Lessons Learned in an International Service-Learning Collaborative: Shea Butter Case Study[1]

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Abstract

A multi-institutional, multi-disciplinary service-learning collaborative was created to examine the role of higher education in promoting sustainable development. Several institutions in the U.S. and in West Africa worked with two communities in sub-Saharan Africa to examine ways to boost economic security through the improved processing and marketing of shea butter, an agricultural product with a local, regional, and international market. By increasing the complexity of a service-learning effort, the authors learned that investing time in project management, understanding and working around communication differences, and clearly articulating partner roles are the three critical lessons to incorporate into an international service-learning project. The paper highlights unexpected challenges and provides a discussion of lessons learned and an outline of best practices for future endeavors.

Keywords: agriculture-based service-learning, international service-learning, sustainable development, shea butter

Introduction

Over the past five decades, the West has spent $2.3 trillion in foreign aid with no significant rise in living standards (Easterly, 2006). Recognizing this problem, the development community has begun to move away from traditional top-down models to those that are community-based and built from the bottom-up (Calderisi, 2006; Easterly, 2006; Ayittey, 2006). These bottom-up models can promote sustainable development by empowering communities to help themselves (Mortensen and Relin, 2006; Yunus, 2003; Prahalad, 2006).

Service-learning provides a way for higher education to engage students in community problem-solving and complex development issues. Because no single academic discipline in isolation is sufficient to understand the requirements of a sustainable community solution, several institutions in the U.S. and in West Africa representing a wide variety of disciplines collaborated together with two communities in Mali to explore a more collective approach for higher education and its role in sustainable development.

This paper presents the lessons learned in forming an international service-learning collaboration. By increasing the complexity of a service-learning effort, the authors learned that investing time in project management, understanding and working around communication differences, and clearly articulating partner roles are three critical components to incorporate into complex service-learning projects.

Community Partners and their Natural Resource

The project described in this paper began as a response to support women in rural Mali to boost their economic security. Mali, a land-locked sub-Saharan West African country where over 70% of the population is engaged in subsistence farming, is one of the most material-resource poor countries in the world.

Shea Yeleen International (SYI) is a non-governmental organization (NGO) dedicated to community grass-roots empowerment in rural West Africa through organizing and training women-owned cooperatives to produce, market, and sell high-quality shea butter and educate consumers in the

U.S. about natural body care products and fair trade (Shea Yeleen International, 2010). The U.S./Malian NGO introduced the academic collaboration to two different communities in Mali, for whom the production, processing, and marketing of products from the shea tree offered an opportunity to boost their economic well-being.

The shea tree provides many benefits: shea bark is used for medicine; the nutshell contains a mosquito repellant; and the nut is used in making butter, soap and in manufacturing chocolate (as a cocoa substitute). As butter, shea is used for cooking, for cosmetics as a skin moisturizer, and as a health aid to treat a variety of skin ailments (Chalfin, 2004). Shea products have a local, regional, and international market. Mali has the second largest estimated production in tons of shea kernels per year (Lovett, 2004). However, most shea is exported as a nut, thus yielding little financial gain for local communities. Making shea butter is both labor- and time- intensive, thus there is a high potential that increased production, improved processing and quality control, and enhanced marketing of shea butter could directly translate to improved economic well-being of rural Malian women, who have historical rights to this commodity. Many of these women are often denied credit, lack formal business training, have few technical skills, and have little or no access to tools or transportation, which has greatly limited their access to the shea butter market. One fear identified at the onset of the collaboration was that as shea butter production becomes profitable, control would pass to men despite shea's historical association with women. Thus, one recurring emphasis in the service-learning collaborative was to focus on small-scale, fair trade, cooperative-based production, staffed by and benefitting Malian women.

The first community, Dio Gare, is a Malian village with a largely informal workforce engaged in subsistence farming, where female members produce shea products for personal consumption and for sale in the local village-level market. The women wanted assistance in organizing themselves into a cooperative and increasing their current level of production. The second community, located in Zantiebougou, Mali, is a formally organized women's cooperative, the Coprokazan Cooperative, which processes shea butter commercially (Coprokazan, 2009). Here, the women requested assistance in diversifying their product line, improving their butter's quality, and developing their foreign market.

