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Study abroad in support of education for sustainability: a New Zealand case study

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Abstract This article presents a case study of an existing study abroad program to New Zealand interested in infusing sustainability themes into the curriculum. The review of the program is set in the context of United Nations Education for Sustainable Development goals and the role of sustainability in institutions of higher education. The author was an invited external observer and suggests that study abroad programs in support of sustainability education provide transformative learning experiences that invest in the well being of both people and places.

Keywords Field studies · Higher education · New Zealand · Sustainability · Study abroad

1 Introduction

Since the 1970s, environmental education has steadily advanced from marginal status in the curriculum to an awareness that education for sustainability is central to future environmental health and human well-being. "Learning to understand the natural world and the human place in it can only be an *active* process through which our sense of what counts as going with the grain of nature is continuously constituted and recreated" (Foster 2001, p. 153, italics added). While cumulative results appear modest and are described by one observer as "comfortable use in meaningless rhetoric by all sides of complex issues" (Sherren 2006, p. 400), advancing ecological literacy and "greening" the curriculum are supported by many institutions of higher education as indicators of commitment to the concerns of future generations (Thomas and Nicita 2002; Clark and Dickson 2003; Heck 2005; Moody et al. 2005; Eisen and Barlett 2006; Geli de Ciurana and Leal Filho 2006;

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Sherren 2006). To summarize, "there is a long way to go" and no clear path on how to get there (Geli de Ciurana and Leal Filho 2006, p. 81).

The United Nations designated 2005–2014 the Decade of Education for Sustainable Development (ESD) to integrate themes into education and learning that address environmental diversity, rural and urban development, peace and human health, and the equitable distribution of wealth and justice. Education for Sustainable Development "utilizes all aspects of public awareness, education and training to create or enhance an understanding of the linkages among the issues of sustainable development and to develop the knowledge, skills, perspectives and values which will empower people of all ages to assume responsibility for creating and enjoying a sustainable future" (Rebello 2003, p. 4). Rebello suggests that institutions of higher education, those that conduct training and research at post-secondary levels, are "equipped to lead the way" in terms of preparing future leaders.

Universities are positioned to provide leadership on issues of sustainability, and it is possible for faculty and staff to contribute to a body of knowledge required to inform sound policy decisions. Academic leadership as measured by research success, in terms of extramural funding and publications, generally dismisses the contribution of programs that support student learning and service to communities. Study abroad programs, in particular, can nurture a sense of global stewardship but only when the program curriculum and instructors are well informed of the issues that created unsustainable societies. Nonetheless, developed societies with an abundance of economic capacity to contribute scientific and technological solutions are widely criticized as the least sustainable and most polluting. As a result, leadership is undermined.

The purpose of this article is to review an existing study abroad program in the context of sustainability studies in higher education. The author was an invited external observer of a three and a half week study abroad program to New Zealand in 2006 to make recommendations on infusing sustainability themes into the program curriculum. Prior to departure, extensive communication by phone and email with the program director and in-country staff allowed the author the opportunity to become familiar with the program design, learning objectives, and guiding pedagogy.

The primary method for this case study was participant observation, including sustained direct interaction with 32 program participants, from which group over half were informally interviewed individually and all participated in discussion sessions of 3–6 students. The author also conducted informal interviews with service providers, field lecturers, and attended post-program meetings with all faculty members and in-country staff.

2 Establishing a link between education for sustainability and study abroad

As defined by the Bruntland Commission in *Our Common Future* (World Commission on Environment and Development 1987), sustainable development and sustainability promote decision-making and actions whereby the needs of people today are met without compromising the ability of people in the future to meet their own needs. Although a more precise and universally accepted definition is widely debated among academics and practitioners, the general consensus is the need to address environment, economy, culture, and social equity. "As a concept, its malleability allows it to remain an open, dynamic, and evolving idea that can be adapted to fit these very different situations and contexts across space and time" (Kates et al. 2005, p. 20).

ESD is an opportunity to "progress more quickly in our efforts to make sustainable development a focus of education around the world" (Calder 2005, p. 1). International organizations and national and local governments provide advocacy, training, curricula, advisors, communications, and networking. The basis for these contributions emerge from Agenda 21, the document informed by the UN Conference on Environment and Development, the Rio Summit, in 1992 and reaffirmed at the World Summit on Sustainable Development in Johannesburg in 2002.

