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Global Service Learning through Green Mapping Tourism Development in the Brazilian Atlantic Rainforest

By Claudia Green, Ph.D. and Arthur Green

Introduction

Educators who are preparing university students to be the future leaders in business and education are acutely aware of the need to enlighten students about the issues of global sustainability through experiential education. Interest in service learning as a vehicle for community based experiential education has spread from local communities to global communities in many instances (Cook, 2008). Advances in technology are offering innovative ways to communicate and create a sense of community through Web 2.0 technology features such as blogging, pod casting, and community bulletin boards. An example of a Web 2.0 technology is a system of global community mapping projects organized under Green Map System (Barbry, 2007). Green Map System is a global, social, cultural initiative that empowers communities to support the authentic, unique environmental, cultural, and social resources that they define as the strength of their community (Green Map System, 2006). It is possible for students to initiate and maintain an engagement with international education even after they have left a destination. There is a natural affinity between international education and information technology in that it allows a student to maintain a connection. Readily available technology gives students opportunities for collaboration which support their role of becoming global citizens (Philson, 1998). The purpose of this project is to introduce an ongoing, service-learning project that incorporates global social responsibility and the use of Web 2.0 technology in community mapping of sustainable businesses in a historic Portuguese fishing village in the Brazilian Atlantic Rainforest.

Service Learning

The Southern Regional Education Board first introduced the term "service learning" in 1969 when they defined it as "the accomplishment of tasks that meet genuine human needs in combination with conscious educational growth" (Stanton, Giles, & Cruz, 1999). Service learning has evolved and been supported as an alternative to the traditional passive, didactic process of education most prevalent in postsecondary education and a way to place more emphasis on social responsibility and community (Stanton, 1990). The popularity of service learning courses in business education is based on reinforcement of academic course concepts through hands-on, authentic experiences in the community (Steiner & Watson, 2006).

In the mid 1990's a number of business educators believed that business education was on the "cusp of a pedagogical revolution with

service learning being a preferred design and course methodology" (Van de Ven & Zlotkowski, 1996). Service learning accomplishes two goals: 1) educating students for their profession and 2) preparing them to be engaged, ethical citizens (Flannery & Pragman 2008). The use of service learning in business curriculum has become more common and is actively supported by business educators who believe that it not only does further the mission of the universities to develop students' business skills, use critical thinking, and ability to solve problems in authentic situations, but also infuses social responsibility and ethics (Flannery & Pragman, 2008).

Interest in service learning was demonstrated in the mid 1990's when Kohls, an educator in the disciplines of management, ethics, organizational culture, and leadership, began to require a service learning component in his undergraduate business ethics course (Kohls, 1996). One of the basic constituents of service learning is that it occurs within a community with other students and community partners (Cook, 2008).

Service learning can include a variety of teaching strategies such as class lectures, discussion, assigned readings, independent research, collaborative projects, and reflections (Cook, 2008). Typically the process includes three approaches: 1) reflection, 2) content knowledge, and 3) skill development. Reflection differentiates service learning from other forms of experiential learning in that it stimulates deeper thinking and an opportunity for students to examine their own beliefs, values, and stereotypes. A successful service learning project also requires content, and background knowledge about the context in which the project will be conducted. This background might include a deeper understanding of history, sociology, culture, economic, and political environment (Cook, 2008). A third component is skill development, which may include the use of a foreign language, interview development and skills, and the use of technology.

Globalization of Education

In the mid 1990's when educators were examining the opportunity to incorporate service learning, the American Council on Education International Commission on International Education was emphasizing the need for universities to become "borderless" in order to prepare students for the future global challenges they would be facing. In 2003, Green and Olson recommended that colleges and uni-

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versities develop new pedagogy that would support interdisciplinary and integrated learning. While there are many conflicting views of how globalization should be interpreted, there is no doubt that the degrees of connectedness among people, increased speeds of information and material transfer, and homogenization of culture continues to increase around the world.

Offices of international programs at universities in the United States are providing increasing numbers of students the opportunity to enrich their education through international experiences such as semester abroad and field studies. As a matter of fact, the number of students who chose to globalize their university education has increased from 90,000 in 1995-96 to 223,534 in 2005-06 (Green & Olsen, 2003). In response, American college and university professors are being challenged to plan meaningful educational experiences that facilitate students' ability to develop global competencies for entry into the global workplace. These competencies include the ability of students 1) to be culturally self aware; 2) to operate outside their own culture comfort zone (cultural consciousness); 3) to collaboratively lead and work with people of different cultural perspectives (multicultural teams); 4) to understand the "rules of the game" in various cultures (negotiate across cultures); 5) to scan and understand the big picture (global mindset) (Cant, 2004); 6) to identify and follow international regulation and normative goals such as those embodied in the United Nations; and 7) to identify and support environmentally sustainable practices (Hawke, 1993).

