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## Service-learning in agricultural instruction: A guide for implementing real-world, hands-on, community based teaching and learning

O'Neil, Carol E

### Introduction

Service-learning (SL) is defined as "a credit-bearing, educational experience in which students participate in an organized service activity that meets identified community needs and reflect on the service activity in such a way as to gain further understanding of course content, a broader appreciation of the discipline, and an enhanced sense of civic responsibility" (Bringle and Hatcher, 1995). The service-learning movement has gained tremendous popularity during the past decade in response to visionaries like Boyer (1990), who called for radical change in higher education toward the "scholarship of engagement," in which universities engage with communities as equal partners for the continued development of democratic society.

Agriculture has a rich history of service to society; SL, with its emphasis on service and education, is a natural complement to our respective disciplines (CREES, 2002). However, because SL has been defined only recently as a pedagogy relatively recently (Sigmon, 1996), many agricultural education strategies that use SL have not been defined as such at this time. Moreover, there are many misconceptions about SL.

Barkley (1999) described a SL project implemented in a senior-level capstone course in agricultural economics. For this project, worth 10% of the course grade, students were required to provide a written plan of what they hoped to accomplish during the semester, spend a minimum of ten hours of service on the project, and write a report on evaluation and assessment of the project. Students demonstrated improved civic or social consciousness, critical thinking skills, awareness and comfort with diversity, collaborative problem solving ability, and conflict resolution skills. Barkley concluded that the SL component contributed largely and meaningfully to the learning experience provided by the capstone course.

Lima (2000) described an approach to using SL in a freshmen level design course in Biological and Agricultural Engineering. Student groups worked with elementary school children and faculty to design a "dream playground" for the school. Using SL encourages student motivation because students feel like they are making a positive difference in the community. Further, the SL experience brings an element of "social engineering" to a student's education that is critically important to the student, the community, and the discipline.

The literature regarding SL in agricultural instruction provides a description of the contexts and ways in which this pedagogy has been used; however, an overarching framework for designing a SL course or program in agriculture has not been addressed. This paper describes the process by which educators could implement a SL course or program and provides specific examples of established SL initiatives in agriculture.

### Guidelines: Considerations for the Instructor

Guidelines for implementing SL courses are varied, and different courses require different approaches. Heffernan (2001) provides a good cross section of SL methods described primarily through course syllabi. Figure 1 provides additional references to help instructors initiate a SL course. Methods described herein are divided into those to consider or use during course development and those to consider or use while teaching the course. Assessment and evaluation strategies are also discussed.

before the Term Begins

Make use of your university's resources, such as a SL Center or Cooperative Extension Service. The SL Center provides help with community partner selection, syllabus construction or revision, opportunities for networking with other faculty members with SL courses, publicity, and faculty and student recognition. At Louisiana State University (LSU), the SL Center provides faculty resources ranging from their comprehensive website with a SL faculty handbook to workshops to maintaining a resource library to advice on documenting SL for tenure and promotion. Most universities provide faculty with similar support for establishing SL programs. This support may be provided through a Center for Faculty Development or a Center for Excellence in Teaching.

Design the SL component in your course and determine how it will be implemented.

Determine whether the SL component of the class is optional or mandatory. For example, university students required to give a presentation may choose to give it to their peers or to a community partner. Service-learning can also be offered as an option to confer extra credit or for students who prefer hands-on projects. Instructors may require all students to participate in a SL project as all or part of the course grade.

Decide if students are assigned to or can choose their community partners. In some courses, students can be given the opportunity to choose the agency with which they will work during the term; in other courses, instructors choose the community partner and the SL project. For example, in the community nutrition course taught at LSU, students select, via lottery, a community agency. Over the last several terms, the majority of students have elected to work in project G.U.M.B.O. (Getting United to Make Better Opportunities) which involves teaching homeless people food safety and nutrition to help them get jobs in the food service industry. As successful as this program is and as enthusiastic as the LSU students are about it, other students opt to work in different community agencies, including adult day care centers, elementary schools, the Council on Aging, or the Office of Public Health. When possible, it is important to empower students to make choices.