The challenges are well known to many educators, but how to prepare students for the task of creating a more "just, humane, and secure world" has eluded those who may ask, "Why bother introducing another topic into the overcrowded curriculum? (Santone 2003, p. 61). Rather than "repackaged environmentalism," Santone suggests education for sustainability goes beyond defining citizenship in terms of "voting and obeying the law" and addresses the question "what kind of education do we need to create the future we want?" (Santone 2003, p. 61). The often-cited solution is to integrate curriculum across disciplinary boundaries. Such transdisciplinary-based solutions address standards "beyond a single classroom." But how might academic content focus on student learning outcomes if definitions that encompass current concepts of sustainability are inherently broad, purposely vague, and often non-committal to measurable indicators of change? (Stevenson 2006).

ESD is determined to be a proactive approach to environmental problem solving. The approach proposes to be futures oriented, focused on intergenerational equity, and optimistic so as to encourage and promote competence in decision making and planning. However, Stevenson points out that a vision of a future sustainable society cannot disregard the present state of environmental health, nor the historical inheritance of colonialism that fostered greed and injustice. Furthermore, "a pedagogical question concerns the appropriate starting point—is it the present (negative) situation, or a future (optimistic or pessimistic) vision?" (Stevenson 2006, p. 284).

Institutions of higher education have several roles to play regarding the study of sustainability: develop, analyze, and disseminate theories, practices, and expertise. However, the creation of sustainability studies programs is complicated by academia's tendency to create rigid disciplinary boundaries that discourage transdisciplinary collaboration. Indeed, there are other non-instructional sustainability initiatives to be considered by universities of equal importance, including facilities and grounds management and purchasing, that can be merged with the historic role of higher education in society as advancing knowledge.

Despite sustainability initiatives taking root on campuses, rhetoric does not improve the quality of life for humans or address widespread trends of environmental degradation. Developing in a sustainable manner that is based on historical patterns of economic expansion largely fails to accept the fact that overconsumption by affluent societies is a primary challenge. Learning how to restore natural capital and not merely devising strategies to sustain maximum yields indefinitely can address the symptoms of and deeper moral and ethical issues related to dysfunctional human-environment relationships.

If institutions of higher education struggle with how to implement the goals and objectives of sustainability, the question students ask, who are a part of the learning community but are often kept apart from decision making, may justifiably be "what difference can *I* make?" (Foster 2001, p. 162, italics in original). One learning opportunity students may select is to participate in study abroad programs whose curriculum and instructors integrate sustainability themes through relevant site visits and service opportunities.

U.S. Senate Resolution 308 designated 2006 Year of Study Abroad, in part, to address a "serious deficit in global competence in the United States" (Senate of the United States 2005). In the 2004–2005 academic year, only 1% of college level students (191,321) participated on a study abroad program, though 75% of high school seniors considered it an important part of their academic career (Commission on the Abraham Lincoln Study Abroad Fellowship Program 2005). The figure for 2006 increased 8%, and a total increase of 144% in the decade ending in 2005 (Association of International Educators 2006). The Senate hopes the Year of Study Abroad ensures the U.S. is globally literate, more informed, culturally aware, can avoid offending other societies, and is globally competent and competitive.

The challenges to achieve those objectives are profound. Of those U.S. students who do study abroad, half tend to go to countries in Western Europe, 65% are female, minority student participants are below 10% of the total, and 30% are humanities majors (Commission on the Abraham Lincoln Study Abroad Fellowship Program 2005). Clearly, there is a long way to go toward achieving the related objectives of the UN Decade of ESD and the Millennium Goals, let alone the U.S. government goal of one million study abroad participants by their respective target dates of 2014, 2015, and 2016. The disconnect of U.S. students as global citizens (87% of students between 18 and 24 years of age could not find Iraq on a map, 83% couldn't find Afghanistan, 58% Japan, and 11% "cannot even find the United States") is stated in the language of Resolution 308, and an increase in participation in study abroad programs may have the ripple effect of positive contributions to ESD and the Millennium Goals.