Green Mapping

Mapping was once thought to be the privilege of the elite (Parker, 2006). However, recent advances in technology give any individual the opportunity to develop a variety of types of maps of destinations throughout the world. Green Map System (<http://www.greenmap.org>) is a grassroots global project based on community mapping that began in 1995 and has evolved into a vibrant sustainability project. Green Maps highlight the community's natural, cultural, and sustainable resources by personalizing the perception of the place. The mission of Green Map System is: 1) to strengthen local and global community networks; 2) to expand the demand for greener choices, 3) promote inclusive participation in sustainable community development around the world, using mapmaking as the medium.

The organization, Green Map System, represents a global movement of citizens who chart their natural, cultural, and green resources in 50 countries around the world. The motives for Green Mapping can be as varied as the communities themselves. Today there are over 450 Green Maps globally that bear Green Map icons featuring: green economy, mobility, technology and design hazards and challenges, land and water, flora and fauna, cultural character, outdoor activities, eco-information, public works and landmarks, and more (Appendix 1). These universal icons are provided by Green Map System and have been created by citizens from around the world for use as a universal

language in the development and use of Green Maps. Icons are used to mark specific locations of interest on Green Maps around the world and give consistency to the Green Mapping initiative as a universal language.

Green Mapping is not just a product, but rather a process wherein the community becomes involved and has a voice in identifying unique and authentic characteristics they would like to feature about their community. The strength of Green Mapping is based in the involvement of a community, defined as a group of people who share a common space (Parker, 2006). Through the process of community mapping, the stakeholders not only gain a voice, about the nature of their community, but also become empowered to make decisions about what they want their community to be (Parker, 2006). By laying claim to the collective identity of their space, stakeholders are able to develop sense of community and respect for authenticity, culture, natural resources and history.

In a study conducted about the Green Mapping process, Parker (2006) identified inclusion, transparency, and empowerment as the hallmark features of community mapping. The two significant developments in recent years that have further supported the concept of community mapping are: 1) advances in technology that make it possible for the community to participate in map development and 2) recognition of the clear relationship between mapping and power in communities.

In this project, the process of Green Mapping connects two challenges that face higher education today: service learning and globalization of education. Service learning, a student based learning strategy, is unique in that students provide a service to an agency or community, learn from the connection, and make the transition from observer to active participant. The challenge of preparing students to be globally responsible leaders is often addressed through international field studies and study abroad. With these two challenges in mind, the goal of this research project is to demonstrate a model for integrating service learning in a global setting. This paper will outline a longitudinal, on-going global service learning project in which university students are introduced to the process of Green Mapping of sustainable businesses in the Brazilian Atlantic Rainforest. This project addresses the students' need to be culturally self aware and conscious, to function in multicultural teams, to negotiate across cultures, and to have a global mindset through global service learning.

The Brazilian Atlantic Rainforest, between Sao Paulo and Rio de Janeiro, is the location for this project. This rainforest is considered to be one of the most ecologically endangered. Years of logging and clearing for coffee plantations has resulted in a 93% loss of the forest from its original state (World Land Trust, 2007). Continued business development and the spread of tourism are presenting challenges to social and ecological sustainability in this area. Specifically, this project is based in Paraty, Brazil, a 17th century colonial Portuguese

fishing village and a United Nations Educational, Scientific and Cultural Organization (UNESCO) nominated destination, which is located on the Atlantic coast. The Paraty Green Map Project is as a public-private global service learning project involving students, businesses, non-profit organizations, government, and local citizens.

The goals of the Paraty Green Map Project are threefold: 1) to provide students an opportunity to develop global competencies through a service learning project; 2) to educate all stakeholders about environmentally sustainable practices; and 3) to encourage appropriate economic growth of a rural community in the Brazilian Atlantic Rainforest through promotion of sustainable tourism features on the World Wide Web.

A unique, cutting edge technological feature of Paraty Green Map is the use of Web 2.0, a term that does not describe a new technology, but rather the latest way that existing web technology is being used to create on-line social networks wherein people communicate, interact, and share information with those who have similar interests. The Web 2.0 features, including blogging, pod casting, and community bulletin boards thereby empowering people who formerly did not have a voice and resulting in rapid increase in consumer opinion on line (Barbry, 2007).