Decide whether students will work individually or in groups. For some SL projects, for example designing and building butterfly gardens, group work is essential. For other projects, such as providing in-service training on diabetes to the staff of an adult day care center, it might be more appropriate for students to work individually or in pairs.

Grades for SL courses are determined using criteria similar to all courses. Students are graded on the quality of the final project not on the number of hours they spend on a project or their perceived effort on a project. SL should supplement learning opportunities for students without sacrificing academic rigor.

Lima (2000) presents information on components of the course grade involving the SL project. Multiple assessments should be used, including student portfolios, journals, exams and quizzes related to the SL project, SL design report and presentation, and assessment of the SL project by an expert panel that includes community members.

Address risk issues involving SL projects. Discuss all risk and liability issues with your campus SL Office or Office of Risk Management; also discuss these issues with your community partners and, when the term begins, with your students. Liability issues include transportation of students from the university to the community site, interactions between students and community members, and the potential for accidents during SL activities. Client vulnerability is also a major consideration; this is especially important when working with children, the elderly, or disabled. Approval from the Institutional Review Board may be necessary if students are engaging in "face-to-face" activities with community partners or in research check with your Office of Risk Management.

Students must understand the potential risks in working with these populations and be trained to work appropriately in such situations. Also, students need to feel safe within their SL environment. Finally, licensure may be a consideration. For example, 39 states require licensure or certification of dietitians/nutritionists; this may limit the scope of SL activities by dietetics students or require a registered dietitian to be present when programs are conducted.

Adhering to a policy in which instructor, students, and the university are safe may be fairly straightforward, but the instructor must make sure that she or he and the students are aware of and abide by these policies. The Volunteer Protection Act of 1997, U.S. Public Law No: 105-19 helps, as does university insurance, covering "student interns" who serve without remuneration as a part of their educational requirement. Torres and Sinton (2000) provide excellent information regarding liability and risk management for SL programs.

Determine learning objectives for the course. Instructors start by identifying educational concepts that students must master in the course. These are generally the same as those for a non-SL course, but could include additional objectives, such as demonstrating civic responsibility. In the syllabus, the instructor must define explicitly SL for students and explain to them how course activities integrate into the SL project. If a project is involved, it is also important to specify the deliverables; projects can be tangible, for example for Biological and Agricultural Engineering students building playgrounds for visually impaired elementary school students, or they can be intangible, for example, Dietetics students representing a class to diabetics on how to control their blood sugar levels when traveling.

Choose the project and community partners (pick an appropriate project). This can be done through the university or through local contacts. Community partners must be fully involved in the course. Prepare providers for potential problems; this is a learning process for students whom at best will perform flawlessly with the community partner and its clientele, but whom at worst can be unprofessional, undiplomatic, and unreliable. Make sure that all ground rules for working together are determined before the beginning of the course, for example, when students can contact community partners, and in what capacities/contexts they will be engaging with the community. Community partners must understand the status of the students, the scope of the project and its time frame, and the ultimate project goal. Some community partners may require a formal or informal memorandum of understanding with the university. Consult <http://www.cas.lsu.edu> for a sample contract. This practice is preferable because students tend to take their SL project more seriously when they sign a contract with the community partner.

Integrate community partners/members into the course as much as possible. Service-learning is designed to be a "win-win" situation; this can only be done by working closely with the community partner(s). Some instructors list the primary community partners involved as co-instructors (Heffernan, 2001); co-instructors then determine how well each learning objective was met and assign grades for a portion of the course. However, not all community partners want this level of responsibility.

### During the Term

Communicate regularly with community partners and students to ensure smooth operation of the project. This is important, since even with the best planning, the scope or time line of the project may change. Unanticipated problems, ranging from personnel changes by a community partner to funding delays to scheduling difficulties to student illness, can affect adversely a SL project. Participants should remain flexible and maintain a sense of humor; students should also realize that the SL project may be a little less structured than they prefer.

Communication among students is also important. This facilitates problem solving and critical thinking skills. Classroom aids such as Blackboard or scheduled meetings during class times enable students to do this. Figure 2 outlines teamwork skills appropriate for a SL learning experience.

Be prepared to guide and facilitate. Students may be overwhelmed by a project that requires deliverables, for example reports, designs, workshops, or presentations to community partners. Students may need help with:

- \* Narrowing the project scope to allow completion of quality work within the term.

