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ENGINEERING A GLOBAL-MINDED CITIZEN: THE IMPACT
OF INTERNATIONAL SERVICE PROJECTS ON
STUDENTS ENGAGED IN EWB

by
Maria Perez-Colón

A Thesis

Submitted in partial fulfillment of the requirements of the
Masters of Arts in Higher Education Administration
of
The Graduate School
at
Rowan University
June 26, 2008

Approved by _____
Dr. Burton R. Sisco

Date Approved June 26, 2008

ABSTRACT

Maria Perez-Colón

ENGINEERING A GLOBAL-MINDED CITIZEN: THE IMPACT OF INTERNATIONAL SERVICE PROJECTS ON STUDENTS ENGAGED IN EWB

2007/08

Dr. Burton R. Sisco

Master of Arts in Higher Education Administration

In order to explore the benefits of student engagement in Engineers Without Borders (EWB) on participants, a blended method was utilized to study the transformative impact of international service learning projects on selected undergraduate students' global perspective. Students currently engaged in EWB, and preparing for travel abroad to a project site, were surveyed prior to travel using the *Global-Mindedness Scale* (GMS) to determine global perspective within the following dimensions: interconnectedness, cultural pluralism, responsibility, globalcentrism, and efficacy. Upon return from the mission, the GMS was re-administered to note changes, if any, to original responses. Pre-travel questionnaires and post- travel interviews were conducted to delve further into participants' impressions of the experience. The long-term impact on former, now graduated, participants of EWB was also examined. Former members of EWB, presently in the work force, were interviewed to examine long-term impact of involvement in the organization. Outcomes of the investigative study indicated that changes to students' perspective took place as a result of the international experience.

ACKNOWLEDGMENTS

This work is dedicated to my dad, who taught me that education and knowledge are riches no one can ever take from you; and to my daughter, Emily, in whom I hope to instill the same philosophy.

Many thanks go to the students of the Engineers Without Borders chapter at Rowan University, and to the chapter's advisor and internship supervisor, Dr. Yusuf Mehta, without whom this study would not have been possible. I appreciate their willingness to cooperate, and their patience at my many impositions.

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CHAPTER ONE

INTRODUCTION

The present conditions of life on our planet have made it impossible to separate being a member of American society from being a citizen of the world.

Association of American Colleges and Universities, 1999

The college experience has long been known to be a catalyst in the development of students as socially responsible citizens. As they delve into questions of identity, and grow intellectually and socially, students' sense of their place in society begins to take shape in earnest during the college years. Today more than ever, higher education's role in the formation of responsible citizens is critical. The preparation of today's student for engagement in tomorrow's society is no longer limited to issues related to local or tangible communities, but extends to the reaches of an interconnected globe.

Statement of the Problem

Students of the new millennium are challenged to attain certain skills and abilities that transcend the traditional curriculum historically taught in American colleges and universities. Technological advancements have made the rapid exchange of information throughout the world a way of life and, as a result, international borders have become more permeable. Demographically, graduates entering the workforce are facing the most diverse population in the nation's history. The relevance of the economic, political and environmental issues faced by this generation extend beyond the interests that lie within the nation's physical borders, and are interconnected with the global community. Sound academic skills are no longer the absolute precursor to success in the professional world.

Tomorrow's workforce needs to have the competence required to function effectively in an interdependent world (NASULGC, 2000).

Universities nationwide are embarking on various initiatives to address this objective. These include the institution of new international education requirements, or looking for ways to impart a global perspective in once-insular disciplines like engineering (Fischer, 2007). Future engineers are charged to possess skills that go beyond the technical and computational proficiencies emphasized in traditional engineering curriculum. Vest (2005) noted that "globalization is not a choice, but a reality" (p. 39) and, that as educators of future engineers, research universities and engineering schools would have to help students recognize the global nature of all things technological to meet the challenges of this reality.

Purpose of the Study

The purpose of this exploratory study was to examine the transformative impact of the Engineers Without Borders (EWB) experience on selected students at Rowan University. The study also investigated the long-term effects of EWB on participants who have graduated from Rowan University and entered the workforce.

