Collaborative Study Abroad – Combining Efforts to Improve the Undergraduate Experience

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Abstract

Since 1995 we have offered a collaborative Study Abroad experience that includes students from multiple programs and countries. The course is taught by three to six faculty members each summer and annually focuses on a different issue in sustainable natural resources. The location of the course alternates each year between Europe and North America. By teaching this course collaboratively, not only do our students enjoy an enriching Study Abroad experience, but they also get to work closely with individuals from different backgrounds and nationalities. We believe that this Study Abroad short-course format allows us to extend our international teaching effort while also providing our students with additional experience in the areas of teamwork and critical thinking.

Introduction

Many natural resource programs have decided to improve their undergraduate curricula by incorporating problem-solving, communication, teamwork, and international understanding as desirable outcomes (Thompson, et al., 2003; VanDerZanden, 2005; Yin, 2006). Since 1995 our programs have collaborated on a unique Study Abroad course that helps to attain these goals. Each summer we bring together students from our respective programs to study in depth a topic in sustainable natural resource management. The course allows our students to investigate current topics in resource use in different parts of the world, while at the same time interacting with people from varied cultural and scholastic backgrounds. In this article, we describe the goals and structure of our summer program as a model for collaborative study-abroad experiences.

The course originated in 1995 as a team-taught summer course offered by the Swedish University of Agricultural Sciences (Sveriges Landsbrutuniversitat, SLU) and Purdue University (PU) (Gillespie et al., 1998). In 2000, North Carolina State University (NCSU) joined as a partner institution. The course alternates annually between locations in Europe and North America, with SLU faculty hosting the course when in Europe, and either PU or NCSU hosting in North America. The location of the course depends on the selected focus, which changes every year. European programs have included trips in Sweden, and through Denmark, Germany, the Czech Republic, and Austria. North American courses have been based in Indiana, the Carolinas, New England, Colorado, the Pacific Northwest, and in the Yucatan Peninsula in Mexico. Purdue and NCSU students are mostly North American, while SLU draws students from many European countries as well as China, Rwanda, and Ethiopia.

Format and structure

A typical format for this four-week course starts with a week at a host institution during which the students are introduced to the course topic and learn about regional geology, climate, ecology, and human culture. This is followed by a two-week excursion that takes the class to a variety of regional locations to introduce the students to researchers and local people impacted by the issue(s) under discussion. Students use the excursion events to interview people they encounter. The final week is generally held at the host institution where the students organize information they have collected and access available literature. The course ends with a series of oral presentations prepared and delivered by the student teams.

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Over the years, a wide variety of natural resource issues have been discussed. North American topics include management of oak-dominated forests (Indiana); management for wildlife, wilderness, and outdoor recreation (Colorado); resource use in intensively managed landscapes (Carolinas); tropical resource management (Yucatan); and sustainability (Pacific Northwest). When the course was held in Mexico, we were joined by faculty and students from the University of the Yucatan, Mérida, Yucatan.

Topics covered when the course is hosted by European colleagues include wetland conservation and use (southern Sweden), climate change (northern Sweden), and resource management along boreal to temperate gradients in soils and climate (Sweden, Germany, Czech Republic, Austria). Many of the course themes focus on tradeoffs and conflicts between alternative uses, or challenges for resource managers in the modern, changing world.

An important goal of the course is to improve student communication skills and ability to work in teams. During the first week, the students are divided into research teams, with effort made to stratify the teams by nationality, school affiliation, gender, and disciplinary interest (e.g., wildlife, forestry, environmental technology). The teams then go through exercises allowing them to interact with one another in a more informal setting. During these exercises the students are able to identify their cultural biases based on their background and, more importantly, the similarities that they all have with one another. For example in summer 2007 an icebreaker exercise was developed jointly by one of the NCSU faculty and a SLU student participant (originally from Germany). The exercise was a bridge-building assignment that had many restrictions, making it necessary for participants to depend on one another to complete the task. The bridge-building was a catalyst to the students being creative, collaborative, and challenged while building the bridge. What was accomplished with this assignment is that the students learned how others think, act under pressure, solve problems, and how all of this has cultural influences. These communication and team development exercises are considered an important component of the course, according to student course evaluation scores (Table 1).