The Green Map of Paraty, Brazil has similar goals with the other 450 Green Map global locations, yet it also has unique features based on the cultural, social, economic, and development needs of the specific community. Paraty Green Map is focused on the sustainability practices of the village's stakeholders: the citizens, the businesses, and the local government with regard to their support of their local community. A major component of this project is sustainable practices and how to introduce those practices into these destinations.

As globalization spreads, there is a blurring of what makes a destination or a culture truly unique and authentic. Travel to developing countries is continuing to rise and bring along with it negative impacts on the social, cultural, natural, and economic environments. Global initiatives to promote sustainable tourism development are attempting reduce the impact of tourism development on destinations.

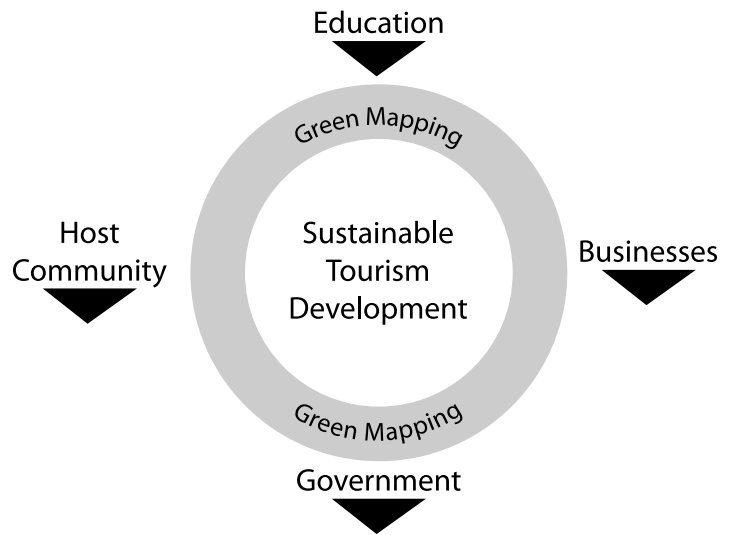
In Paraty, as in many destinations in the Brazilian Atlantic Rainforest, there is concern that increasing tourism is beginning to destroy the environment and to stretch communities beyond their capacity. A number of Paraty business entrepreneurs and host community citizens expressed a need for their community to focus on sustainable development practices to protect their fragile environment as it related to social, cultural and environmental issues such as water supply, waste removal, and infrastructure.

Methodology

Faculty and students at Pace University learned about the Green Map process in January 2005 and began to apply this to their international field studies trips to Brazil in 2005, 2006, 2007, 2008, and

Figure 1

Partnerships in Green Mapping Sustainable Development



ongoing plans for the future. Criteria for identifying environmentally, socially and culturally sustainable sites is based on the Green Map System nomenclature and is also shaped by the nature of respective destinations being mapped.

Tourism development research literature supports the balance and importance of host community, government, and businesses in the development of tourism (Sutter & Leisen, 1999). Green Mapping adds another dimension to this project as it provides students a hands on educational, community experience. The partnerships with the community stakeholders were initiated by Pace University faculty based on a desire to have a global service learning experience for the university students. The business consultant planning the international field study course made contact with the mayor of Paraty and began the development of partnerships that has spread and been sustained since 2005.

As Cook (2008) indicated, a basic constituent of service learning is that it occurs in a community with other students and the community. In addition, the success of any Green Mapping project is embedded in community participation. The support of the local government was the first step in getting support of citizens and local businesses. Because the mayor was very interested in sustainable development, he was pleased with the goals of the Green Map project and supported it by encouraging the community to participate with the interviews. Student activity was supervised by Pace University business and biology faculty. Students were trained in the use of GPS units for remote locations. Green Consensus, a Canadian based non-profit, developed and maintains the website and has also trained the faculty to be able to update the website. All work on this project has been through un-

paid volunteers.

Pace University has a core curriculum that requires a civic engagement component. This particular course, International Management Field Study: Brazil is a travel course with a civic engagement component. The students enroll in the course and pay an additional fee for the cost of travel. The Center for Global Business Programs in the Lubin School of Business coordinates all travel plans with insured travel agents in Brazil based on recommendations and connections with business school alumni living in Brazil. All travelers must have a Brazilian visa and the Center makes the arrangements. Prior to the field experience, students are briefed on safety and security issues and sign an agreement to abide by the established university guidelines for international field studies. Part of the fee for the trip covers the cost of an individual insurance policy on each student. The students in this faculty led course leave and return as a group from New York City each March during the 10 day spring break period. In addition to the Green Mapping project, students and faculty also meet with various energy, transportation and manufacturing businesses using sustainable practices in Rio de Janeiro, Curitiba, and Ilha Grande. The Paraty Green Map Project combines student use of "high technology" in the form of GPS and digital mapping with "high touch" experiences where students work in multicultural teams to conduct face-to-face interviews with local stakeholders in Paraty.