Significance of the Study

The study investigated the impact of EWB on participants from two perspectives. First, through utilization of the *Global-Mindedness Scale* (GMS), it examined changes in the global perspective of students currently participating in EWB; and second, it looked at the long-term impact of involvement in EWB on alumni of the program who have now graduated from the university and entered the workforce or continued on to graduate school. The findings of this study may help to quantify the significance and benefits of

international service-learning programs like EWB on students, and provide justification for continued support of these initiatives.

Assumptions and Limitations

The scope of the first leg of this exploratory study was limited to the members and activities of the EWB student chapter at Rowan University's College of Engineering during the 2007-2008 academic year. Specifically, the attitudes and perceptions of the select members who traveled to the project site during this period were studied. Researcher acknowledges the limitations presented by the small sample populations.

Each EWB project is distinct in terms of scope, nature, conditions, location and logistics, and may produce results unique to these conditions. The second portion of the study, the perceptions of former EWB members, was again limited by the size of the sample. Additionally, alumni interviewed may have relied on perceived memories, which may have been distorted due to the passage of time and changes in perspective since graduation. In both cases, findings are also limited to the self-reporting responses to surveys and interview questions. The researcher assumes that subjects provided honest responses and a clear understanding of the questions that were asked. Researcher acknowledges that personal perspective and interpretation of statements made may have presented potential bias in the findings.

Operational Definitions

1. Citizenship: Encompasses three conceptions of attitudes towards one's role in society: responsibility (one who votes, pays taxes, obeys the law); participatory (one who is active in community affairs); and social reformer (one who seeks to understand and address societal problems) (Kahne, Westheimer, & Rogers, 2000).
2. Cultural Pluralism: An appreciation of the diversity of cultures in the world and a belief that they all have something of value to offer. This is accompanied by taking pleasure in exploring and trying to understand other cultural frameworks (Hett, 1993).
3. Efficacy: A belief that an individual's actions can make a difference and that involvement in national and international issues is important (Hett, 1993).
4. Engineers Without Borders (EWB): A non-profit humanitarian organization established to partner with developing communities worldwide in order to improve the quality of life. The partnership involves the implementation of sustainable engineering projects, while involving and training internationally responsible engineers and engineering students (from www.ewb-usa.org).
5. Experiential Education: A philosophy of education that involves a direct experience with the learning environment and course content (from www.wikipedia.com).
6. Globalcentrism: Thinking in terms of what is good for the global community, not just what will benefit one's own country. A willingness to make judgments based on global, not ethnocentric, standards (Hett, 1993).

7. Global Competence: Capacity to function effectively across cultures and national borders (Carnegie Corporation of New York, 2000).
8. Global-mindedness: A worldview in which one sees oneself as connected to the global community and feels a sense of responsibility to its members (Hett, 1993).
9. Interconnectedness: An awareness and appreciation of the interrelatedness of all peoples and nations, which results in a sense of global belonging or kinship with the “human family” (Hett, p. 143).
10. Responsibility: A deep personal concern for people in all parts of the world which surfaces as a sense of moral responsibility to try and improve conditions in some way (Hett, p. 143).
11. Service-learning: A form of experiential education in which students engage in activities that address human and community needs together (Jacoby, 1996, as cited in Sternberger, Ford, & Hale, 2005).
12. Social Responsibility: Ethical theory which purports that an entity or individual has a responsibility to society (from www.wikipedia.com).
13. Students: Undergraduate, traditional-age students engaged in study at Rowan University during the 2007/08 academic year.
14. Transformative Learning: Process of learning through critical self-reflection, resulting in the reformation of meaning perspective to allow a more inclusive, discriminating, and integrative understanding of one’s experience (Mezirow & Associates, 1990).

Research Questions

The following research questions guided the study:

1. Does participation in an EWB service-learning experience abroad help develop students' understanding of their connectedness to the world, and help develop a global perspective and sense of civic responsibility to the global community?
2. Does the EWB experience have a transformative impact on participating students?
3. What is the impact of the EWB experience on former members?

