

Preparing Students for Extension Careers and Expanding U.S. Extension Reach Through International Service Learning

Abstract

As U.S. Extension broadens its reach around the globe, an increased need exists for Extension professionals who have not only technical knowledge but also the cultural competencies to apply that knowledge in international settings. We describe a course that provides students with the opportunity to develop skills needed for potential careers in Extension, especially those involving international focuses, while advancing U.S. Extension's international efforts. The course also may serve as a model for instructors wishing to integrate Extension concepts into their teaching of undergraduates, thereby preparing individuals to make immediate impacts in Extension careers.

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Introduction

Of the three missions of land-grant universities, undergraduate students are often least familiar with Extension (Grotta & McGrath, 2013; Loizzo & Lilliard, 2015). Without awareness of Extension's programming and wide range of audiences and stakeholders, students are less likely to explore Extension career opportunities or be prepared to work in Extension should they choose that path. Thus, academic offerings that increase undergraduate students' exposure to Extension programming and methodologies provide students with incentive to choose a career in Extension and tools needed to develop and deliver sound and effective

Extension programming.

Extension professionals must possess strong behavioral competencies, including communication, problem solving, leadership, and team building skills (Crawford, Lang, Fink, Dalton, & Fielitz, 2011; Hart Research Associates, 2010). Additionally, due to increasingly diverse focuses and clientele, cultural competencies have grown in importance for Extension professionals (Atilas & Eubanks, 2014; Lakai, Jayaratne, Moore, & Kistler, 2014; Noel & Qenanib, 2013). Cultural competencies are especially critical for Extension professionals who aim to deliver effective programs in international settings (Deen, Parker, Griner Hill, Huskey, & Whitehall, 2014).

Here we describe a service learning course for U.S. undergraduate students that has an Extension focus and takes place, in part, in rural Romania. The overall objectives of the course are to foster the development of future Extension professionals and to expand U.S. Extension's international efforts. The course involves an experiential/service learning format (Dailey, Conroy, & Shelley-Tolbert, 2001) that provides students the opportunity to develop certain behavioral competencies by delivering Extension workshops to international audiences. In this international context, the service learning model also allows students to improve cultural competencies through direct engagement with clientele whose ethnic, cultural, and/or economic backgrounds are quite different from their own (Bingle & Hatcher, 2009; Bingle, Hatcher, & Jones, 2011). Students with advanced understanding of Extension principles and methodologies and the cultural competencies to apply these principles in international settings have greater potential to make an immediate impact as future Extension professionals in U.S. Extension's increasingly global programs.

Methods

Partners

The course is a collaboration of four entities—two universities and two nongovernmental organizations. Purdue University is Indiana's land-grant university and is located in West Lafayette, Indiana. Banat University of Agricultural Sciences and Veterinary Medicine is a public Romanian university located in Timișoara, Romania. Heifer International Romania is a nongovernmental organization located in Cluj Napoca, Romania, that focuses on enhancing economic stability primarily through improved livestock production. Hunedoara County Livestock and Poultry Breeders Association is a nongovernmental organization that provides agricultural education and extension programs for livestock producers throughout Hunedoara County, Romania.

Participants

The data presented here are from assessments conducted with the 2015 course participants, 17 U.S. students and seven Romanian students. The U.S. participants were 2nd-year through 4th-year undergraduate students in the Purdue University College of Agriculture and were 19 to 21 years of age; 16 of the 17 were female. The majority of U.S. students were from the Department of Animal Sciences, but other College of Agriculture departments (e.g., Biochemistry, Youth Development and Agricultural Education, Agricultural Economics) were represented as well. Romanian participants were all undergraduate students at Banat University of Agricultural Sciences and Veterinary Medicine from the faculties of Veterinary Medicine, Farm Management, Horticulture and Forestry, Animal Science and Biotechnologies, and Agriculture. All Romanian students were advanced to fluent in English.