Nonetheless, examples of infusing sustainability objectives in higher education do exist. A School for Field Studies (SFS) program in Mexico integrates community projects with learning objectives that contribute to positive outcomes for both students and the host community. The academic framework addresses the question "How can SFS help the government and local community promote the sustainability and integrity of the marine ecosystem and the socio-economic growth and stability of their community? (Farrell and Ollervides 2005, p. 122). A five-year research plan provides the guiding pedagogical philosophy and directs educational decision making by instructors. Student research projects are presented to local stakeholders as a means to make recommendations on sustainable resource use and management, thus providing a means to contribute solutions. This practice also indicates to the community, which are often rural and poor, that members of affluent societies are aware of their plight and are willing and capable of learning how to cooperate in a global society.

Other organizations active in making the link between ESD and study abroad are Living Routes (www.livingroutes.org) and Global Explorers (www.globalexplorers). Their programs are developed from a sense of urgency and necessary action in response to contemporary planetary challenges. "Our navigational charts are hopelessly out-of-date and we desperately need to develop new visions and new maps that will help guide us toward more sustainable lifeways" (www.livingroutes.org). Part of that vision is to educate holistically and train students to become "community builders" with a commitment to "1. Slow down this global juggernaut of destruction; 2. Build new, more sustainable institutions—from local economies to new forms of community and education; 3. Create new worldviews in which we see ourselves as embedded in the fabric of all life" (www.livingroutes.org). The link between ESD and study abroad is the benefit of living and studying in communities that either demonstrate sustainable technologies and/or lifestyles or are in need of support. Both programs offer university course credit.

Such programs are not sufficient given the relatively small number of students able to participate, but they indicate a trend toward an interest in active learning that is a hallmark of environmental education. The creation of links between community-identified concerns to initiate or support on-going research programs centered on university campuses is part of this growing trend. Students don't necessarily have to go to another country to participate in a field studies program, but a study abroad experience is of interest to many who want to go beyond the social, cultural and political boundaries of their immediate place. For some students, study abroad programs informed by the objectives of ESD offer a diverse range of options beyond visits to museums and historical sites of interest.

Another trend is demand for short programs. According to the Association of International Educators, over half of total participants were on programs generally scheduled between semesters or a portion of the summer, where students get international experience while earning credit toward graduation (Association of International Educators 2006). While an attractive alternative to full semester or yearlong programs, there should be concern that programs can be too short and participants too isolated from residents to make much of an impact on student worldviews. A risk is that students return home with stereotypes reinforced rather than achieving the learning outcomes of global literacy and citizenship.

3 The study abroad destination as sustainability studies classroom

All things considered, a study abroad *destination* is the classroom and not the walls and desks of a local campus. Experiential learning requires the contexts of time and space in order for students to identify and understand current and projected (un)sustainable trends at local, national, regional, and global scales of analysis. A study abroad program that emphasizes experiential learning to maximize the benefits of in situ learning is challenged to maintain a quality-learning environment with an adequate balance of informative readings and engaging site visits. In this case, New Zealand as classroom is exceptional.

New Zealand is distinguished by diverse marine and terrestrial ecosystems found in close proximity to one another, and the relative ease of access to these ecosystems and to topographic features that highlight natural processes and human use of coastal and land resources provide for appropriate field site visits. The observed study abroad program introduced students to themes relevant to broadly defined sustainable development and sustainability studies by way of a 250 page course handbook, a series of site visits, and field lectures by experts in the subject. The course title is appropriately *Sustaining Human Societies and the Natural Environment: Field Studies in Natural Resource and Conservation Management*, and the six-credit upper division course was cross listed in Agricultural and Applied Economics, Anthropology, Ecology, Forestry, Geography, International Affairs, and Recreation and Leisure Studies which attracted a variety of students.

The 15-day field trip on the South Island was geographically comprehensive, even logistically overloaded, and logged an estimated 2500 km in 11 travel days (a daily average of 227 km). There were over 20 field sites and a dozen presentations by guest speakers. Each speaker interacted with three student groups of approximately 30 students whose travel was staggered by a day but followed the same route and activities. The

majority of these visits and lectures were informative in and of themselves, and were conducted in appropriate settings and conditions conducive for student learning.

