achieve personal growth, and build cultural competence while preparing for future employment and can aide in meeting AND competencies and preparing for dietetic internships.

HP commenced a third service-learning course focused on enhancing student understanding of contributing factors for childhood overweight in minority, low-income populations while increasing

leadership skills, cultural competence and commitment to civic responsibility. The advanced course, named by the inaugural class as "UConn Café" (Cool Activities and Food Exploration) required undergraduate students to successfully complete at least one introductory nutrition class and participate in Husky Reads, Husky Nutrition, or a similar community program prior to enrolling in the course. To foster growth in leadership, students received a higher level of responsibility and autonomy compared to other HP classes.

Following recommended practices in service-learning (Eyler et al., 2001), the course required:

- **Readings and Class Discussions** – Each week assigned readings focused on childhood overweight and the influence of poverty, urban living and ethnicity on dietary patterns.

- **Curriculum Development** – Each student designed one original lesson plan targeting healthy nutrition and physical activity following an established curriculum format and trained other students to implement it.

- **Community Service** – Each week student teams taught approximately 40 children, ages 6 to 14, at inner-city after school programs. Students had full responsibility for implementing the curriculum.

- **Reflections** – Each week students reflected on personal successes, problems, relationships and cultural factors through individually completed writing assignments and open class discussions.

For more details on the course design see [http://publichealth.uconn.edu/CN/HEC\\_grant.php](http://publichealth.uconn.edu/CN/HEC_grant.php).

Corresponding with the implementation of UConn Café, the Center for Public Health and Health Policy sought to evaluate student perceptions regarding the influence of the course on their leadership skills, cultural competence and civic responsibility. Findings from the evaluation were also intended to inform what aspects of course design may be particularly beneficial or require modification.

## Methods

The research team evaluated the effectiveness of participation in UConn Café over four semesters (2002-2003) following a mixed-methods approach. Methods included quantitative measurement of cultural competence and leadership skills. Qualitative assessment included analysis of discussion group transcripts and written reflection assignments. The UConn Institutional Review Board approved all methods. All enrollees agreed to participate and signed informed consent.

During the first and last class of each semester, students completed two validated self-assessment

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tools, the Student Leadership Practices Inventory (SLPI; Kouzes and Posner, 2006) and the Cross-Cultural Adaptability Inventory (CCAI; Kelley and Meyers, 1992). The SLPI is based on Kouzes and Posner's book *The Leadership Challenge* and its Five Practices of Exemplary Leadership®: 1) Inspire a Shared Vision—ability to have vision for the future, passionately communicate and enlist support of others; 2) Enable Others to Act—capacity to promote teamwork engaging others in process with mutual involvement, collaboration and empowerment; 3) Encourage the Heart—ability to acknowledge and celebrate contributions of others and foster pride in achievements; 4) Model the Way—setting expectations and role modeling appropriate behaviors to attain goals; and 5) Challenge the Process—willingness to scrutinize and transform the status quo through informed risk-taking and openness to learning from mistakes (Dugan and Kornives, 2011; Kouzes and Posner, 2002). Using the SLPI, students assessed their leadership practices ranking each of the 30 inventory items from 1 (rarely or seldom) to 5 (frequently).

The CCAI assessed an individual's ability to work or live with others from another culture. The inventory includes four dimensions of cultural competency: 1) Emotional Resilience—ability to deal with stress of a new environment in a positive manner; 2) Flexibility/Openness—ability to have a positive attitude and be open-minded to different cultures; 3) Perceptual Acuity—capability to accurately perceive the feelings of others who are culturally different; and 4) Personal Autonomy—ability to maintain a strong personal set of values while respecting the value system of others. Respondents rate each of the 50 items from 1 (definitely true) to 6 (definitely not true).

During the final class of each semester, the instructor facilitated a discussion group to explore student perspectives on their service experience, including perceived changes in attitudes, opinions and beliefs related to poverty, childhood overweight, cultural diversity, leadership skills and civic engagement. The facilitator followed a semi-structured discussion guide, including follow-up probes (Kruger, 1994). During the discussion, the facilitator requested specific examples, or stories to illustrate points raised by the students. The discussion was audio-taped and transcribed in full.

Two researchers, using an *a priori* coding schema constructed from the literature on attributes of leadership and cultural competency (Lloyd, 2006; Sue, 2001), coded the transcripts and reflections following grounded theory (Strauss and Corbin, 1990). The researchers applied emergent coding to elements that were repeatedly included in narratives to which the *a priori* codes applied and used qualitative software N6 (QSR International, 2005) for codebook organization. Both researchers independently coded the same transcript, then compared codes, and more strictly defined them to increase analytic reliability, and periodically discussed emergent codes and textual passages that might refine or expand the coding schema. The researchers developed cross matrices of all codes to look for relationships (Miles and Huberman, 1994) then used memoing to examine the meanings behind the codes and their interrelationships to interpret the findings (Lofland and Lofland, 1995).