Preparation Course (United States)

All U.S. students participated in a 16-week, 1-credit-hour preparatory course prior to traveling to Romania. The preparatory course introduced students to

- the mission and scope of the U.S. Cooperative Extension System;
- Extension methodologies, including needs assessment, program development and delivery, and impact measurement;
- principles of sustainable development; and
- Romanian language (salutations, self-introductions, basic directions, etc.), culture, and agriculture.

During the preparatory course, students were assigned to one of four groups to prepare for delivering in-country Extension workshops on topics identified through discussions between the program's stateside instructors and Romanian partners (i.e., goat husbandry, poultry nutrition, animal well-being, waste/nutrient management). A fifth group of students was given the responsibility of developing means to assess the efficacy of the in-country Extension workshops.

International Learning (Romania)

The service-learning projects took place from mid May to mid June 2015 in western Romania. Upon U.S. students' arrival in Romania, U.S. and Romanian students met and became oriented at the Banat University of Agricultural Sciences and Veterinary Medicine campus. The students were then assigned to teams of four (three U.S. students and one Romanian student per team) and spent 5 days participating in homestay experiences on farms in a rural Romanian village. The homestay component was designed to allow students to more closely experience the realities of Romanian culture and agriculture. Students were instructed to work with the host families in their day-to-day activities on the farm and in the home, observe differences and similarities relative to their own situations at home, and later reflect on their cultural competencies as they navigated the experience.

Upon completion of the homestays, students worked in teams of six to eight to develop, deliver, and evaluate Extension workshops on dairy goat production, poultry nutrition, animal well-being, and waste management. The workshops focused on topics the U.S. students had prepared for during the preparatory course but were further informed by both their experiences and observations during their homestays and input from their Romanian student partners. Developing, delivering, and evaluating the workshops allowed students to put into practice the Extension methodologies they had learned during the preparatory course. The student groups delivered the workshops to interested members of the village in a day-long event. Following completion of the workshops, one group of students surveyed workshop attendees to gauge the efficacy of the student presentations. Again, U.S. students had developed the survey instrument during the preparatory course but modified it on the basis of both what they had learned while in-country and input from their Romanian student partners.

Assessment

All research reported here was approved by the Purdue University Institutional Review Board. Students

completed structured reflection exercises following their homestays, following the Extension workshops, and upon course completion. These exercises allowed students to measure their efforts and to identify practices that led to success and challenges that occurred with regard to their Extension workshops. The exercises were further used to assess how effective the experiences were in helping students build skills needed by potential Extension professionals. Introductory questions asked students to provide overall descriptions of their projects. Each reflection exercise also contained a mix of quantitative questions (e.g., "In working with your team, which skills were the most important? [a] communication skills, [b] leadership skills, [c] team building skills, [d] interpersonal skills, [e] problem solving skills, [f] animal science skills") and qualitative questions (e.g., "What do you think led to the successes you saw as a team?"). Answers to qualitative questions were preliminarily organized through descriptive coding to identify dominant and subdominant themes (Saldaña, 2009). When appropriate, data were compared statistically through a one-way analysis of variance with post-hoc Tukey analysis. Comparisons were considered statistically different at $p < .05$. The results presented here represent responses from U.S. students only.

Results and Discussion

Homestay Experience

Both U.S. and Romanian students were instructed to use the homestay experience as a time to couple their classroom preparation with observation of and firsthand experience with small-scale Romanian agriculture and Romanian culture to gain a better idea of how to appropriately deliver their Extension workshops. This rural Romanian experience was new for several Romanian students as well. During the homestays, students participated in various activities with the families, including farm work and social activities, and were instructed to note differences and similarities between their U.S. and Romanian experiences. Post-homestay reflections, detailed in Table 1, revealed that students most frequently (94.1%) cited food/food customs as the greatest difference. Interestingly, the differences students noted were rarely simple differences in types of foods. Rather, over 50% of the students perceived that Romanians had a geographically closer relationship with food production, made greater use of foods (produce, meats) produced from their own farms or gardens, relied less on processed foods, and made more frequent use of mealtimes for communication among family members or with guests. Students most frequently (43.8%) cited the importance of family as the greatest similarity between their own culture and that of rural Romania, with one student noting, "It's good to know that grandmas are everywhere." There were no other strong similarity indexes.