Overview of the Report

Chapter two provides a review of scholarly literature related to this study, and available through library and internet research. The literature review includes exploration of the concepts of global mindedness, service-learning and transformational and experiential learning, and a summary of research studies related to these concepts. The section also includes background and history of the Engineers Without Borders organization.

Chapter three provides a description of the study methodology and procedures, which include the context of the study, population, demographics, data collection instruments, process, and data analysis.

Chapter four presents the results and findings of the study, which address the research questions posed previously in this report. Statistical and narrative analyses are used to assess the data in this section.

Chapter five recaps and discusses major findings of the study, and offers conclusions and recommendations for practice and further investigation.

CHAPTER TWO

LITERATURE REVIEW

Introduction

The literature reviewed in the following pages summarizes key components of this study, which looks at the transformative effects of international service-learning experiences on students' global-mindedness. This review also includes background and history of Engineers Without Borders (EWB), a non-profit humanitarian organization.

Globalization and the Need for Global Competence

The education of America's college graduates is no longer limited to a curriculum that covers solely the interests that lie within the nation's physical borders. Technological advancements have made the rapid exchange of information throughout the world a way of life and, as a result, international borders have become more permeable. Demographically, graduates entering the workforce are facing the most diverse population in the nation's history. The economic, political and environmental issues faced by this generation are not only of national concern, but are interconnected with the global community.

In 2000, the Carnegie Corporation of New York convened representatives from various organizations, societies, foundations and agencies interested in strengthening America's perspective of the world through the education of its citizenry. The resulting report, *Education for International Understanding and Global Competence*, articulated the pressing need to prepare students to function effectively in a global society, and

concluded that global perspectives must be an integral part of 21st Century education “from kindergarten to graduate school,” (Carnegie Corporation of New York, 2000, p.10). The following strategic objectives for achieving this intent emerged from the discussions: Integrate international and global perspectives into the curriculum; encourage learning by doing and through experience; take full advantage of technology; start with teachers; and support the development of an international education policy (Carnegie Corporation of New York, 2000).

In 2000, the National Association of State Universities and Land-Grant Colleges (NASULGC), recognizing the critical role of higher education in addressing the globalization of society, commissioned the preparation of a vision statement and guidelines for its member institutions. *Expanding the International Scope of Universities* outlined an action plan for the three basic goals of higher education: teaching and learning; research and scholarship; and service and outreach. The action plan for the teaching and learning component of the plan called for educators to develop the competence, confidence and comfort required to function effectively in an inter-dependent world (NASULGC, 2000).

The American Council of Education (ACE) in the 1997 report, *Educating for Global Competence*, states that the United States’ place in the world will be determined by its society—“whether it is internationally competent, comfortable, and confident” (NASULGC, p. 5). ACE states three objectives of its national blueprint for global education: producing national experts and knowledge to address national strategic needs; strengthening US ability to solve global problems; and develop a globally competent citizenry and workforce (NASULGC). ACE further defines global learning as:

The knowledge, skills and attitudes that students acquire through a variety of experiences that enable them to understand world cultures and events; analyze global systems; appreciate cultural differences; and apply this knowledge and appreciation to their lives as citizens and workers. (NASULGC, p. 5)

Advocacy for the globalization of education has not been limited to higher education organizations. In 1999, President Clinton issued a memorandum on international education policy that committed the federal government to its funding. Among its recommendations the memorandum asks that educators promote study abroad by US students; expand foreign language learning and knowledge of other cultures; support the preparation of teachers who can interpret other countries and cultures; and use technology to aid the spread of knowledge (Green, 2002).

The conversation about the need to prepare a globally aware workforce is not new. Global competence as an international education initiative was noted in a report published by The Council on International Education Exchange in 1988 (as cited by Hunter, 2004). The report encouraged US universities to send students to universities abroad where US citizens are in the minority. A 1999 study by the Rand Corporation and the College Placement Council (CPC) looked at the challenges and responsibilities of both the corporate world and higher education in this regard. As noted in the Rand/CPC report, *Developing the Global Workforce*, although US higher education has turned out graduates with higher levels of expertise in subject matter, they were “lacking in important cross-cultural skills, and were unlikely to understand the international dimension of their major academic field” (McCarthy, 1998, p. 68). Hanvey (1982) emphasized certain components as a framework for preparing American citizens with a

global outlook. These are: perspective consciousness, state-of-the-planet awareness, cross-cultural awareness, knowledge of global dynamics, and awareness of human choices (McCarthy).