Paired student t-tests were used to examine overall and subscale scores of the leadership and cultural competency instruments (SPSS, 16.0.2).

## Results and Discussion

Participants (n=26) were primarily white females (n=23), nutrition majors (n=19), in their junior or senior year of college (n=22), and enrolled in the College of Agriculture and Natural Resources. (n=23). The average age of participants was 22 years with 24 of 26 students between the ages of 19 and 22 (range 19-46).

**Table 1. Results of a Paired Student's t-test Comparing Pre- and Post-Semester Means on the Five Key Practices of Exemplary Leadership and the Overall Score of the Student Leadership Practices Inventory (n=26) (Kouzes and Posner, 2006)**

	Pre-Semester		Post-Semester		t-value	Significance (2-tailed)
	mean	±S.D.	mean	±S.D.		
Key Practices <sup>z</sup>						
Model the Way <sup>y</sup>	3.9	0.6	4.2	0.5	1.58	0.126
Inspire a Shared Vision <sup>x</sup>	3.7	0.6	4.1	.04	3.04	0.005**
Challenge the Process <sup>w</sup>	3.4	0.5	4.0	0.5	1.60	0.121
Enable Others to Act <sup>v</sup>	4.1	0.6	4.4	0.4	2.70	0.012*
Encourage the Heart <sup>u</sup>	3.9	0.7	4.2	0.6	2.85	0.009**
Overall Score	19.4	2.3	20.9	2.1	2.72	0.012*

\* , \*\* Denotes significance at p=0.05 or 0.01, respectively

<sup>z</sup> Possible score for each of the key practices ranges from 6-30 and for the overall score from 30-150.

<sup>y</sup> Ability to have vision for the future, passionately communicate and enlist support of others.

<sup>x</sup> Capacity to promote teamwork engaging others in process with mutual involvement, collaboration and empowerment.

<sup>w</sup> Ability to acknowledge and celebrate contributions of others and foster pride in achievements.

<sup>v</sup> Setting expectations and role modeling appropriate behaviors to attain goals.

<sup>u</sup> Willingness to scrutinize and transform the status quo through informed risk-taking and openness to learning from mistakes.

In discussing how UConn Café had impacted them over the semester, the students most frequently described events that had challenged their abilities or their prior beliefs. The general perspective was that through confronting real-life challenges, they had gained important leadership skills and cultural awareness. In their descriptions, the students consistently interwove relationship building with self-growth.

### Leadership

The SLPI overall leadership score and three of the key practices –Inspire a Shared Vision, Enable Others to Act, and Encourage the Heart– significantly improved pre- to post-semester (Table 1). Model the Way and Challenge the Process scores improved but did not reach statistical significance. The significant changes suggest improvements in teamwork, inspiring the support of others, collaboration, recognizing the contribution of others and fostering pride. Student reflections and the final discussion groups emphasized personal growth in adaptability, self-confidence, and risk-taking as well as teamwork and the group process.

The students felt that their ability to adapt to the classroom situation improved greatly over the course of the semester. Students recalled unexpected challenges at their initial community sessions. *“Suddenly there’s a time change, or they didn’t expect us to show up, or the kids were not exactly receptive.”* Delivering nutrition lessons, *“You realize no matter how much you planned, there’s only so much you can control.”* At first the students reacted to these unforeseen events with uncertainty but they *“started to learn what works and what doesn’t”* and *“each time it got better.”* By the end of the semester, the students were more likely to describe themselves as “flexible.” *“We just went with the flow.”* Students also became more familiar with their teammates. They described how they progressed from functioning side-by-side to a collaborative effort. *“At first we didn’t have it. We would just stop. It wasn’t going to work,”* but *“Each time we went in we worked better together,”* and by the end of the semester, *“We had a bond.”* *“No one said anything. Things just kind of happened. It just worked.”* As students became better acquainted with one another, they learned the strengths of team members and felt comfortable depending on one-another. *“I don’t think I could have done it alone.”* *“With a little bit of input from each other, we put it all together. We realized our mistakes and weren’t afraid to admit them.”*

The students noted that their efforts were rewarded. *“As the kids got more comfortable with us, they were more willing to participate.”* *“When we came in they*

*were clapping.”* *“It was good to be working with the kids and being able to find common ground...even the adults, or the parents or teachers that we would see...you would see them nodding approval and being glad we were there and we were involved. It meant a lot to me and it has given me more confidence to relate to other cultures.. .”* As self-confidence grew, the students began to take risks, such as focusing the lesson on unfamiliar foods or putting the children in leadership roles. Sometimes they experienced *“a little bit of failure.”* Even so, they attributed value to the experience. *“You’re taking risks but you’re learning from those risks.”*

Some students felt participating in UConn Café increased their willingness to take risks and improved their leadership skills inside and outside of the service-learning experience.