The field studies component attempted to emphasize the iterative learning approach adopted by the program, but raised somewhat unreasonable expectations for the students to perform adequately. In lectures held in Christchurch, students heard from experts in the fields of Maori studies, conservation biology, geomorphology, biogeography, and land tenure, while in the field they visited wildlife recovery centers for native birds, a restoration ecology project at Lake Rotoiti, visitor centers for Fiordland and Punakaiki national parks, and sheep ranches and a dairy farm dealing with issues of land tenure reform under the Resource Management Act of 1993. They also listened to a debate over conservation and commercial use of protected areas, particularly concerning the complex issues of social and ecological carrying capacity.

The curriculum is described to students as an iterative learning process in that they are encouraged to process seemingly disparate information in order to see the "big picture." A "module approach" provides students a mosaic of learning opportunities that are pieced together over the course, requiring active engagement, both physical and intellectual. As described by a program director, "It is a way of learning that is far removed from the taking and regurgitating of lecture notes … Indeed, you may even find that it influences the way in which you look at the world around you and learn beyond this particular study abroad experience."

Sample module questions included (paraphrased by author): describe the ecological and geological history of the Banks Peninsula; how did pre-contact Maori adapt to and exploit natural resources on the Canterbury Plain; identify native and invasive plants; what do the advancing glaciers of the South Island suggest about global climate change; what is the continuing impact of the Treaty of Waitangi; what are the advantages and disadvantages of the current land tenure review process; how sustainable is hydropower for the country; how would you determine ecological and social carrying capacity in high-use tourist destinations such as Milford Sound; and what impacts are tourism development and second home development having in the area of Queenstown? These course topics effectively correspond to the ESD themes identified by Unesco (Table 1).

Table 1 Program curriculum content corresponding to ESD themes (source: Unesco.org)

Key active themes	Readings	Lectures	Discussions	Assignments	Exam
Overcoming poverty		x	x		
Gender equity					
Health promotion					
Environment	–	–	–	–	–
Water	x	x	x	x	x
Climate change	x	x	x	x	x
Biodiversity	x	x	x	x	x
Disaster prevention		x	x		
Rural development	x	x	x	x	x
Cultural diversity	x	x	x	x	x
Peace and human security					
Sustainable urbanization	x	x	x	x	x

3.1 Antarctica and climate change theme

Even from New Zealand's latitude of 44°S, the 2500 km trip to Antarctica is a 6–8 h flight or four-day trip by ship. Antarctic exploration has a long history, but it was the International Geophysical Year of 1957–1958 that expanded the research program. The Antarctic Treaty was signed in 1961 with seven countries claiming territory in pie-shaped wedges (Argentina, Australia, Chile, France, New Zealand, Norway, and United Kingdom). Additional signatories to the Treaty (Belgium, Japan, Russia, South Africa, and United States) pledge to abide to conditions (peaceful activities i.e. no military/nuclear activities, shared scientific discoveries, independent inspection of all facilities and activities) and to follow specific protocols (comprehensive protection of the ecology, no extractive resource exploration, environmental impact review process, collaborative response to environmental emergencies, such as an oil spill). An additional group of countries are consultative signatories, those that have "credible" scientific programs, and many of these countries maintain bases year-round (Brazil, Chile, China, France, Germany, India, Italy, Japan, Poland, Russia, South Africa, South Korea, United Kingdom, Uruguay, and United States).

A scientist with an accumulated 3 years spent in Antarctica and a visit to the International Antarctic Centre, part tourist attraction and part science museum, helped decipher global climate change discourse. The city of Christchurch is the gateway for the national research activities in Antarctica for New Zealand, Italy, and the United States so the subject material is appropriate and timely.

Climate change science in New Zealand is complex due to diverse climatic and topographic conditions on the main islands. For example, why are the Fox and Franz Josef glaciers on the South Island expanding at present while there is a notable retreat of glaciers globally? The scientist, a geologist by training, noted that global climate change is a fact and that the question is the level of impact on natural and human systems. If hearing that the complete melting of the Antarctic ice sheet would raise global sea level by 70 m, it accounts for over 80% of the planet's fresh water, didn't jar student interest in the significance of climate change, then perhaps it was the potential extinction of the iconic Emperor penguin. Additional examples of climate change included satellite images of unstable sections of the Ross Ice Shelf and data showing fossil evidence of previous periods of global warming and associated planetary impacts. The presenter reported that impacts will be experienced for decades to come, just as impacts of chlorofluorohydrocarbons (CFCs) will continue despite the phase out of their use since the discovery of the ozone hole in the 1980s.