Content, Reflection, And Skills

Before traveling to Brazil, students enrolled in the course begin to develop content knowledge by reading and researching the differences and similarities between US and Brazilian cultures. While in Brazil, students experience and reflect on their interactions with other students, faculties, local government officials, local business people, and host community citizens each day. While participating in the Paraty Green Map service learning project, students develop their skills by working in multicultural teams to conduct surveys of business owners and local host community citizens as they document the culture, history, and sustainable business practices of entrepreneurial businesses. One of the outcomes of this project is been the promotion of appropriate tourism in Paraty.

Partnerships developed

Another outcome of the Paraty Green Map Project has been the development of partnerships between private, public, non profits, and government organizations in New York City; Montréal, Canada; and Paraty, Brazil.

North America

- In New York City, the partners are the faculty and students of Pace University as well as the Director of Green Map System, a non profit organization. One of the New York City partners, Pace University, is a private university located adjacent to the Wall Street financial district in Lower Manhattan and has one of the first environmental law programs in the United States. The

other New York City partner, Green Map System, is a non profit organization based in New York City that promotes healthy cities and sustainable communities by supporting citizens in developing maps to chart the sites of environmental significance in urban places around the world (<http://www.greenmap.org>).

- Green Consensus, a Montréal (Canada) based not-for-profit organization, contributes expertise in the use of GPS, GIS, digital mapping technology, and web design, hosting, and maintenance.
- South America- Brazil
- The former mayor of Paraty and Director of the Green Cities Project in the Brazilian Atlantic Rainforest was a city official at the initiation of this project and continues to support it. The Paraty Green Map project is also supported by the Secretary of Culture and Tourism for Paraty, who is an active partner and current city official. A Brazilian Tourism Consultant is highly involved in the data collection, website translation as well as working to create public-private partnerships to support the project and he is a tourism specialist whose focus has been sustainable tourism development. All of these Brazilians support the environmental and economic sustainability of the Brazilian Atlantic Rainforest as well as a smart tourism development and marketing of Paraty and surrounding outer forests and beach communities.

Phase 1 Research on Paraty Brazil (January – February 2005, 2006, 2007, 2008 and currently ongoing).

In January 2005, the Paraty Green Map Project began in the classroom in New York City when Pace University students from the disciplines of political science, English, accounting, finance, marketing, hotel management, entrepreneurship as well as international management began their study of Brazil. This interdisciplinary approach provided the opportunity for students and faculty across disciplines to create linkages and work collaboratively on global competencies, environmental sustainability, and economic development through tourism with Brazilian counterparts. To prepare for the project, students conduct extensive research on Paraty via Internet sites, research and lay journals, historical references, and travel journals to identify potential locations for the Green Map. Students seek to understand the culture of Brazil through readings and film on art, music, business, politics, and reflection in class discussions.

Students are introduced to the process of Green Mapping through various readings and visiting the website. The founder and director of Green Map System meets with the students to share the vision of Green Map System as a global initiative to promote sustainability and community participation in the local natural and built environment (<http://www.greenmap.org>). The class applied for and received approval from Green Map System to become the official Green Mappers of Paraty, Brazil. Core to the process of Green Mapping

Table 1

Criteria used to Determine Eligibility for Paraty Green Map

Instructions: To be considered for inclusion on the Paraty Green Map, each applicant should:

- Complete the Paraty Green Map Survey
- Submit the survey electronically with two well composed photos of the location.

The Paraty Green Map team will review the survey and evaluate based on the following 5 categories: ownership, employees, food/products/equipment/supplies, energy, and community social responsibility.

1. Ownership 20%

- Is the owner of the business local?
- Is the owner of the business from outside of Brazil?

This can include local chains and corporations.

Goal—to assure that the money earned stayed in the country and did not leak back to another country

2. Employees 20%

- Are the employees native to the area?
- Are the employees from another country?
- Are they paid a living wage?

Goal—to support the sustainability of local people.

3. Food/Products/Equipment/Supplies 20%

- All food/products/equipment/supplies are from local resources.
- A majority (75%) of food/products/equipment/supplies are from local resources.
- Half (50%) of food/products/equipment/supplies are from a local resources.
- Small number (25%) of food/products/equipment/supplies are from local resources.
- None of the food/product/equipment/supplies are from local resources.