- \* Adhere to a time line; formal and informal presentations and other assignments help students stay on track. Another advantage to periodical presentations is that they allow students to benefit from the experiences (positive and negative) of others; this is especially true if students are working on different projects or in multiple agencies.

\* Working in a group or with a community partner is often a new experience for students; therefore, it is important to provide communication, team building, and conflict resolution skills (Figure 2).

\* Engaging the public students may need information about appropriate dress, punctuality, client confidentiality, and how to make presentations.

Further, students need to understand that although the SL project is their responsibility, the instructor will provide a safety net in the event of major problems. Problems of this magnitude could include major personnel changes or litigation within the community agency. In such cases, it may be prudent to change projects or agencies.

Practice reflection on a regular basis. Reflection involves having the students consider critically the SL project, especially its impact on the community and on themselves. This process can help students incorporate new knowledge, attitudes, and practices into current and future activities. Service-learning projects may enable students to confront issues such as race, class, economic disparity, or disability; reflection can help students understand and process such issues. Requiring students to respond regularly to the instructor's questions in a journal or portfolio is an easy way to accomplish this crucial aspect of SL. Maximal benefits of SL are achieved only when students make the connection between course material and SL.

### Assessment/Evaluation

Assessment and evaluation of SL courses and programs are very important to ensure that the best teaching practices are established and improved upon, and to validate the scholarship of this pedagogy. Some critics contend that SL does not result in improved learning, and is not a scholarly activity (Stanton, et al., 1999). Well designed and executed assessment and evaluation strategies can address the concerns of critics. The following are starting points for developing an assessment and evaluation strategy.

Effective assessments and evaluations occur when instructors ensure that learning objectives have measurable outcomes. An example of how this works can be taken from a community nutrition class: The measurable objectives include:

- \* Outline the steps necessary to prepare nutrition education materials for a target audience.
- \* Use these steps to design and present nutrition education material for a specific target population.

Exam questions and evaluation of the presentation to community partners can determine whether the student can describe this process, including assessing the target population, evaluating the reading level of the target, and pilot testing and revising material. Evaluation of the effectiveness of the student's work can also be made by assessing accomplishments of the community partners they teach; for example, in the G.U.M.B.O. program, were participants successful in achieving employment?

Reflection is a key part of SL and can form an important aspect of assessment, especially with concepts and ideas difficult to measure. Development of civic responsibility is very hard to measure. Comments like "I learned how to better counsel patients and no longer be afraid of working with this population [HIV/AIDS]. It is a scary disease and I had never been around it before, so that is why I chose it" may yield insights to areas that are difficult to assess.

The assessment/evaluation office on campus can help. To start the evaluation process before the course begins, contact the office of assessment and evaluation on your campus. They can provide help with formal and informal evaluation of SL courses or suggest ways to compare learning outcomes from the same course with and without a SL component. This was done for a SL section of a dietetics-specific technical writing class. This office can also help design quantitative and qualitative assessment instruments, and in some cases can administer them and analyze the results.

## Results and Discussion: Instructor Reflections and Recommendations

There are many advantages of using SL. The most tangible involves the collaboration of students and community partners to address community issues. SL has been used by faculty in Colleges of Agriculture to accomplish the following:

- \* Provide training in nutrition and food safety for homeless individuals to help them obtain entry level positions in the food service industry
- \* Conduct in-service training in diabetes management for staff members at an adult day care center
- \* Present in-service training programs in nutrition and food safety to group home leaders at Volunteers of America
- \* Design and conduct a hunger simulation program for World Food Day
- \* Prepare nutrition education materials and programs for target audiences, including, but not limited to: people with diabetes or HIV/AIDS; the elderly at congregate meal sites; pre-school and elementary school children; and women enrolled in Women, Infants, and Children (WIC) or living in group homes
- \* Conduct health fairs to raise awareness of obesity and other chronic diseases
- \* Design and build bird sanctuaries, butterfly gardens, and playgrounds for public elementary schools
- \* Design course materials and activities on science instruction for elementary school students
- \* Create a site plan and report for a community trying to determine the proper location of a landfill
- \* Repair a greenhouse for a public high school
- \* Design a waste treatment plan for the university dairy farm
- \* Write grants to fund SL projects some of which were funded!