*“I know in my other work situations it has helped me to rise to the occasion and not have something prepared and being calm and say I’m going to get my point across, I’m organized in my mind. I know what I need to do and how to do it in a clear, concise way. So I think that has helped in other places too.”*

The opportunity to overcome obstacles and find affirmation in their growing capability appears to have played an important role for participants while having important implications for future leadership activities. Engagement in risks or new challenges as described by the students is consistent with self-efficacy (Bandura, 1989) and trait theory related to the role of self-confidence in leadership (Lloyd, 2006). Higher levels of self-confidence and self-efficacy impact the pursuit of future leadership roles and engagement in challenging group tasks or new experiences (Wagner, 2011). Self-confidence can also increase comfort with decision-making, delegation of responsibilities, organization, and ability to gain trust (Lloyd, 2006).

### Cultural Competence

Table 2 shows the results of the CCAI, which focuses on race-related cultural competency. The overall score and two dimensions, Emotional Resilience and Flexibility/Openness improved significantly; Personal Acuity showed an upward trend; no change was apparent for Personal Autonomy. Students attributed increases in their cultural competence to the class and to first-hand experience in the multicultural community. Differing from the CCAI, student perceptions of their cultural competence as described in reflections and discussion highlight age as the largest perceived cultural gap. Through the course, students’ general view of childhood overweight, particularly among children from low-income urban families,

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**Table 2. Results of a Paired Student's t-test Comparing Pre- and Post-Semester Means on the Dimensions and Overall Score of the Cross-Cultural Adaptability Inventory (n=26) (Kelley and Meyers, 1992)**

Dimension <sup>†</sup>	Pre-Semester		Post-Semester		t-value	Significance (2-tailed)
	mean	±S.D.	mean	±S.D.		
Emotional Resilience <sup>‡</sup>	85.1	8.5	88.8	6.2	2.76	0.011*
Flexibility/Openness <sup>§</sup>	70.0	8.3	73.0	6.4	2.16	0.041*
Perceptual Acuity <sup>¶</sup>	48.4	5.2	49.9	4.5	1.46	0.158
Personal Autonomy <sup>‡</sup>	33.3	2.9	34.2	3.2	1.15	0.610
Overall Score	236.7	19.1	245.8	15.2	2.72	0.012*

\* Denotes significance at p=0.05

<sup>‡</sup> Possible score for each dimension: Emotional Resilience 18-108, Flexibility/Openness 15-90, Perceptual Acuity 10-60, Personal Autonomy 7-42, Overall 50-300

<sup>§</sup> Ability to deal with stress of a new environment in a positive manner.

<sup>¶</sup> Ability to have a positive attitude and be open-minded to different cultures.

<sup>¶</sup> Capability to accurately perceive the feelings of others who are culturally different.

<sup>¶</sup> Ability to maintain a strong personal set of values while respecting the value system of others.

changed. Many of the students acknowledged that at semester start they held “a lot of stereotypes,” or “preconceived notions.” One student noted, “When I thought about overweight and obesity before, I kind of thought of it as something people... could avoid if they wanted to.”

As the semester progressed, experience taught the students the importance of being “open-minded and non-judgmental” about differences as they began to question their assumptions and recognize barriers to addressing childhood overweight. The students realized that sometimes their assumptions about the lives of the children were correct and other times they were not. “Some of the children did not know common foods like whole wheat bread and squash.” “I was shocked that some of the kids had never tried peanut butter.” “When the [children] knew what cantaloupe was or where milk came from I was more surprised than I should have been.”

Several students also described barriers to playing or exercising outside. “At the entrance [of the site] there was this ‘gun free zone’ sign.” “There was nowhere to play.” “I always just thought they didn’t want to [exercise] and now I saw that some people just can’t. They don’t really have the options that others have, like parks or anything to go to.”

These types of surprises led to questioning of assumptions. “This made me think how many of their day to day activities are probably a lot different from my past experience.” Over the semester, students began making new connections about family food choices and childhood obesity. “I just never thought about the connection that processed foods are so cheap; especially for parents with reduced income or on welfare that have to get the cheap foods because they have to feed their kids.”