Global-Mindedness

Hett (1993) defined global-mindedness as “a world view in which one sees oneself as connected to the global community and feels a sense of responsibility to its members. This commitment is reflected in the individual’s attitudes, beliefs, and behaviors” (abstract). Hett identified a highly world-minded person as one whose primary reference group is mankind, rather than the individual’s national origin (Kehl, 2005).

Hett examined the attitudes, beliefs and behaviors as they apply to individuals with broad cross-cultural experiences, strong commitment to the global community and proficiency in global education, and developed the *Global-Mindedness Scale* (GMS). The objective of the scale was to measure “attitudes of students related to their sense of connection to, interest in, and responsibility for, the global community and the behaviors associated with this perspective” (p. 4). The instrument was designed as an assessment tool to determine the affective change that might result from studies abroad participation, a global studies course, or considerable contact with people outside one’s own culture. Specifically, the instrument incorporates the following five dimensions related to global-mindedness: interconnectedness, cultural pluralism, ethic of responsibility, efficacy, and globalcentrism.

The GMS has been used in various research studies. Zhai & Scheer (2004) utilized the GMS on undergraduate agriculture students at Ohio State University and found that in general, students tended to have a moderate global perspective and positive

attitude toward diversity. Results revealed that student global perspectives had a high relationship with their attitudes toward cultural diversity. Students who had more contact with international groups also scored higher on the global perspective and cultural diversity scales.

Golay (2006) applied Hett's GMS to determine the effects of study abroad program on the development of global-mindedness in undergraduate students. The results confirmed a significant difference in global-mindedness after one semester abroad, as well as differences between students who studied abroad and those who studied at home. Golay also found that study abroad did in fact transform students' international perspective.

The GMS was utilized by Bates (1997) to examine the impact of study abroad on the development of a global-minded attitude in honors students. Results showed that students exhibited significant change in terms of globalcentrism and interconnectedness. A modification of the GMS was used by Ballou (1996) in a pre- and post-test to determine if entering freshmen's global-mindedness was influenced after a semester of international/intercultural courses at American University. The results of the study reported that the courses had a weak impact on students' global-mindedness, which in some cases declined over the course of the semester. Based on these findings, the researcher recommended a reexamination of the class content for alignment with program goals.

In conjunction with an adapted *Test of Global Knowledge* (ETS, 1981), Zong (1999) utilized the GMS to determine if the participation of pre-service teachers in an internet-based communication project had an affect on their global knowledge, global-

mindfulness and global pedagogy. Results showed that there was little difference on the GMS between the experimental and control group

Transformative Learning

Transformational learning theories provide a framework for understanding the implications of service-learning on participants. In research on adult learners, Mezirow (Mezirow & Associates, 1990) studied the transformative affects of experiences on attitudes, values and self. Transformation learning theory states that through a process of socialization, individuals acquire meaning perspective at an early age. Mezirow's transformational learning model describes a process in which individuals experience significant changes in how they understand their identity, culture, and behavior. He labeled this phenomena, perspective transformation. Perspective transformation is initiated by a disorienting dilemma, a critical incident or event that triggers the individual to self-examine previously held assumptions, values, and beliefs. The transformative affects of certain experiences provide a basis for lifelong learning by compelling learners to critically evaluate diverse perspectives and synthesize their own understanding (King, 2005). For transformation to truly take place, learners must engage in critical reflection and dialogue, which helps them consider new possibilities (King).

Awareness of social, political and economic relations within one's existence also arouses transformation in terms of critical consciousness. Freire (1973) describes a transitivity of consciousness in which individuals progress from a state of naïve transitivity, characterized by an "over-simplification of problems" (p. 18), to one of critical transitivity, or "depth in the interpretation of problems" (p.18). However, this state of transitivity cannot be achieved until individuals enter into dialogue not only "with

other men but with their world” (p. 17). This transformation of consciousness leads to reflection. The reflection extends beyond the individual and takes on an expanded focus. In summary, “interests and concerns now extend beyond the simple vital sphere” (p.17). Freire contends that education is one step toward developing the critical consciousness that leads to social transformation. However, education alone “is not the lever for the transformation of society” (Shor & Freire, 1986, p. 129).