Many SL proponents contend that SL results in enhanced student learning (Eyler and Giles, 1999; Zlotkowski, 1998). Improved student learning can be tracked using a well designed assessment and evaluation strategy, as described in the Assessment/Evaluation section of this paper.

Self-actualization (Maslow et al., 1987) of students is difficult to achieve and measure in a non-SL course. Student comments from SL courses have included the following: "I learned that I worry too much...about school, of course, but mostly about money and everything. I really don't have problems compared to some people in the community. I also realized that I did not know enough about the people in Baton Rouge." These concepts can be difficult to master in courses that do not contain a SL component (Astin, et al., 1999).

Self-actualization of faculty is also a benefit of SL. We began using SL to enhance the learning environment for students in our classes. We also believe that exposing students to some of the inequities in our society and giving students the opportunity to work with community partners to address these inequalities is even more important. Students have ample opportunities to develop discipline specific knowledge. The students' ability to contextualize this knowledge within the confines of the classroom is limited. Educators can and should provide students with more opportunities to apply this knowledge in ways that address societal inequities and to reflect on these issues in order to understand the true meaning of democracy. In this way, SL has enabled us to fulfill simultaneously our professional and personal goals.



A traditional drawback cited for SL is the increase in instructor time input. Service-learning courses usually do take more time; however, instruction is more motivating since learning and teaching are not done by rote. Students also tend to spend more time in a SL course; this can be a problem as they balance this increased time commitment with other classes, work, and family; this problem is compounded by potential scheduling problems. Students may need help in developing time management skills. Some instructors have responded to this issue by increasing the credit hours of the SL course; for example, the community nutrition course went from 3 to 4 hours to accommodate more fully the SL aspects of the course.

## Recommendations

In this paper, we have drawn examples primarily from Biological and Agricultural Engineering and Human Ecology (Dietetics); our first recommendation is to encourage instructors to explore SL opportunities in all areas of agricultural instruction.

Service-learning should be presented, designed, and executed as a mutual exchange between the community and the students, and not as students helping the community. Students can provide needed resources and service, but they receive an equal or greater benefit in terms of their learning, which the community provides. The idea is not doing for the community but working with the community; the students are there to learn, not to help. The "help" paradigm in SL can reinforce power differences and actually affirm student misperceptions involving socioeconomic, political, social and "ism" issues (for example, racism, sexism, or ageism). We suggest that SL principles be presented to students in the context of addressing social inequities, rather than charity.

Service-learning can be integrated into courses to give students hands-on, real world experience in their area of study early in the curriculum, and can enable them to choose an appropriate career path. Service-learning is also useful in a capstone setting where students can take the knowledge they've gained throughout their major and apply it in a real-world setting with guidance from instructors and community members and partners.

Learning communities can be used to bring together students from diverse majors to work together in different aspects of a SL project, or to enroll students in multiple courses that contain different perspectives on a common problem. For example, students co-enrolled in a technical writing course and a course in the College of Agriculture wrote grants for community partners in the writing class, and completed SL projects for these community partners in their College of Agriculture courses.

Choose a project that is appropriate for the length of the course period unless there are other means by which the students can complete the service after the completion of the course. Engineering Projects in Community Service (EPICS, 2002) is one such model in which individual students can elect to take courses that can be repeated for credit that require participation on a long-standing engineering design team made up of students of all ranks and engineering disciplines.

## Summary

The late Ernest Boyer (1990, 1996) wrote extensively on redefining the role of higher education in society. He called for the return of academia to its roots, which include the concepts of serviceability, practicality, and reality. Boyer also introduced the idea of the scholarship of engagement, which comprised four areas: the scholarship of discovery, the scholarship of integration, the scholarship of sharing knowledge, and the application of knowledge. This framework encompasses best practices regarding SL, as evidenced by the following quotation: "The scholarship of engagement means connecting the rich resources of the university to our most pressing social, civic, and ethical problems, to our children, to our schools, to our teachers, and to our cities..." (Boyer, 1996).

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