Goal—to support the local community and economy.

“Local” is defined as a food/product/equipment/supplies that are obtained within 150 mile radius.

4. Energy 20%

Does this business use alternative sources of energy; use energy saving equipment; use low intensity light bulbs; or practice energy management.

- All
- Majority
- Half
- Small number
- None

Goal—to minimize use of energy.

5. Community Social Responsibility 20%

Does the business support social, cultural, environmental issues in the local community? Does your business support authenticity through providing traditional products or services such as use of authentic Brazilian art, furnishings, music, food, and traditions.

- Art and art events
- Music events
- Local food events
- Traditional events
- Environmental projects
- Other _____

Goal—to support authenticity of location through art, furnishings, music, food, and traditions.

is the use of standard, internationally accepted Green Map icons that identify the nature of the locations from cultural sites to historic destinations to green businesses (Green Map, 2006).

Phase 2 Survey Instrument Development (February 2005)

For a destination, site, or business to be included in the Paraty Green Map Project, the entity needs to have “green practices” which

might include the use of local resources, hiring local people, recycling, or other sustainable business practices (Appendix 2 Green Map Survey Part 2). The assessment checklist for this project was developed based on criteria from a number of other existing assessment tools such as the Business and Sustainable Development: Global Guide, the Green Hotel Association, the Green Restaurant Association, and the CERES Green Hotel Initiative.

Green Map System categories for documentation include: examples of sustainable economic development, culture and design, renewable resources, information, nature: fauna, flora, land and water, mobility, infrastructure, toxic hot spots and pollution source, and other miscellaneous.

To assess the extent to which each potential business/site/destination incorporates these practices, students developed a survey instrument (Appendix 2 Green Map Survey for Paraty Brazil), which is administered by teams of students in Paraty and the region surrounding it. Teams of students interview local businesses, artists, cultural locations, and various destinations. To be included on the Paraty Green Map, each location must positively contribute to sustainable development by evaluating the business practices of their day-to-day operations (Table 1). A score of 70% or higher on the assessment will qualify the destination to be added to the Paraty Green Map website.

Phase 3 Data Collection in Paraty Brazil (March 2005, 2006, 2007, and 2008) (skill development)

In March 2005, after arriving in Brazil, the students were trained to use the geographic positioning system technology for remote locations (Garmin GPS ETrex Legend) by Green Consensus.org. The students had one day of practice and feedback before they set out to interview business people and citizens in the Paraty region and record interview and geographic data.

US and Brazilian students work in teams to survey the Paraty area from the historic downtown area to more remote locations in the nearby mountains and beaches. On each team, members assume specific roles as: 1) the interviewer, 2) the technology expert, 3) the photographer, or 4) the translator (who is fluent in Portuguese or Spanish) as few people in Paraty speak English. Teams are assigned to specific geographic regions of the Paraty area and begin the process of data collection through survey interviews with local business people and citizens as well as collecting waypoints using the geographic positioning system units (gps) to identify the exact coordinates of these locations.

Phase 4 Data Management (March – August 2005, 2006, 2007, 2008 and on going)

Following the data collection period, the survey interviews and geographic positioning units are returned to a central location. Survey and technical data are recorded and evaluated. For the remote locations, waypoints are uploaded using Arcview software program. A high resolution map with a 1m image was obtained from Space Imaging. Data are uploaded and manipulated to provide layers of information. For the locations within the city of Paraty, Google Map is used to locate the destinations. Universally recognized Green Map icons, made available through Green Map System, are added to the specific coordinate intersects of the designated locations. These icons provide a degree of standardization for all Green Maps globally.

Responses to the interview survey data are entered into a spreadsheet database format. The responses included: type of site, location, name of manager, languages spoken, accessibility, history and description, and sustainable (green) features (Appendix 2 Green Map Survey for Paraty, Brazil). Using the criteria in Table 3, it is determined if the site would be added to the Paraty Green Map. A score of 70% or higher qualifies a site for being added to the Paraty Green Map.

Phase 5 Reflection on and Assessment of the Paraty Green Map Project (March 2005-2008 and ongoing)

Each day of the 10 day service learning trip, students reflect on the daily experiences pertaining to culture, business, and their expectations. When the students return to New York City following the trip to Brazil, they complete a survey which consists of quantitative and qualitative questions. Further reflection is completed during the final days of class when students summarize and report on their service learning experience.