Two current research projects presented were the Russian study of Lake Vostok and the study of the Antarctic ecosystem. Isolated under 4 km of ice, the lake is 500 m deep and is the size of Lake Ontario, North America or Lake Malawi, Africa. Current research questions include the geochemistry of the water, the geologic history, and any signs of life. Microbes were detected in frozen ice on the surface of the lake but researchers are uncertain whether they are a native life form or an invasive species introduced by human research activities. Ongoing ecology research investigates survival strategies, which include insulation (fat and feathers) and the presence of an anti-freeze in blood. Although species diversity is low, the populations of these few species are abundant. Krill is a good example since they are key to the Antarctic food chain.

Antarctica introduced global climate change science as well as suggested a model for human cooperation to identify responses and solutions. The treaties that govern human use of the continent exemplify what can be done to address potential sources of future conflict, such as managing space as a locality of human activities.

3.2 Biodiversity theme

The biodiversity and associated conservation themes were prevalent in the curriculum and site visits. Particular attention was devoted to what is referred to in New Zealand as "biosecurity," which concerns control and risk management of invasive species and diseases without the association with terrorism the term has in the U.S. The Fifth New Zealand Biosecurity Summit programme has no mention of terrorism and focuses on managing environmental and human health (New Zealand Government 2007a). Nonetheless, speakers on the subject of environmental quality each made it evident the importance of the issue to an economy over 50% dependent on the sheep industry, over 40% on tourism, and approximately 3% on plantation forestry. The dependency on natural resources requires management of risks for socio-economic reasons as much as environmental. Despite the high profile, biosecurity brochures and posters were evident in public locations, there is an apparent lack of knowledge and poor public support for what scientists considered cost effective control strategies. Unique strengths are the island nation's natural borders, which permit a greater ability to export risks before they arrive in-country.

Two lectures on the subject of restoration ecology and resource management were followed by a site visit to the Rotoiti Nature Recovery Project in Nelson Lakes National Park. At this 825 ha project site, management has shifted from solely pest eradication strategies (possum, rats, stoats, ferrets and weasels) to the study of how forests, primarily beech, are responding to invasive species. This strategy recognizes the loss of habitat and related environmental degradation, and attempts to balance short-term control measures with sustaining long-term ecosystem health (Sanders and Norton 2001). The project involves managing the area as a "mainland island" by using the natural barriers of mountains and lakes for the reintroduction of native species, such as the iconic flightless kiwi. Put in simple terms on a PowerPoint slide by the field ecologist, a reduction of possums would increase the habitat for a native mistletoe species, eradication of wasps permits the recovery of native insects, survival rates of tree nesting and flightless birds improves with control of the rat and stoat populations.

The course provided case studies specific to New Zealand, but these are readily situated in the global context of environmental security. The systematic introduction of species alien to New Zealand now recognized to have been a destructive practice informs current responses to climate changes that attempt to mitigate the spread of infectious disease among other human health concerns.

3.3 Indigenous Maori and cultural diversity theme

As a visitor from the University of Hawai'i at Manoa, an entry in the author's journal noted, "today's lecture could invariably have been talking about the Hawaiian Islands natural and cultural history. These two corners of the Polynesian Triangle share a history of human adaptation to challenging island environments and a post-European contact history of greed and exploitation. Currently, they both seem to share an increasing sense of mission to do better in the interest of nature and the host culture."

Appropriately, one of the first site visits was to *Nga Hau E Wha* National *marae* located in Christchurch. At this sacred gathering site, students were greeted with a *powhiri* (customary welcome ceremony) that included a *haka* (dance), *mihi* (speeches), and *koha* (gifts), as well as lectures on language and customs. The concept of the national *marae* is to generate cultural understanding not only among the various *iwi* (tribal groups) but extend

this to "all the people of New Zealand regardless of tribal affiliation, religion, geographic reference or ethnicity" (Nga Hau e Wha National Marae 2007).