Thus shea butter production at two different economic scales presented itself as an extraordinary opportunity to engage university faculty and students in service-learning experiences focused on the sustainable development of an agricultural product. The primary objectives of the project were creating an economic advantage for Malian shea butter producers and creating a hands-on learning experience for American students; contributing to sustainable development while educating students through a participatory bottom-up approach was the overarching goal. The project execution was driven by a belief that a 'collective learning' model with members from different disciplines and institutions could achieve a greater end result than any individual member could have achieved alone. It was postulated that by deliberately creating a diverse international collaboration, the synergy created by multiple groups would create more effective problem solving.

Members of the Service-Learning Collaboration

The anchor institutions, Montana State University (MSU) and the l'Institut d'Economie Rurale (IER), the national agricultural research institution in Mali, had worked together for a decade on agricultural research projects (Moore et al., 2002) but found there was in some situations little farmer-level uptake of their work (Dunkel et al., 1998). Interested in strengthening the information flow between the scientists and small-scale farmers, the Institut Polytechnique Rural de Formation et de Recherche Appliquée (IPR/IFRA), Mali's School of Agriculture and Applied Research, was approached to begin a new collaborative effort that could reach students in agriculture in Mali.

Long- term success in any service-learning effort must include vested permanent colleagues that understand the local conditions and are motivated to follow through with a community (George and Shams, 2007). To coordinate the efforts of the two Malian institutions, an Agri-Business Center was envisioned to serve as a permanent home for the innovations brought forth by the U.S. and Malian faculty/student teams.

A cohort of seven Malian mid-career academics representing the two agriculture-based institutions spent two years in the United States for extended professional development and to build bridges with American faculty. These Malians became the founding members of the Agri-Business Center, and worked together with the American teams in the U.S., on-site in Mali, and as the project progressed, through the Internet using Skype technology.

To gain a range of viewpoints, two non-agriculture institutions were added to the collaboration: the University of St. Thomas (UST) in Minnesota and Chief Dull Knife College (CDKC) in Montana. UST has a well-established service-learning and study-abroad program, while CDKC, a tribal college, emphasizes traditional wisdom and values collective concepts. It was believed that deliberate collaboration with two non-agricultural organizations would spread awareness of agricultural issues to other disciplines and institutions as well as adding new perspectives to the long-term agricultural research relationship between MSU and IER.

From the onset, the collaboration emphasized non-competitive relationships based on mutual

respect, and each institution in the collaboration structured their student experiences differently and was challenged to find its own disciplinary fit.

At MSU, faculty committed to design mentored research experiences for undergraduate students that fulfilled the university's core requirement for original research or creative activity. A two-semester capstone-like course was designed to provide research skills and communication techniques to succeed in a challenging cross-cultural environment and was open to upper-level undergraduate students from any discipline. Students could choose a natural science, social science, or humanities version of the course. The course focused on Mali, West Africa, and one available option was that a student could choose to work on some aspect of shea butter production. In the second and third years of the project, a chemistry student, a photography student and an industrial engineering student chose to focus on shea quality control.

At UST, faculty from different disciplines committed to adapt existing courses within their own departments that would lend themselves to the Shea Project. Students enrolled in discipline-specific capstone (or capstone-like) courses that could easily adopt discovery and service-based learning pedagogies. To create a working team, all of the students focused on shea butter production and met together in a weekly one hour class to exchange ideas, provide unity, and discuss logistics. In the first year of the project, mechanical engineering, communications and French language students worked together. In subsequent years, additional engineering students and graduate students in business administration were added.

At CDKC, a new set of courses was developed: Introduction to Sociology and Sociology Field Methods. The Shea Project was one of several options available to CDKC students.

As part of the service-learning pedagogy, students were asked to prepare for their community engagement before they visited the community. In addition to having a shared reading list to explore the larger societal interconnections affecting the community's request, students were asked to keep a journal in which they reflected on a set of guiding questions focusing mostly on issues of intercultural awareness (Shams and George, 2006). The overall experience was designed to develop more than just a disciplinary solution to one part of a complex problem.