The assessment of the impact of the global service learning project was comprised of quantitative student evaluations and qualitative student reflections. A standard student evaluation form was used to assess the students' impression of the experience on the field study using a scale of 1 to 5 with 5 being the most satisfied and open ended questions. Questions evaluated 1) whether the student expectations were met for the field experience, 2) the level of involvement of the professor and partners in the project, and 3) the overall satisfaction with the international experience.

During each day of the service learning project, there was a dialogue between the students and faculty. Students had the opportunity to reflect of the experiences encountered and how they perceived those experiences.

Phase 6 Community Involvement and Participation (August 2005 and continuing...)

During August 2005, the plan for the digital map of Paraty was presented to a group of interested Paraty business people and citizens including the former mayor and Director of the Green Cities Project in the Brazilian Atlantic Rainforest and members of the local government. The goal of the presentation was to gain community support and interest. In August 2008, after the website had been launched, citizens and businesses had the opportunity to see the progress and to begin an active participation in the project by recommending locations, blogging, and developing on-line community.

Phase 7 Website development

After the data were collected, there was experimentation with various platforms to launch the site. In November 2007 the first site was launched. Attempts were made to find a software that would be user friendly enough that faculty and Paraty citizens could easily add new locations or edit existing ones.

Results

The project produced several outcomes in that: 1) students began to develop global competencies; 2) students learned about and used both “high touch” methods to communicate with business people and host community citizens about sustainability and “high technology” geographic positioning units and digital mapping to record information about business, destinations and sites that were considered to have “green practices;” and 3) Paraty businesses and host community citizens participated in a Green Map project that celebrated and promoted sustainability and promoted economic development and benefits through increased tourism by being included in the world-wide Green Map System.

All local partners in Paraty learned about the criteria used to determine if a local business/site/destination would be included in the Green Map or not. Each destination interviewed received an assessment tool “Is Your Business Sustainable? Green Practices Checklist” (Appendix 2) to learn about sustainable businesses practices. One of the objectives of the Paraty Green Map Project was to recognize those businesses able to be included in the Green Map and to educate those businesses not included in potential strategies for becoming part of the Green Map through improved “green business” practices.

Through this project, students were able to develop global competencies of becoming culturally aware and culturally conscious, of being able to work in multicultural teams, of being able to negotiate (understand the rules of the game in a different environment), of being able to develop a global mindset, and of being able to understand, experience, and document examples of environmental sustainability

(Table 2). Not only did students learn a “high tech” and a “high touch” approach to promoting green tourism development in a remote location in the Brazilian Atlantic Rainforest, but local business people and citizens made community partnerships and plan to assume ownership of this interactive Green Map. They have agreed to participate in the updating and maintaining of the map. Through this multifaceted sustainable tourism development initiative, U.S. students and faculty along with Brazilians have rewarded and recognized those characteristics of Paraty which make it unique and authentic. They have begun to promote sustainability and understand the importance of these types of projects throughout Brazil.

An audio recording of student reflections was made for use in pod casts which were added to the class website. In these interviews, one male finance student commented: “Through this service learning experience, I have learned that it is possible to maintain the environment and also conduct business.” A female marketing major commented that she “...was able to understand the challenges of maintaining the culture and beauty of a location once it has been identified as a unique tourism destination.” Another female hospitality and tourism management student said that she learned that “It is important that a destination not develop a monoculture economy that relies only on tourism, because it makes the location more vulnerable.” Other student comments were:

- “I learned that it is gratifying to see businesses take a pro-environment approach to development of their businesses.”
- “It was interesting to see that capitalism and pro-environmental issues can be managed by responsible business practices.”

Table 2

Student Knowledge and Behavior Change Based on Paraty Green Map Service Learning Projects

Competencies	Behavioral/learning outcomes
To become culturally self aware	Students had the opportunity to compare and contrast the different business practices, values, and norms between Brazil and the United States through their international field experience.
To operate outside their own culture comfort zone	Students were challenged to venture out into unknown communities with translators and to approach business people in Paraty. In both situations, a message was conveyed to the community that the students would be working on a project for the community.
To collaboratively lead and participate with people from different cultural perspectives	Students worked with local residents, business people, and the government officials in Paraty to gain a perspective on the roles that each group played in development.
To understand the rules of the game in various cultures	Students were able to talk about the relationships between the businesses, their community, and the local government as they interviewed each business.
To scan and understand the big picture	Students became aware of the impact of Western society on the business and culture of Brazil and, therefore, were able to identify the unique characteristics of Brazilian business, art, culture, and economy.
To identify and support sustainable practices in communities, businesses, and development	Students used the survey instrument to gather data on the sustainable practices of various businesses in Paraty. These included, but were not limited to, restaurants, pousadas, tour operators, service businesses, etc. They synthesized the material to determine if the business should be on the Green Map and they developed web pages for the Green Map qualified businesses.