The student group itself reflected indigenous perspectives and cultural diversity. The vast majority of students attended the same university, but they represented the mix of people now living in North America: Native, Anglo, Hispanic, African, and Asian.

3.4 Rural sustainable development theme

The politics behind resource conservation and exploitation were topics of presentations from a variety of stakeholders. Despite the "clean and green" stereotype and promotion New Zealand as "Home of Middle Earth" by way of its use as a film backdrop (Hall and Kearsley 2001; Carl et al. 2007; Tucker 2007), one faculty presenter identified sustainable tourism as an oxymoron. The presenter argued that despite good intentions, tourism could represent the next boom and bust in economic cycles experienced since Europeanization of the landscape. There were 487,000 visitors in 1983 and projections for 2008 are 2.8 million.

As happens in other tourism destinations, the tourism industry "privatizes profits and socializes costs." To counter this trend, the New Zealand Tourism Strategy 2010 (a 2015 draft strategy was released in 2007), sees sustainability as a core feature to secure long-term viability (New Zealand Tourism Strategy 2010 2007b). The proposed aim is to go after a market that is "high yield and low volume," meaning tourist expenditures per person are high but total visitor numbers are low. Current average stay is 21 days with over 30% of visitors from Australia, 11% each from the United Kingdom and United States, and approximately 15% from countries in Asia (Japan, Singapore, Taiwan and South Korea). Total expenditures of $9.5 billion generate $1.25 billion in tax revenue. Other primary objectives of the Strategy are long-term stable growth, public–private partnerships, and increased indigenous participation to highlight both natural and cultural destinations and activities. These strategies are virtually identical to the State of Hawai'i tourism strategic plan 2005–2015 (State of Hawai'i, Hawai'i Tourism Authority 2005).

The relationship between nature and culture were linked with a site visit to Kaikoura, a peninsula north of Christchurch. A community of <4000 residents, Kaikoura went through economic restructuring in the 1980s. The result was an 8 year process from planning to implementation of its Green Globe Benchmark status in 2002. The first community in New Zealand and second in the world to achieve the global tourism certification standard, the Green Globe program is the result of the Agenda 21 principles for sustainable development from the 1992 Earth Summit. "Green Globe aims to provide the travel and tourism industry with a certification system that responds directly to the major environmental problems facing the planet, including the greenhouse effect, overuse of freshwater resources, destruction of biodiversity, production of solid and biological waste, and social issues" (Koeman et al. 2002, p. 299). Success is characterized by a zero waste policy, which involves the termination of curbside trash collection (residents are required to haul their own trash to the landfill), free recycling pick up, and encouragement of composting as a means to limit the solid waste stream from homes. Additional measures have extended the life of the landfill by 20 years and diversion of materials from the landfill has reached 60% per year.

Another project, *Trees for Travellers*, involves planting two million trees to offset greenhouse gas emissions produced by the community. Visitors buy and plant native trees while on their visit to the area's attractions, and can even monitor the health of the tree on

the Internet. A related program, *Innovative Waste Youth Team*, assists in the planting of trees and diverts "youths who may well have ended up in the courts … (who) are now working enthusiastically to help the community rather than harm it" (Kaikoura Information and Tourism, Inc. 2007).

4 Discussion

Sustainability studies, whether for the field or classroom, is challenged to provide academic breadth and depth due to inherent interdisciplinary approaches to learning. Taken collectively, the interdisciplinary range of topics covered on the observed program appeared more about breadth than depth of knowledge. Course objectives identified in the course handbook include understanding natural history and resource management, human adaptations to and impacts on natural resources, environmental conservation strategies, and interdisciplinary perspectives on each of those identified topics. One local faculty member noted "a huge inconsistency across the program and the need for better-trained visiting academic staff." Of critical importance was a perceived lack of credibility concerning realistic learning outcomes given the minimal faculty–student engagement, largely explained by the rigorous travel schedule. This concern was highlighted in the student evaluation process at the end of the program.

After the program destination and course content, a key element of a successful study abroad program for students is the faculty member. One primary responsibility of the faculty member is to articulate the course content in the context of studying particular places. Another responsibility is student safety. Effective study abroad faculty set the tone for and create the learning atmosphere that are conducive to each individual student's own transformative learning experience and path toward responsible global citizenship.