Each team is then given a different subtopic on which the team is to concentrate their research. Each subtopic is related to the overarching course theme. During the excursion and while at the host campus, the teams are charged with deciding what information they need; which visiting researchers, faculty, and sites will be most informative as sources; and how to gather the information most effectively. Student teams are encouraged to meet regularly throughout the class and rotate responsibilities (chairing meetings, conducting interviews, taking notes) among the team members. Because teams are usually composed of several nationalities, and because participants may not speak English fluently, the teams must develop ways to communicate effectively. All formal lectures by participating faculty are in English.

The faculty members in charge of hosting the program are from science-based departments [soils (SLU), forestry (NCSU), natural resources (PU)], so many of the invited speakers are scientists working in areas related to the course theme. But we also arrange time for the students to meet with government officials, industry representatives, and citizen groups whose work is impacted by resource management issues. In this way the students get an understanding of the practical realities associated with the course topic. For instance, when the topic concerned water resources in the Baltic Sea, the students interviewed spokesmen for municipal water supply systems. When the topic was climate change in the Arctic, we talked with Sami (the indigenous people of northern Scandinavia) representatives about changes in traditional reindeer *(Rangifer tarandus)* herding. In Sweden and the Carolinas, we spoke with foresters producing certified timber, Christmas trees, and other forest products, as well as environmentalists interested in protecting endangered species. In the Pacific Northwest, students spoke with government regulators and industry representatives. These encounters helped the students understand the tradeoffs inherent in most natural resource issues and enabled them to develop their problem-solving skills.

In the early years of the program, Dr. William Rawlins of Purdue's Department of Communications was an active participant. He conducted lectures and exercises in leadership and group work dynamics during the first week of the class, while the teams were being formed. We have continued using these exercises, along with ones developed by NCSU staff to encourage healthy interpersonal interactions among the students.

Table 1. Student evaluation responses for questions regarding benefits they gained

	Scores					
Question	**1**	**2**	**3**	**4**	**5**	**Mean**
Did interaction with foreign students enhance learning?	36	31	9	2	0	1.71
Was there an exchange of culture that enhanced learning?	28	37	7	0	1	1.75
The integrated teams enhanced cultural exchange as well as learning and research[y]	15	16	18	5	0	2.24
What is your general opinion about the course concerning natural resource content and communications?[z]	30	51	20	7	2	2.08

[y] this question was not asked in 2000

[z] students answered this question on a scale of "1=strongly good" to "5=strongly poor"

Note. Students were asked to respond to each question on a scale from 1 (strongly agree) to 5 (strongly disagree). Below we present the number of students giving a response, along with the mean response score from all students. Data are summarized from the 2000, 2001, and 2004 versions of the course.

What is gained by the students?

Students benefit by being immersed in a different environment as with most Study Abroad experiences (Dessoff, 2006). The differences include the natural ecosystems under study, but also the human environment: unexpected food choices for breakfast, different flushing mechanisms on toilets, washing machines and showers on one continent that work in non-intuitive ways to people from another.

One telling example occurred when the class was housed in a summer youth hostel in Prague during the 2005 course. The building, constructed during the era of Soviet influence in the Czech Republic, was deteriorating. Room refrigerators did not work, outside balconies were crumbling, and the elevators had no interior doors, allowing riders a disconcerting view of the building's floors flashing by as the elevator moved. A lack of smoking restrictions meant that the reception hall and dining areas were a haze of second-hand smoke. One American student stated that *"I could never live like this."* In fact, if she had been born Czech, it was exactly where she could be living, because the building was a college dormitory most of the year.

A second example of how the course has opened the eyes of our students came during the 2004 course in Mexico. We stayed in downtown hotels in the cities of Mérida and Cancun, and drove in commercial buses to field sites in outlying districts. During the one to two hour drives between sites, our students had ample time to look at the homes and towns through which we drove. Students observed that the yards of many homes were littered with trash, broken concrete, and other debris. One student finally said, *"I know these people are poor, but don't they have any pride? Being poor is no excuse for not taking care of their property."* We were able to point out two possible answers that would not be apparent to most Americans. First, many traditional Mexican homes are concentric rings of rooms around a central courtyard, reflecting the Mexican emphasis on the family. To many Mexicans the outer appearance of the "yard" is not as important as the inner appearance of the central courtyard. The American emphasis on the "front yard" and its appearance is just not relevant in small Mexican towns.

Perhaps more importantly, we reminded the students what we had been told by people in the villages: most adults in the towns we drove through worked full ten hour shifts in factories and businesses in the large cities. The bus rides to these jobs would take additional hours each day. Also, most families in the region tended 1 to 2 ha of milpa (corn) fields outside the village. Adding up these time demands, we asked the students when, exactly, they expected the people to work on keeping their yards neat.