Joint Actions

In the first year of the project, SYI and UST worked with women in the Dio Gare community, who desired to become organized and increase their production capacity. SYI agreed to provide on-site support to form a legal structure and UST communication students produced informational training videos on how to form a cooperative. To increase their production capacity, UST engineering students designed a hand-powered mixer, and French language students acted as cultural liaisons and translators.

In the second and third years of the project MSU, CDKC, and IER worked with the Coprokazan Cooperative, a pre-existing network of producers. Here the primary needs were improvement and certification of quality, product line diversification, and expansion of markets. A MSU student in chemistry built an "easy-to-use" quality analysis kit, a photography student made a photographic visual quality aid that presented the precise color variations desired by the African and American markets, and an industrial engineering student examined the steps needed for the dissemination of these quality assurance products. IER (the national agricultural research organization in Mali) developed an ethnographic case study to determine barriers to adoption of innovations improving shea butter quality (Kante, 2007). CDKC examined the shea tree's place within Mali's culture and the role of both men and women in its cultivation.

In the last two years, IPR/IFRA (Mali's school of agriculture) and UST MBA students documented the shea supply chain and produced a marketing plan and a distribution and operations analysis. A second group of UST engineering students re-designed the manual mixer after analysis of an extended field demonstration. Over the past five years, there have been many immediate benefits for the stakeholders; however, the overall effort could have been stronger if the coordinators of this project would have invested more time in project management, project assessment, and inter-institutional communication and would have more clearly articulated partner roles and responsibilities. The following is a discussion of these lessons learned and an outline of best practices for future endeavors in this area.

Discussion

Lesson 1: Invest Time in Project Management

Complex organizational structures require a clear project charter. Working with two communities caused confusion between the institutions. For example, engineering students at UST designed a manual shea mixer for use by SYI in the Dio Gare community. In conversations with other MSU and UST students and faculty, the members of the Coprakazan Cooperative specifically stated they did not want to change their process technology but requested assistance in business and quality assurance. Without a clear project charter with each community, one group of students could easily believe that the role of another student team was out of scope. A written charter or a project mission statement would have clarified the intent of the collaboration. At times it was unclear if the different disciplinary teams were focusing on 'shea butter production' or working together with a community partner to solve an issue.

Lessons Learned

It is critical for all institutions to agree to an organizational architecture. During the first years of the collaboration, the organizational architecture was vague and evolving. UST had made the initial connection with SYI and had agreed to assist shea producers in the Dio Gare community. In a subsequent year, MSU and CDKC added the Shea Project as one of several available to its students, but their students focused on the Coprakazan Cooperative. However, one of the MSU students and one of the members of the Malian Agri-Business Center traveled to Dio Gare to conduct their field work without the involvement of SYI. Some project misunderstanding resulted because SYI should have been notified of the site visit. The relationships between the non-governmental organization, the community partners, and the academic institutions could have been more clearly articulated. Over the years, the members of the Agri-Business Center members were both academic collaborators and 'community partners' or the recipients of the project deliverables. Gathering all the stakeholders together and investing more time in the project planning and feasibility stage could have highlighted the need for better organizational understanding.

A charter and a clear organizational structure give a good foundation to any project, but to avoid ambiguity in the execution stage, a solid project methodology must be put in place for the students and faculty involved in the service-learning experience. Tools commonly used in management would have helped direct this multi-institutional project. For example, a project milestone chart can introduce a visual map all members can understand and access. This is especially valuable in an academic environment where students are engaged with a project for a relatively short amount of time. A 'who is doing what' with a 'what has been done already' visual management tool can aid members in understanding the larger structure of the effort. The lesson learned is to invest time and funds into project management tools or seek the expertise necessary for help in setting up a systems understanding of the project interconnections. A project overview map highlighting project milestones could have provided some scaffolding to aid in the effort required to manage a diverse ensemble of people. Planning an international experience with multiple participants and coordinating with on-site partners takes up a significant amount of time, and using project management software could have helped the faculty manage their time and avoid replicating tasks.

The community will have its own structure and self-management tools. The project management tools mentioned in this section are to be implemented by the academic institutions and not imposed on the community. However, students work in finite time frames based on an academic calendar that may or may not synchronize with the community's needs. Thus, project phases should be agreed upon in advance. A clear discussion with the community can avoid unrealistic expectations or a communication disconnect.