Students also realized the challenge of implementing successful and appropriate nutrition education interventions. “When you see it [obesity] in children and you see... you put a face to that, through all the readings and everything you thought about and come to really see how there’s this long line of factors that seem to be against these kids having healthy habits and healthy lifestyles, just really understanding how this system is almost lined up against them.”

“It’s definitely hard for them [the kids]. Their parents are doing it [eating and feeding the kids junk food] and then us as strangers come in and we’re like, ‘Oh, you’re actually not eating what you’re supposed to be eating and your parents are feeding you the wrong stuff. Here’s what you’re suppose[d] to be eating, but you don’t like it. Well, it’s healthy, sorry. You should eat it.’”

Many realizations made by UConn Café students mirror those found in other service-learning studies. Students participating in a service learning component for a nutrition course described the experience as a “true eye opener about the community” and described diversity between themselves and the children (Ash, 2003). In another study, dental hygiene students serving a community health center noted seeing a variety of complex child and community needs (Aston-Brown et al., 2008).

### Perception of the Course

UConn Café students emphasized the benefit of the hands-on experience.

“You could read about it all you want and you’ll have all the stereotypes in your mind of maybe a different author or different facts and the way you view them but the only way you can know the truth is to go yourself.”

“I think being out there and being exposed to different cultures, and seeing, like you said, the different foods... or seeing their neighborhood; I think that’s the only way to get people to understand...The cultural competence I think comes from seeing what they are dealing with and seeing what they are working with and then, again, tailoring what they need and what their culture is.”

These findings consistently echo patterns found across disciplines. For example, Maiga and Westrom (2006) evaluated two animal systems courses with service-learning components. Participating student

survey responses suggested high satisfaction in the course. Ninety percent agreed that they learned more from the hands-on course compared to traditional lecture. Ninety-five percent learned the value of communication and Ninety-four percent improved critical thinking skills. As reported, the main skills acquired were working in a team environment, confidence, communication, improved leadership, and a sense of civic engagement. Students participating in Ash's (2003) evaluation of a nutrition-related service-learning project reported personal growth (47% of respondents), civic engagement (33%), and academic enhancement (17%) as the areas of biggest growth.

### Future Service Plans

UConn Café participants noted new interests and an intent to increase volunteerism after the course. The class also appears to have spurred interest in community nutrition as a professional field and internship area for students aiming to become a registered dietician.

*"This class has kind of shown me that it can be done ... the same idea can be carried through in so many different places. Not only in school systems...it's encouraging."*

*"If this is the kind of thing I can be involved in as a career, I would be there in a heartbeat..."*

*"I had never thought about community nutrition but after doing this I like it. I'd really like to make a difference..."*

### Summary

The use of service-learning in preparing college students is becoming widely applied. However, assessing the effectiveness of a service-learning course is difficult, often complicated by the "real world" setting, small samples, and complex objectives. Nonetheless, these results demonstrate the value of such evaluation. Even with the small sample, the results appear credible. Students who participated in different semesters discussed similar outcomes and results from two standardized measures, the SLPI and CCAI, demonstrated statistically significant improvement.

The qualitative phase of the evaluation provided insight beyond the standardized surveys. This may be partially attributable to divergent definitions of leadership in the SLPI, the course design and student perception; students view leadership as an individual position whereas academia largely defines leadership as relational (Lloyd, 2006). The SLPI defines student leadership as roles taken by a student relative to other students. UConn Café students mainly described leadership as their role with the children while efforts with their peers were termed "teamwork." What

students described as "teamwork" emulates aspects of relational leadership models and the types of skills desired as an outcome for the course.

The assessment also helped in identifying course strengths and areas for improvement. Discussion group transcripts and written reflections added depth to the evaluation by providing student perceptions of the community experience and its' influence on them. The students reported self-growth in their leadership skills and cultural competency. Comments from students were mainly attuned to age, food preferences, and physical activity which at times diverged beyond the course focus on leadership growth and cultural awareness. To better emphasize targeted areas, new opportunities and assignments have been designed to encourage students to spend time with the children's parents and at public spaces in the neighborhood. Many of the reading assignments now use articles from the city newspaper rather than generalized academic literature. Community-based stories bring the daily issues faced by the low-income families and the children the service-learning students are serving into the forefront. Through continual self-monitoring and keeping abreast of advances in the field, instructors can arrange experiences that meet the learning stages and specific needs of their students and the agricultural contexts they serve.

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