- “I was impressed by the artist who uses recycled tarpaulins as his canvas for his amazing art work.”
- “I learned that many of the artists here in Paraty who create wood-en art pieces use only the wood of fallen trees in the forest.”
- “I saw an example of how a local restaurateur supports the local community by donating money to support social causes and food for the poor.”

Ongoing results

The ongoing results of this project can be assessed by evaluating the progress and partnerships developed in the development of the Paraty Green Map. For instance, the Green Mapping data collection process began in March 2005 and continues as students continue to collect and update data each March and local Brazilians using the internet share ideas for new locations and send completed surveys and photographs of those locations they recommend for the Paraty Green Map.

The Paraty Green Map site was launched November 1, 2007 and received 3,618 first time visitors during November and December. For the first 8 months of 2008, there were 5,730 visitors. The visitors to this site have been from 20 different countries around the world which means the project is successful in opening up global access to sustainable tourism businesses.

It is expected that this exposure will increase dramatically when the Paraty Green Map is linked to the UNEP Green Passport site in late 2008. The development of partnerships reached a new level in March 2008, when students and faculty from Pace University met a United Nations Environmental Program team in Paraty and forged a collaborative relationship. In 2008 Paraty was selected as the site where a new UNEP pilot project called Green Passport is being tested. The Green Passport project includes two phases 1) educating a tourism community about how to incorporate sustainable practices in their community and 2) educating tourists about how they can select and support sustainable tourism destinations and become more sustainable before, during and after their travels. UNEP officials learned of the Paraty Green Map project and now link the site to their Green Passport site as an example of sustainable tourism practices.

In June 2008, the Paraty Green Map was migrated to a new platform that allows the use of Web 2.0 strategies such as blogging, podcasting, and community bulletin boards. In March 2009 students will return and update the Paraty Green Map and begin the Ilha Grande Green Map. Ilha Grande is an island off of the coast that was only open to tourism in 1995 and is being threatened by over development.

In June 2009, the Paraty Green Map project became even more interdisciplinary and inclusive. Faculty and students from the university computer science program became part of the team and provided additional expertise in website and graphic design elements.

During August 2009, community meetings presenting Paraty

Green Map were held in Paraty at the City Hall and the Casa de Cultura (culture and art museum). In an effort to encourage the community to apply and recommend businesses for inclusion on the map, the Green Map Survey and the Eligibility Criteria for Green Map were translated into Portuguese and made available as a link on the website. The Paraty Convention and Visitors Bureau President became an active supporter of the Paraty Green Map initiative.

Conclusions

The stakeholders in Paraty Green Map are achieving their specific unique goals through this project and are able to work together collaboratively on a global community project. Students get the chance to reflect on their experiences in creating the map and the connections they developed with students and faculty of other cultures and disciplines in an international environment. Students have the opportunity to “think globally” and “act globally” in that they are not just “visitors,” but they participated in celebrating the sustainability of history, culture, society, environment and businesses in Paraty, Brazil. They participate in and contribute to the community. Citizens who participate in this project are helping support the sustainability of their community by identifying and maintaining the strengths. Local businesses that are using sustainable practices are being featured on a unique Green Map that gives them recognition and markets to the tourists who are interested in being sustainable. Even those businesses that are not included in the map have the opportunity to learn about what is sustainable from the interview wherein questions are asked about social, cultural, and environmental issues. The local government and tourism agency fully support the Paraty Green Map as a way to educate not only the local community, but also the tourists and business developers who may wish to conduct business in Paraty. Ironically in March 2008, Paraty was selected as the pilot test site for a UNEP initiative called Green Passport where the UN will work intimately with local businesses to help them continue to improve their sustainable practices for 1-2 years. Then, UNEP plans to initiate a global marketing program on the Green Passport wherein they will try to educate the traveler as to how to be sustainable before, during, and after their travels. Because of the preliminary work already completed, Paraty Green Map will have a link on the UNEP Green Passport website. The Paraty Green Map is an organic project that continues to grow and evolve in that more students and citizens are becoming involved and more informed about the importance of sustainable tourism.