These types of immersion experiences are common among most traditional Study Abroad programs (Moore, 2000; Hulstrand, 2006). Our course also gives the students the benefit of working in international teams for most of the four weeks, and the students acknowledged the benefits of this teamwork in course evaluations (Table 1). Swedes and Americans have been raised in different social systems, and these systems may also be different from those of the students from other countries. These differences in background must be dealt with as the students live, learn, and travel together. For instance, Americans are raised in a legal system with strong private property rights. Swedes, on the other hand, enjoy a "Right to Common Access," which grants all citizens access to rural private property. North American students (and faculty) are often nonplussed to learn that Swedes can engage in activities that earn them profit (e.g., berry picking in the forest) without even informing the landowner. Swedes are surprised to learn that one cannot simply hop fences and hike across the American countryside. These differences in background experience must be resolved when the student teams are preparing their final presentations – a solution that might work in the United States may not be suitable in Europe.

Another difference that has been influential in multiple years is that of endangered species management. In the United States, endangered species are protected by a strong national law, and the most attention is given to large, popular mammals and birds *("charismatic megafauna")*. Protection for these wide-roaming species covers very large areas. In Sweden, endangered species protection is given substantial government support but the legal restrictions are less powerful than the U.S. Endangered Species Act. More interesting, the Sweden "Red List" of threatened species includes many small, obscure species such as mosses and lichens that are used to define protection for critical microhabitats (Gustafsson, 2002; Berglund and Jonsson, 2005). Preserves in Sweden therefore tend to be small: 1 ha or less. As a result, the spatial scale at which endangered species management occurs (and related inherent conflicts) varies widely between the countries.

Students gain the opportunity of problem-solving in a practical way. Instead of sitting in a classroom and learning theories, students are out in the field, assessing land management, climate, atmospheric changes, and cultural differences. The students are also able to interact with world-renown scientists in and out of the classroom.

Understanding tradeoffs between traditional and modern uses of natural resources

Another area in which our students benefit is when we compare conflicts and tradeoffs between traditional uses of natural resources and their uses in the modern world. Because the history of resource use varies with culture, individual students will bring different perspectives to resolving these conflicts. On course evaluations, students strongly supported the idea that cultural exchange with fellow students

enhanced the learning experience (Table 1). A prominent example of the importance of cultural exchange was provided by our interactions with indigenous people. On several trips to northern and central Sweden, the class met with community leaders and other members of the Sami who traditionally moved with their herds from summer mountain pastures to winter lowland grazing areas. In the 20th Century, the Sami abandoned their nomadic lifestyle and moved to towns with permanent homes and full-time jobs. The Sami still tend reindeer, but now generally use snowmobiles and helicopters to manage their herds. In some areas the reindeer are moved seasonally by loading them in trucks and driving them between summer and winter grazing lands.

Modern reindeer herding is not economically sustainable, but Sweden supports the Sami's desire to maintain their traditional way of life. This goal is difficult in the face of many modern trends. For instance, one factor that allowed the Sami to move to towns was the decline of major predators in the early 1900s. Wolverine *(Gulo gulo)*, European lynx *(Lynx lynx)*, and gray wolf *(Canis lupis)* were virtually extirpated from Sweden, and brown bear *(Ursus arctos)* populations were greatly reduced (Boman, 1995). Without major predators on the herds, the Sami were not needed in the field on a daily basis to guard against attack.

Like many countries, Sweden established goals to protect and restore large endangered predators. Most major predators are now increasing (three of our students saw a wolverine during a late-night hike in northern Sweden in 2007), especially in mountainous areas with low human population densities (Boman, 1995). The number of gray wolves, for instance, has increased from a few packs several decades ago to 125 wolves by 2005 (J. Moen, personal communication). But these remote mountains also serve as summer grazing range for the Sami reindeer. In our conversations, Sami spokespersons have blamed all losses from their herds on the increased numbers of predators, even though there are no valid data on causes of mortality (many reindeer are killed on the highways, for instance). Since the increased predator numbers are the result of government policy, the Sami associate the government with their losses. Outside observers, however, might cite the change in Sami life style as the actual cause of reindeer decline.