The goal of learning is not only the acquisition of knowledge, but the transformation of students’ perspective of themselves and the world (Malone, Jones, & Stallings, 2002). Malone et al., looked at the effects of a service-learning tutoring experience on teacher education students and found that students were indeed transformed in significant ways by their experience. Participants appeared to develop new perspectives in the areas of identity and personal development; teaching and learning; and service and responsibility to the community.

Transformation has been linked to international and intercultural experiences such as those presented by study abroad. The transformative potential of international educational experiences was examined by Story (1998). Using a qualitative approach, Story found that studying abroad was a transforming experience for many of the students in the research. Story noted that students who spent more time “reflecting or engaging in introspective activities seemed to become more adept at creating richer meaning from their experience” (p. 117). Roy (2006) examined the transformative affects of international travel on graduate students. The findings concluded that overseas experiences were transformative leading to varying degrees and forms of intercultural competence in participants. Kung (2007) applied a contextual framework of adult

learning and development theory, and transformative learning theory to examine how international students studying in the United States made meaning of their experiences. Based on in-depth interviews, findings suggested that the students' journeys were indeed transformative.

Learning by Experience: Experience through Service

The basis for experiential learning theories places concrete experience at the center of all learning. Educational theorist John Dewey (1938) viewed experience as a continuous and interactive exchange with the environment. As the individual passes from one situation to another, Dewey contends, "his world, his environment, expands or contracts" (p. 44). This process, Dewey further states, "goes on as long as life and learning continue" (p. 44). Freire (1973) advanced this philosophy and attributed experiential education to the fostering of a conscious citizen, "responsibility cannot be acquired intellectually, but only through experience" (p. 16).

The implication of experiential learning is well expressed by the Confucius adage: "I read and forget, I see and I remember, I do and I understand." Social scientist Kurt Lewin (Conner, 2007) wrote that little substantive learning takes place that does not involve our senses. We watch, we listen, and then choose to act. Subsequently, a decision is made to continue or take a different direction. The experience and consequent reflection on that experience, leads to self-discovery.

Service-learning is one such form of experiential education in which students are provided with opportunities to engage in activities that address community needs and, consequently, result in increased sense of personal and social responsibility. Service-learning initiatives on college campuses appeared in the 1960s and 70s but failed to be

sustained due to lack of integration with core institutional goals and mission (Sternberger et al., 2005). The persistence of educators and community partners in emphasizing the value and relevance of service learning led to the creation of more integrated programs in the 1980s which have evolved to an increasingly prominent place in higher education.

Service learning is defined as “a form of experiential education in which students engage in activities that address human and community needs together” (Jacoby, 1996 as cited in Sternberger et al., p.77). The “needs” referred to are those defined by the community. Reflection and reciprocity are key components of service-learning (Jacoby, 1996 as cited in Sternberger et al.). Interactive, hands-on experiences initiate learning in students and promote development in a variety of ways. The benefits of service learning include improvement in students’ citizenship, self-esteem, skills, development of moral ego, and the development of a heightened sense of social responsibility. Studies have shown additional gains from service-learning experiences on student development.

Astin’s theory of student involvement (1993) emphasizes the strong correlation between student engagement and the quality and quantity of academic and personal development during college years. Service-learning facilitates a combination of involvement in various forms: academic involvement in terms of the course content; involvement with people at the service location which calls for direct interaction; and involvement with faculty and fellow students. A 2000 study by Astin, Vogelgesang, Ideda, and Yee established that the consequent reflection derived from the service-learning experience results in students who are more motivated to learn and are able to connect academic components of their learning to the service experience.

Myers-Lipton (1994) examined the effects of service-learning on college students' attitudes toward civic responsibility, international understanding and racial prejudice. Utilizing a control group design, Myers-Lipton found that a control group of service-learning students showed larger increases in international understanding than the non-service students. The service-learning students also showed larger increases in civic responsibility, and moderate to strong decreases in racial prejudice than the no service group.