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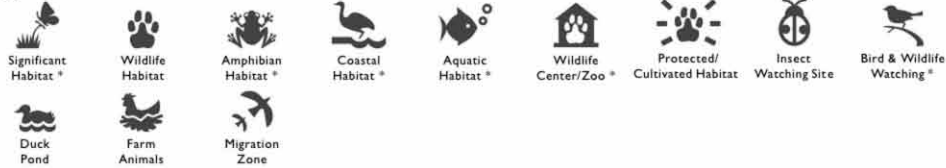
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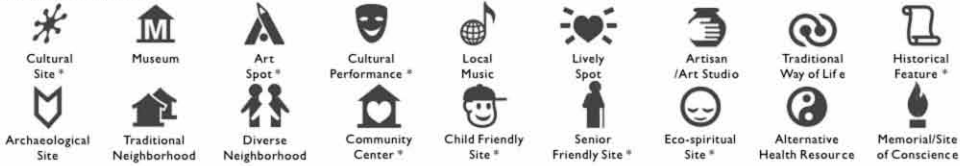


Outdoor Activities



Culture & Society

Cultural Character



Eco - Information



Justice & Activism



Public Works & Landmarks



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Appendix 2

Green Map Survey for Paraty Brazil

Part 1

Group: _____
 GPS Point Number: _____

1. Type of Site:

Farmers' Market	Urban Garden	Bicycle Rental	Boat launch	Camping
Natural/Local Food	Cultural Site	Redevelopment Opportunity	Water Pollution Source	Beach
Vegetarian/Natural Café	Art Spot	Eco-Information Center	Waterfall	Dive Site
Green Business/Service	Music	Significant Organization	Wilderness Site	Water Treatment
Fair Trade	Green Way	City Park/ Waterfront	Special Tree	Habitat
Recycling	LandFill	Energy Grid	Danger Zone (Toxic)	Solar Energy

2. Name of Site:

3. Location/Address of Site:

Phone Number:
 Fax Number:
 Email:
 Internet Site:

4. Manager/Owner Name:

5. Does the owner live locally (Y/N)?

6. Languages spoken:

7. Accessibility/Directions (i.e. by boat, need a car, trail names, difficulty of access, etc.):

8. History of Location/Description of Site:

9. Sustainable Features:

Recycles?
 Uses Local Resources/What Type of Local Resources?
 Hires Local People?
 Other?
 Culturally?
 National or local certifications, awards?
 Community Responsibility?
 Other?

10. Prices of Services:

Restaurant Scale: (\$<10) (10<\$<20) (\$>20)
 Other:

Part 2

Is Your Business Sustainable?: Green Practices Checklist

Practice	Yes	No	Actions Planned
Building Design and Renovation			
Use recyclable materials (such as carpet)			
Use energy efficient design			
Use energy efficient equipment			
Install energy efficient devices to reduce use of electricity (light bulbs, time sensors for intermittently used spaces)			
Use green power such as wind, solar, geothermal sources			
Properly maintain all facilities to maintain efficiency			
Transportation and travel			
Encourage public transportation			
Use energy efficient vehicles			

Maintain vehicles to assure efficiency			
Purchasing			
Buy recyclable products			
Purchase items with minimal packing materials			
Purchase food locally			
Purchase food in season			
Consider organic products as an alternative			
Compost restaurant food waste			
Purchase and use non toxic, biodegradable chemicals and cleaning supplies			
Purchase chlorine free paper products			
Business operations			
Use re-usable dishes, cups, and flatware			
Recycle			
Promote "paperless operations"			
Refill amenities rather than provide in individual bottles/packages			
Purchase energy efficient equipment			
Use gray water for grounds management			
Suggest that customer use towels and sheets for more than one day			
Human resources			
Pay fair, living wages for your community			
Hire local people			
Do not employ school aged children during school time			
Education			
Provide appropriate skills training for positions in your organization			
Provide language training			
Provide education on food safety, sanitation, and health			
Community			
Establish donation program for environmental initiatives			
Support community projects			
Off set negative environmental impacts (plant trees, clean neighborhoods)			
Provide pro bono services to promote community development			
Administrative			
Establish a mission statement which addresses social, environmental and cultural efforts			
Develop goals to achieve sustainability			
Discuss economic, environmental and social trends with employees			

References for development of this checklist are:

- Business and Sustainable Development: Global Guide (http://www.bsdglobal.com/tools/principles_sbp.asp),
- Green Hotel Association <http://www.greenhotels.com>,
- Green Restaurant Association http://www.dinegreen.com/restaurant_guide.asp
- CERES Green Hotel Initiative, <http://www.ceres.org/industryprograms/ghi.php>