American students are often struck with the parallels between the issues of concern to the Sami and those facing people living in the American West. Ranching and herding in both areas are affected by increased urban sprawl, changes in land use, conflicts with tourism, endangered species restrictions, hunting, and increasingly, climate change (Berger, 2006; Mattsson, 1990). Many American students can draw from their experiences in comparing and contrasting the challenges in these ways of life, and such contrasts may suggest solutions.

Benefits to individual students

In addition to benefits to the groups as a whole, individual students can profit from Study Abroad courses such as ours. Our short course provides an introduction to life in the host country, which may encourage students to participate in a longer, semester-long Study Abroad program (Hulstrand, 2006). Several PU and SLU students have used their short-course experience to reduce the anxiety that may accompany a longer stay in a foreign country. Of the four Purdue students who went to Mexico in 2005, two subsequently went overseas for graduate study; one in Costa Rica, the other in Italy. In a collaborative course such as ours, the comfort level is enhanced because the students work together for long stretches and, therefore, develop friendships that can benefit their longer stays.

Since 1998, 74 Purdue students and 116 SLU students have participated in the course. Since NCSU joined in 2000, 42 of their students have participated. Enrollment by Purdue students is dominated by undergraduates in the College of Agriculture, which has helped that college attain a relatively high percentage (>25%) of its undergraduates who include Study Abroad in their plan of study.

Students have also reported other individual benefits. The course typically enjoys a high faculty/student ratio. In 2007 six faculty from the three universities were involved at least part time in advising the 32 students. These faculty represented fields as diverse as soil science, wildlife ecology, molecular tree physiology, forestry, and adult education and diversity. Ample opportunity exists for students and faculty to engage in one-on-one discussions of career goals and science as a profession. Because of the protracted conversations that take place during long bus rides, in the evenings, and during recreational pursuits, this course also provides an immersive experience. Alumni of the course report that their performance in subsequent classes benefited greatly from exposure to new topics during the short course (e.g., soil classifications, molecular biology) even when these topics were not the primary theme of the course. Direct contacts with researchers during the course also increases student interest in science research as a career, as has been found in other contexts (Holubec, et al., 2007). The high number of faculty involved in the course is a direct result of the collaborative nature of the course, because each school must send faculty to oversee their respective students.

Benefits to the faculty

While we teach the course primarily because of the benefits to the students who take it, the collaborative nature of the class also yields benefits to the faculty. Most obviously, we share the work of developing the course: picking the theme each year, arranging lodging and transportation, and developing diverse methods to instruct students. Less obviously, the schools involved have different affiliations. Thus, the range of places that the course goes is expanded

by taking advantage of these associations, and provides new contacts for the participating faculty. In summer 2008, the course went to the Pacific Northwest, visiting, among other things, forests owned by the van Eck Foundation and managed for the benefit of PU (e.g., producing income through timber harvest). This trip made use of many academic and corporate contacts available to two members of the PU faculty, both of whom were formerly affiliated with Oregon State University. In 2009 we will go to Turkey to explore issues in southern Europe and the Middle East for the first time, while in 2010 we expect to go to Florida.

How the students learn and express their knowledge is another form of diversity. The faculty often defer to past experiences in other classes to help them better facilitate the class. However, there is also the opportunity for the faculty to augment the course with current methods in teaching, thereby building bridges with the students and other participants.

The large number of faculty involved in the course allows for specialization during the course itself. No one faculty member is responsible for delivering all of the lectures. Each year, different members of the teaching team serve as the primary host and are responsible for contact with housing providers, bus companies, and speakers. The presence of additional faculty allows the host to have the time to do the logistical work, while the other faculty answer questions and meet with the student teams. One NCSU participant usually conducts the student evaluations at the end of the course, providing consistency and relieving the host of that responsibility. The diversity of faculty interests allows the theme to vary each year, and also ensures that faculty learn new material each year, which they can take back to campus to inform their other teaching.

Summary

Recent reports on international education have called for more effective programs to increase the number of students gaining cultural awareness through Study Abroad programs (ACE, 2002; NAFSA, 2008). Our students gain from the diverse faculty and student talents that are brought to bear in this collaborative undertaking. By working together and combining our efforts, we are more likely to attract students and achieve an enrollment needed to make the course a success. The variety of contacts and knowledge about the landscapes we examine in our travels enriches the experience gained by the students each summer and inspires the faculty to arrange new experiences for their students and colleagues. Student diversity ensures that course goals of critical thinking and problem-solving will be attained. Moreover, the varied components of this course bring a unique international perspective to our examination of sustainable use of natural resources.

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