For decades, the relationship between service-learning and citizenship has been maintained by educators. Studies linking service-learning to increased evidence of personal, social or civic responsibility justify the institutional backing these programs receive. In recent years, the integration of an international component to service-learning has added to the impact on students and introduced a global perspective to the developmental gains.

Kirk and Riedle (2005) integrated an interdisciplinary component to a service-learning project by combining two very different disciplines: engineering and special education. The researchers set out to prove that service learning can work with any age, any community and any discipline. The study was conducted through three semesters, using three different sets of students. The engineering aspect of the project involved the site improvement of a domestic violence shelter, which included the construction of an on-site storage shed and cost estimate for the replacement of windows at the main shelter. The education leg of the project involved working with the families who used the facilities. The variety of tasks included facilitating children support groups, staffing the shelter, and working with families in crisis. Assessment indicated that the students

learned how to function as team members, understand professional and ethical responsibilities, identify needs and be sensitive to those needs, communicate effectively, and recognize the need for contributing to the community.

Service-learning has been proven a valuable educational tool in a wide range of disciplines such as teacher-education, business and the health fields. However, research in its application to engineering is fairly limited. Tsang (1996, 1997) used service-learning in an “Introduction to Mechanical Engineering” course, in which students developed resources to support hands-on math and science education for local middle school teachers (as cited in Ropers-Huilman, Carwile, & Lima, 2003). Ropers-Huilman, et al., examined service-learning as a way to meet the learning objectives outlined by the accrediting body for engineering, *Accreditation Board of Engineering and Technology* (ABET). Criterion outlined by ABET includes the ability to design a system, component or process to meet desired needs; ability to function on multi-disciplinary teams; ability to identify, formulate and solve engineering problems, and communicate effectively. These were positively supported by the findings from the study.

The Global Community

Students and educators have long recognized that service-learning experiences offer learning opportunities that integrate classroom theory with the needs of the community. For college students of the 21st Century, the term “community” has taken on a global meaning. Therefore, the community-defined needs addressed in service-learning have expanded to include an interdependent world. International service-learning tackles this concept by building on the proven success of local community service projects, and

providing a means to broaden students' knowledge base and apply their developing skills in other cultures.

Researchers have explored the transformative impact of international community service in various studies. Transformational change takes place in adults when they experience a change in their belief systems (Bamberger as cited in Fletcher, 2003). This type of change was explored within the context of a medical mission in Nicaragua (Fletcher, 2003). Among the major themes that emerged from interviews with the 10 subjects were cultural awareness, humanism, spirituality, and learner empowerment. Participants reported that they experienced varying levels of transformation or change in one or more of the major categories.

The international backdrop for service learning presents a new set of learning objectives. These include respect for other cultures, cultural and linguistic competency and reciprocity between server and the served (Kraft as cited in Sternberger et al., 2005). Additionally, as students' world-views are challenged, they develop a sense of justice, service and commitment to global issues. Gerardy (2004) found that international service experiences affected students in terms of knowledge, attitudes and practices.

Although research has found a correlation between impact and time involved (Willard-Holt, 2001), cross-cultural experiences have been proven to be valuable regardless of the length of stay in a foreign environment. Willard-Holt examined the impact of a short-term visit and teaching experience in another culture (Mexico) on pre-service teachers. Following the six-day trip the pre-service teachers, without exception, reported that they had experienced significant personal and/or professional changes as a

result. A major result of the trip was the stated desire to become more globally aware and to encourage this attitude in their students.

Engineers Without Borders (EWB)

In May of 2000, Dr. Bernard Amadei, a University of Colorado at Boulder professor of civil engineering, was invited by a Belize Ministry of Agriculture representative to visit the village of San Pablo to examine the possibility of designing and installing a water delivery system. A year later, Dr. Amadei and a team composed of eight University of Colorado engineering students and a civil engineering expert, completed the project. The success of the project, which involved the collaborative efforts of skilled students, the local community, and with support from the local Belize government, inspired Dr. Amadei to launch Engineers Without Borders-USA (EWB-USA). Today, EWB-USA is a not for profit humanitarian organization with student and professional chapters across the United States. The mission statement posted on the EWB-USA website reads as follows:

To establish partnerships with developing communities to improve their quality of life, involve and train internationally responsible engineers/engineering students; facilitate the role of engineers as builders of a sustainable future; and fulfill obligation to provide leadership in that direction.