Table 1.
Differences and Similarities in U.S. and Romanian
Culture, Values, and
World View Noted by U.S. Students After Homestays in
a Rural
Romanian Village

Area of comparison	Students self-reporting (%)
Differences	
Food and eating	94.1
Time	35.3

Social interactions	29.4
Agriculture	29.4
Similarities	
Importance of family	43.8

Note. Question: Based on your experience, how are the culture, values, and world view in rural Romania different than home? Are there any similarities?

Reflection exercises also addressed whether the homestay experience allowed students to use and improve behavioral competencies that could help them be more effective as future Extension professionals. As indicated in Table 2, following the homestay, students identified communication as the skill they used most often during the experience ($M = 4.9/5.0$; scale—1 [*never used*] to 5 [*used all the time*]). In most cases, host families spoke little to no English. Thus, difficulties in communication due to language differences would be expected. Communication also was the competency area in which the most students reported being weaker than they previously thought they were.

Table 2.

Students' Reflections on Skills Used During Romanian Homestay Experiences and Changes in Their Self-Assessments Related to Those Skills

Skill	Frequency used (M)	Students self-reporting of skill level (%)		
		Stronger than I thought	Weaker than I thought	About the same as a I thought
Communication	4.9 ^a	18.8	50.0	31.2
Interpersonal skill	4.2 ^{a, b}	37.5	25.0	37.5
Cultural awareness	4.0 ^b	20.0	6.7	73.3
Leadership	3.4 ^{b, c}	40.0	6.7	53.3
Problem solving	3.1 ^c	21.4	14.3	64.3
Animal science	2.8 ^c	21.4	14.3	64.3

Note. Questions: During your homestay, when interacting with your homestay family AND your fellow students (both U.S. and Romanian), how often did you rely on the following skills? Scale—1 (*never*) to 5 (*all the time*). Did you identify any skills that are stronger or weaker than you had previously thought? Numbers with different superscripts are significantly different at $p < .05$; comparisons are within column.

All students (100%) reported learning new skills, with 93.3% identifying specific hard skills learned. Of those reporting learning specific hard skills, all students (100%) reported learning new agricultural skills (e.g., dairy production or processing, grain processing, hay production), and 64.3% reported learning new skills related to food processing. Many of the participating students had agricultural or rural backgrounds, but the diversity of rural Romanian farms coupled with less mechanized agricultural practices offered even these students new learning experiences (e.g., several students were introduced to hand milking). A high number of students (86.7%) also reported refining or further developing soft skills. Of their responses, 84.6% were directly related to communication.

The homestay experience was designed to complement classroom learning from the preparatory course with a short-term, but intensive, "real-life" introduction to Romanian agriculture that would help build students' cultural competencies. Although portions of the preparatory course focused on the need to better understand communities and decision making processes before taking relevant action, several students expressed frustration with this model and desired to proceed directly to "working" or "helping." Nevertheless, the homestays were effective as intensive and experiential introductions to a different culture, and students indicated through their responses to the post-homestay reflection exercises skills they felt they should further develop to become impactful educators. Use of a net promoter scoring system indicated that 100% of student participants were promoters (>9.0) of the homestay experience as a way of learning about rural Romania ($M = 9.1/10.0$; $SD \pm 1.29$; scale—1 [*not likely at all*] to 10 [*extremely likely*]). This firsthand, intensive experience with Romanian farmers also led students to make numerous changes to their Extension workshop presentations to make them more appropriate, relevant, and impactful.

Extension Workshops

Following the homestay experience, students were charged with delivering Extension workshops focused on topics related to food animal production (dairy goat production, poultry nutrition, animal well-being, and composting). These four topics reflected discussions between the U.S. and Romanian partners and were based on (a) needs of the community, (b) capacities of the students, and (c) efforts to allow all students opportunities to participate. U.S. students spent portions of the preparatory course researching and otherwise preparing educational programs on these topics but were instructed to modify, adapt, and improve their presentations after gaining firsthand experience with Romanian farmers and Romanian agriculture through the homestay experience.