A conclusion drawn in light of the author's own study abroad experiences as an undergraduate is that faculty recruitment for a program is as important as student recruitment. If the impression among students on campus is that a program is not academically rigorous, the result may be a group of student recruits more interested in a road trip or "booze cruise" than in a transformative learning experience. The same can be true for faculty. If program participation is promoted as a travel perk it could diminish the relevance of course content and dilute learning outcomes. Either of these outcomes jeopardizes the long-term viability of any study abroad program, and certainly undermines the objectives of a sustainability-focused program.

In today's climate of soaring educational expenses for institutions and students (or their parents), study abroad programs have the ability to generate additional income for universities in the form of tuition and program fees. One-of-a-kind study abroad programs also highlight differences among universities, and therefore, provide additional means of marketing and recruitment. Quality control and relevant course content are paramount to a program's long-term success. Study abroad destinations market themselves while a curriculum infused with sustainability themes can complement the field sites and vice-versa. Continued success of an ESD-informed program depends on low student:faculty ratios and selective recruitment of both.

The author considers a primary deficiency of short courses the limited number of days to do sufficient justice to the wide range of relevant sustainability themes as outlined in Table 1. A program may successfully focus on one aspect of the triple bottom line approach to sustainability (environment, economy, and social equity), for example conservation biology, food and water systems, or community development, but a short course

is compromised by taking on too much to do anything more than nibble at the edges. According to the Association of International Educators, study abroad short programs (3–6 weeks) are expanding in the United States and pose concerns for the academic depth of learning, so the issue of duration is not unique to the observed program.

As for course competencies, these can be broad and are best addressed within the particular context of faculty interests and areas of expertise. Co-teaching, guest lectures, and site visits enrich course content and ensure student exposure to transdisciplinary approaches to learning and a variety of research methods. A foundation for competencies consists of a student's ability to identify sustainable and unsustainable activities and patterns, the ability to critically assess development policies and outcomes, and the internalization of this knowledge to make informed lifestyle choices. Such competencies reflect the objectives of ESD learning experiences that lead to individuals choosing more sustainable lifestyles.

Of equal significance to in-country curriculum content is consideration of a pre-departure orientation program to situate a student's understanding of issues in the destination country by means of comparable case studies from regions familiar to students. Students would benefit from an introduction to participant observer field methods, particularly note taking and informal interviewing, so as to make good use of site visits and guest lecturers' time.

The transformative learning process for students of ESD study abroad programs may not be evident in the short term. A primary objective is that a student's intellectual awakening be accompanied by an understanding of human interdependence with one another and the natural environment. Once the relationship is understood, behavioural changes put learning into practice.

5 Conclusion

ESD in the study abroad context may motivate students to manifest learning outcomes on campuses and in their communities and thus have a ripple effect on those students unable to participate on such programs. A desired outcome is that campuses and workplaces adopt energy and water conservation policies, provide facilities and landscaping choices that reflect place and host community, and procure products and services that not only consider the cost but the source. Sustainability learning outcomes, whether obtained on a study abroad program or in an existing course on campus, can be exported from the university campus to host communities that may have identified concerns but no means of addressing them.

A sustainability studies study abroad option could attract a more diverse student body to international education beyond the current dominance of students in social sciences and humanities departments. It could also reconcile the divergence of low study abroad participation in the United States (currently 1%) with a survey indicating "dramatic public consensus" about the perceived importance of international education as "key to preparing for success in the global age" (Association of International Educators 2006).

What evidence will there be that education has been transformed as an outcome of all the reform rhetoric of the past decade, and how will the coming decade make a difference? University courses and programs that facilitate action on the key themes of ESD by faculty, students, and staff will be examples of transformation in the short term. Institutions of higher education, having implemented such programs of study, can monitor progress by way of student enrolment. Universities will also be able to measure outcomes in the form

of decreased environmental footprints as a whole while being fiscally responsible to constituents, whether public or private. Ultimately, the education, research and service in support of sustainability studies at institutions of higher education sets a course for future leadership whose benefits will be measured for generations to come.

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