Due to the high amount of ambiguity and unknown challenges present in this service-learning experience, another project management tool that should have been implemented is the introduction of risk management. Collaborations should discuss project risks openly and have several options available to mitigate risk. An interesting observation by the authors is that the two cultures, American and Malian, approached risk management differently. Americans have a predisposition to getting tasks done in an efficient manner, with a "just do it" attitude that readily accepts a multiple solution scenario. Malians are, in general, more deterministic. As documented in the ethnographic study by Kante (2007), when Malian farmers were asked if they would try a new approach to shea processing, one farmer answered, "Most people want to 'wait and see' how it will work. If the experience doesn't work, they won't [use the] approach." In the U.S., it is common to adopt new technologies because changing how one accomplishes a task is viewed as an individual decision. In Mali, few rural women want to be early adopters of new technologies, preferring group consensus to change how a task is accomplished.

In the example of designing a new technology, such as the shea mixer, the steps of product development require iteration. First there is a prototype, then a demonstration unit, afterwards a production prototype, and finally a product. The design of the device is driven by user reaction as well as device performance. The end product often looks radically different from the first prototype. This idea of solution iteration was not clearly understood by the community partners. An important lesson learned was that the cyclical process of design, testing and re-design is not common knowledge. The fact that it may take multiple attempts to converge upon an appropriate solution must be clearly articulated and explained to all members of the collaboration.

Lesson 2: Understand and Work Around Communication Differences

It is important to set up a permanent project repository that includes both primary and secondary information. For a multi-institutional effort, a project website is essential. Primary information includes trip reports and original group or research reports. Secondary information includes copies of other relevant reports and background literature. A project repository can minimize project reinvention with each new group of students and can help avoid backtracking. If at all possible, have one group of students speak to the following group of students. Copies of final reports and presentations of one cohort of students can also be part of the preparatory materials for the next cohort of students.

In the Shea Project presented in this paper, the project repository was well-managed by a project webmaster (www.montana.edu\mali). The coordina-

tors of this project would like to emphasize that the time and skill needed to maintain a website should not be underestimated. One lesson learned would be to establish upfront which documents will be required or useful for the project repository. This could be stated in the project charter.

A clear statement of the documentation of project deliverables would have helped distinguish between what students needed to produce to obtain academic credit and what students were actually delivering to their community partner. Not everything in an academic report will be of use to the community partners. For example, the engineering students received two semesters worth of capstone credit. They were asked to document their entire design methodology as well as keep dated log books. SYI wanted an abbreviated non-technical report and the production drawings of the mixer. The women's group in Dio Gare would have wanted a non-verbal or visual documentation or training session on how to use and clean the mixer. As the senior engineering students finished up their coursework it was difficult to add additional project deliverables that their classmates (students working with local industrial clients) did not have. If possible, translate an abbreviated report into the local language or present information in a visual format to address different communication styles, however, faculty need to realistically budget both time and funds to accomplish a successful transfer of student work in a variety of formats.

The most serious communication challenge was the lack of an intellectual property agreement, which resulted in confusion over the ownership of the deliverables created by the students. The final reports of the MBA students, the shea quality photographs, and the details of the chemistry shea-quality kit were not posted in the project repository because of ownership questions. A clear statement and policy of the assignment of the intellectual property could have been addressed at the beginning of the project and signed and understood by all participants.

Discuss the differences among groups, institutions, and cultures with respect to the sense of time, style of feedback, and financial management openly and often. What is common practice in one culture may be unusual in another culture. For example, American faculty can obtain a cash advance from their institution or often pay for something in advance using their personal funds and get reimbursed. Our Malian colleagues were not comfortable paying for project expenses using their personal funds. Credit cards and cash advances are also not common in Mali. Thus, the financial management for any diverse collective should be discussed and agreed to early in the collaboration.

The authors also underestimated the effort required to communicate across institutions. Even if an individual faculty member understood what was happening in another institution, the students had little contact with students in the other institutions unless an effort was made to bridge the groups. As the project evolved, formal and frequent multi-media (Skype, website updates, face-to-face, video/phone conferencing) debriefing sessions helped to disseminate the steps taken by other members of the collaboration and create a better sense of a collective.