Students felt their presentations were only marginally successful in meeting their goals ($M = 7.25$, $SD \pm 1.13$; scale—1 [*not effective at all*] to 10 [*extremely effective*]). Through the post-workshop reflection exercises, students more formally identified factors that led to success and challenges that inhibited success; results are shown in Table 3. Not knowing or not effectively connecting with their audience was most frequently (62.5%) cited as the biggest challenge to success. Students did report that their efforts on the workshops improved their understanding of how Extension programs are developed and implemented ($M = 7.81$, $SD \pm 0.98$; scale—1 [*not improved at all*] to 10 [*greatly improved*]). It is of note that the students responsible for developing the survey instrument used to assess the impact of the workshops felt more strongly that they improved their understanding of Extension ($M = 8.5/10$) as compared to those who actually delivered the workshops ($M = 7.6/10$). Overall, the process of presenting the workshops impressed on students the realities of conducting effective Extension and other educational programming, namely the importance of understanding stakeholder

backgrounds and needs in delivering relevant and impactful workshops. Students have the potential to use this knowledge to more effectively develop their own Extension programs in the future.

Table 3.

Students' Self-Reported Reasons for Success and Challenges
Encountered in Delivering Extension Workshops

Factor	Students self-reporting (%)
Reasons for success	
Knowledge of subject	68.8
Past experience	6.3
Research	62.5
Communication with one another	37.5
Preparation	37.5
Communication with audience	25.0
Challenges	
Not knowing audience	62.5
Lack of knowledge/difficulty of subject matter	25.0
Lack of teamwork/interpersonal conflict/lack of preparation	25.0

Note. Question: What do you think led to the successes you saw as a team? If you feel your team was not as successful as you would have liked, what did you see as your major challenges?

Overall Assessment

Students participated in a final reflection in which they assessed the program overall and their successes in the course, both in the United States and while abroad. Again, students identified communication as the attribute most frequently used during the program, as indicated in Table 4. Additional skills needed for effective Extension programming, namely problem solving and cultural competency, were used with nearly equal frequency. Interestingly, although students each delivered two Extension workshops on animal production, they indicated that animal science skills were used least frequently. In post-reflection conversations, some students indicated that they considered animal science skills to be those involving direct, hands-on interaction with animals. In the future, the reflection tool might be improved through the inclusion of some level of prompting for questions about animal science skills, although care should be taken not to introduce bias.

Table 4.

Frequency with Which Students Used Skills Relevant to
Extension Work Throughout Extension-Based Service

Learning Course

Skill	Frequency used (<i>M</i>)
Communication	8.8
Problem solving	8.5
Cultural awareness	8.3
Team building	7.9
Leadership	7.3
Animal science	7.0

Note. Question: Thinking over the entire course, please indicate how often you had to use the following skills? Scale—1 (*not at all*) to 10 (*very often*).

Perhaps more important, with regard to skills needed for developing effective Extension programming, students reported that participating in the course helped them both improve and recognize areas in which they needed further improvement (Table 5). Directly relevant to enhancing U.S. Extension's international programming, students felt that of all the skills presented, their cultural competencies were most improved. Additionally, all students (100%) reported that participating in the course improved their confidence or capacity related to traveling or working in an international setting other than Romania (Table 6). Likewise, students reported substantially improving their understanding of how and when to apply animal science technologies that are most appropriate for different cultures and economic situations (Table 6). Thus, students participating in the course may be better prepared for U.S. Extension careers, especially those with international focuses, and may more rapidly develop effective programs if they become Extension professionals.

Table 5.