EWB was first introduced to Rowan University's engineering students in 2003 by Civil and Environmental Professor, Yusuf Mehta. Dr. Mehta has served as the faculty advisor since the chapter was established in 2003. In 2004 the first project team, composed of five engineering students and accompanied by the faculty advisor, traveled to the village of Yoro in Honduras to develop a water distribution system. Since then,

teams composed of students and engineering faculty have traveled to Honduras, Thailand, South Dakota (Cheyenne River Sioux tribal community), El Salvador and Senegal to design and implement water supply and/or treatment systems.

In addition to being a student organization chapter at Rowan, EWB has been incorporated into the engineering clinic component of Rowan's engineering curriculum. A hallmark of the engineering program at Rowan, the clinics focus on hands-on, project-based assignments that feature interdisciplinary company-sponsored projects (Mehta & Sukumaran, 2007). Engineering students are engaged in the eight-course clinic sequence from freshmen to senior year. While a clinic course is required in every semester of study, the focus of each clinic is different. Freshman Clinic I and II emphasize engineering measurements and reverse engineering. Sophomore Clinic I and II combine multidisciplinary engineering lab projects with course work that develops composition/rhetoric and public speaking communication skills. Junior/Senior clinics require students to work in teams applying engineering principles on independent research projects, which may be service related, or industry or grant-funded. The junior/senior clinic teams are formed based on students' interests, particular skills and the needs of the project. EWB projects are one of the junior/senior projects students may choose to work.

Summary of the Literature Review

The literature reviewed supports the notion that global competence is a necessary attribute in today's workforce. As educators of that workforce, colleges and universities are compelled to help foster its development. As indicated in the literature review, the experiential opportunities afforded by participation in the combined service-learning and

travel abroad activities have been proven to help promote these attitudes. In addition, these experiences have been shown in some research studies to have a transformative affect on participants.

In recent years, higher education institutions nationwide have embarked on educational initiatives and programs, such as EWB, that incorporate community service with an international backdrop. Research studies on the impact of these initiatives offer insight into various aspects of student development that are affected by these experiences. Assessment is critical as new programs continue to be developed, and existing programs are improved to maximize the benefits to participants. The body of research that explores the impact of international service-projects is limited.

The infancy of the Engineers Without Borders organization within Rowan University provides another impetus for studying the impact on students. The chapter has been in existence since 2004 and is still relatively new. The researcher is unaware of any research studies that look specifically at the EWB organization and its impact on participants.

CHAPTER THREE

METHODOLOGY

Context of the Study

The study was conducted within the College of Engineering at Rowan University, in Glassboro, NJ. Rowan University is a medium-sized public university in southern New Jersey, situated between Philadelphia and Atlantic City. It evolved from a normal school established in 1923 with a mission to train elementary school teachers. Formerly named Glassboro State College, it earned university status in 1997.

Rowan enrolls approximately 10,000 full and part time students, with the undergraduate population making up approximately 85% of the total enrollment. Rowan offers 42 majors among six academic colleges: Business, Communication, Education, Engineering, Fine and Performing Arts, and Liberal Arts and Sciences. The College of Professional and Continuing Education oversees certificate, professional development and graduate degree offerings. In the Fall of 2007, the university enrolled 10,091 full time and part time students. The ethnic/racial makeup of Rowan's student population is as follows:

Table 3.1

<i>Ethnic Breakdown - Campus</i>		
Ethnicity Breakdown	Enrolled	%
African American	852	8.4
Native American	37	0.4
Asian	323	3.2
Hispanic	670	6.6
White	7,901	78.3
Unknown	308	3.1