Finally, expect hesitancy or inability to communicate in writing or electronically by an oral culture in contrast to expectations in a technologically-oriented written culture. Oral-based cultures and written-based cultures view communication channels in vastly different ways.

Lesson 3: Clearly Articulate Partner Roles

Be clear that the community partner drives the service-learning experience, establish consensus, and then clearly articulate the role of all the partners, especially the community. True solidarity expects effort from all parties. For example, in this project, the engineering team left a prototype processing device for an extended field test. Upon returning in a year's time, it was found that the device had not been used. Interestingly, the device was not used because it was unclear to the community partner who should use the device. The American team, culturally conditioned to accept and test new technologies, had never considered that a different culture would not use a technology because it gave one member of the group an advantage. A clear articulation of the stages of technology development and the role of the community group could have prevented the field testing delays.

Agree upon the project deliverables and stakeholder responsibilities. Write a memorandum of understanding to clarify intent, and in an oral-based culture, repeat the responsibilities verbally. Be as specific as possible. Discuss stakeholder motivations and expectations. In a complex project, do not assume any of the collaborators' roles.

In this project, the U.S. and Malian colleagues had envisioned the formation of an Agri-Business Center that could serve as a group of regionally based scientists to provide training and expertise in field-deployable technologies and best practices. Though the benefits of establishing a central focal group is in principle good, the reality was that there were many obstacles and in the end the Agri-Business Center did not materialize as expected. First of all, the Malian members had full time jobs already- so it was unclear when they were to devote time to a new organizational structure. Secondly, how was this group to function financially? It was naïve for the authors to add the formation of a new center in addition to engaging their students with the community partners in a service-learning experience. The authors believe it is essential to work with our academic counterparts in another country or in another culture, but it is not feasible for us to envision or try

to create new group structures. One lesson learned is that it is much simpler and more effective to work with existing on-the-ground organizations than to try to establish a new organization.

Invest time or seek guidance in proper stakeholder assessment. Early in the effort have each stakeholder define a successful project. This vision of success should contain as concrete a picture as possible. The number of years in the future should be specified. The vision should provide a basis for formulating the project objectives, output and outcomes. Indicators that measure aspects of a project's performance need to be stated. These terms need to be articulated and not assumed. In this project, our lesson learned is that we should have asked the two communities for greater detail in describing their desired future state that was needed to achieve their goal of increased economic security. For example, the women from Dio Gare could have specified that their vision of success was that within XX years they would like to be incorporated as a cooperative, or that within XX years they would like to increase their shea profits by XX%. Without concrete indicators, it is difficult to measure the consequences of the project's outcomes.

Summary

By increasing the complexity of a service-learning effort, the authors learned that investing time in project management, understanding and working around communication differences, and clearly articulating partner roles were three critical lessons to incorporate into an international service-learning project. International development-oriented service-learning efforts can help promote a bottom-up approach to empowering communities, but the management of several student/faculty teams at different institutions could have benefited from a stronger organizational structure. Equally important, service-learning initiatives should remember to invest sufficient time in defining a vision of success with a community partner. A clearly-articulated vision provides the basis for formulating the objectives (the desired long-term impact of the project) that will result if the outcomes (the consequences of the student activities) are achieved.

Use the following list as a sidebar.

Best practices in forming an international service-learning collaboration:

1. Complex organizational structures require a clear project charter.

2. Institutions need to agree to an organizational architecture.

3. Project phases should be agreed upon in advance and incorporated into a visual milestone map.

4. Establish consensus and clearly articulate the roles and responsibilities of all the partners, especially the community.

5. The cyclical process of design, test, and re-design should be explained to all stakeholders.

6. Establish upfront the required format for project documentation and the use of the project repository.

7. Clarify the difference between academic deliverables and the deliverables presented to the community partners. Agree upon the community deliverables with a concise memorandum of understanding.

8. Implement an intellectual property policy.

9. Discuss differences with respect to time, style of feedback, and financial management.

10. Invest time or seek guidance in proper stakeholder assessment. Define a concrete vision of success.

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