Impact of Extension-Based Service Learning Course on Development of Skills Relevant to Extension Work

Skill	Level of improvement as result of participating in course (<i>M</i>)	Students indicating that participating in course highlighted need to improve skill for future career success (%)
Cultural awareness	8.7	50.0
Communication	8.0	85.7
Problem solving	7.9	42.9
Team building	7.2	35.7
Leadership	7.1	64.3

Animal science

6.9

57.1

Note. Questions: Please tell whether you feel you have improved or not in the following skills through participation in this course. Scale—1 (*not at all*) to 10 (*greatly improved*). Has this experience highlighted any skills that you feel you need to better develop to be more successful in your future career?

Table 6.

Final Assessments by Students Participating in Extension-Based Service Learning Course

Question	Score (M, SD)
Taking into account all of your experiences over the course, how confident or capable do you feel in traveling or working in a new international setting outside of Romania? Scale—1 (<i>not confident at all</i>) to 10 (<i>very confident</i>)	9.0, ±2.1
Has your experience in this course improved your understanding of how and when to apply animal science technologies that are most appropriate for different cultures and economic situations? Scale—1 (<i>not improved at all</i>) to 10 (<i>greatly improved</i>)	8.29, ±1.2
Has your experience in this course improved your understanding of the mission of Extension? Scale—1 (<i>not improved at all</i>) to 10 (<i>greatly improved</i>)	8.8, ±1.3
Through this course, has your ability to work effectively in a multi-cultural team to solve problems improved? Scale—1 (<i>not improved at all</i>) to 10 (<i>greatly improved</i>)	9.0, ±1.3
How likely are you to recommend this course as a way to better understand Extension and international development? Scale—1 (<i>would not recommend</i>) to 10 (<i>would recommend enthusiastically</i>)	9.2, ±1.2

Finally, the course was effective in broadening students' awareness of and potential for careers in U.S. Extension. In formal pre-course questioning (all U.S. students completed pre-course questionnaires on their backgrounds) and informal pre-course questioning, the overwhelming majority of students stated that they were unfamiliar with Extension, its scope, and its role in land-grant universities, outside of 4-H. Participating students would promote the course as a way to better understand Extension ($M = 9.2/10$; $SD \pm 1.2$; scale—1 [*not recommend at all*] to 10 [*highly recommend*]) and felt that their participation would benefit them in their future careers ($M = 9.5$, $SD \pm 1.2$; scale—1 [*not beneficial at all*] to 10 [*highly beneficial*]; Table 6). Thus, participation in the course improved students' awareness of Extension careers while allowing them to develop skills needed to be effective educators or specialists. Participants in the course may be more inclined to pursue Extension careers and can use the experience to better develop appropriate and impactful programming. We intend to follow up with participants to determine whether they pursue Extension careers, with or without an international focus, and if so, the role the course played in their decisions to do so.

Conclusions and Recommendations

As U.S. Extension continues to expand its global reach, development of effective programming will occur only if individuals have the hard skills and behavioral competencies to apply their knowledge most appropriately in different settings. The course described here enhances U.S. Extension's international efforts while allowing students to build skills needed to become effective Extension professionals. The experiential/service learning platform effectively impresses on students that both cultural competencies and technical expertise are integral to being an effective Extension educator. Although the course occurred in an international context, the skills gained are as relevant and applicable to U.S. Extension programming in rural U.S. counties as they are to international programs.

The data reported here are from the 2015 course. As of this writing, the course has undergone two additional iterations. Although the overall model of the course (i.e., homestays, delivery of student-led Extension workshops) has not significantly changed, the topics for the Extension workshops have become much more focused (e.g., milk and dairy quality). Focusing the topics has allowed the students to delve more deeply into each subject, with the measured impacts on the community improving significantly. (These data are the subject of a future manuscript.) Additionally, the students spend time during the course completing other service learning activities that have less of an Extension focus and are out of the scope of this article. Finally, as mentioned previously, of the three land-grant university missions, students likely have the least exposure to Extension. Thus, the course may serve as a model for Extension professionals wishing to integrate Extension methodologies and activities into the teaching of undergraduates, thereby preparing more individuals for careers in Extension.

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