Total	10,091	100.0
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A \$100 million monetary gift by industrialist Henry Rowan and his wife Betty in 1992, paved the way for the establishment of the College of Engineering, which graduated its first class in 2000. The college houses programs in Chemical Engineering, Civil and Environmental Engineering, Electrical and Computer Engineering, and Mechanical Engineering. During the Fall of 2007, the College of Engineering had a total enrollment of 525 students consisting of 495 undergraduate students, and 30 graduate students. The racial/ethnic makeup is as follows:

Table 3.2

Racial/Ethnic Breakdown – College of Engineering

Ethnicity Breakdown	Enrolled	%
African American	14	2.6%
Native American	1	0.1%
Asian	25	4.8%
Hispanic	18	3.4%
White	459	87.4%
Unknown	8	1.5%
Total	525	100%

A hallmark of the engineering program at Rowan is an eight-semester clinic component, which focuses on hands-on, project-based assignments featuring interdisciplinary company-sponsored projects. Engineering students are engaged in the clinic sequence from freshmen to senior year. While a clinic course is required in every semester of study, the focus of each clinic is different. The clinics offered during freshman and sophomore years emphasize engineering measurements and reverse engineering, and the development of written and verbal communication skills, respectively. Junior/Senior clinics focus on project teamwork while applying

engineering principles on independent research projects. The junior/senior clinic teams are formed based on students' interests, particular skills and the needs of the project. EWB projects are one of the junior/senior projects on which students may choose to work.

The Mission

The mission to La Ceiba in March 2008 was the second installment of a mission initiated in 2007. The town of La Ceiba, El Salvador, with an estimated population of 465, is located inland off the Pacific Coast near the Guatemalan border. The primary source of water for many of the villagers is shallow, hand-dug wells, some of which are dry approximately four months of the year. The only reliable water source is a river that runs through the village. The current water sources are contaminated and the community suffers serious health issues regularly. As a result of the contaminated water as many as 34 children have died in the last five years. The purpose of both trips was to map the town, measure water quality and identify potential sites for a town well and tank. Part of the mission involved communicating to the villagers about the project, as well as educating them about precautions they could take to prevent further illness in the meantime.

Population and Sample Selection

The target population for the study was present and past participants of the student chapter of EWB at Rowan University. Two populations were used for purposes of this exploratory study: current members of the student chapter during the 2007-2008 academic year; and former EWB members who have since graduated from the university.

The current participants involved in the study were the EWB members who composed the project team that would be traveling to the village during Spring break in March 2008. The composition of the traveling team was determined by their active membership in the chapter, stated interest in traveling and level of participation and commitment to the chapter's activities. These activities included attendance at regular meetings, fundraising and presenting at professional organization meetings in the region. Six members were selected to travel to La Ceiba.

The EWB alumni population sampled was selected from former Rowan chapter members who have since graduated from the University. Rowan's EWB student chapter has been active since 2004. Historical membership information for the chapter is sketchy as there is no central location for this type of information. The chapter advisor identified approximately 15 former chapter members from a list of college graduates since its inception in 2004. The purposeful sampling allowed the researcher latitude in obtaining information-rich cases for study. It was also hoped that participant volunteers would live or work close enough to the researcher's home or place of work so that in-person interviews could be conducted.

Instrumentation

The instrument to assess students' global-mindedness was the *Global-Mindedness Scale* (GMS) (Appendix A). Hett (1993) developed the GMS through a process in which she utilized data gathered from literature reviews and analyses of related empirical instruments, supplemented by a series of interviews to gather additional information. A preliminary version of the scale was developed along with a scaling and scoring format. Subsequently a final version of the scale was developed. A content validity index for the

overall tool, determined by a panel of four expert judges, yielded an inter-judge score of .88 (Hett, p. 149). The GMS consists of 30 items in a Lickert-type scale ranging from strongly agree, to strongly disagree, and was designed to measure the five dimensions of global-mindedness as identified by Hett: cultural pluralism, ethic of responsibility/care, interconnectedness, globalcentrism, and efficacy. Additional questions requesting demographic information were also included. Permission to utilize the GMS was obtained from the University of San Diego (Appendix B).

A pre-departure questionnaire (Appendix C) was developed based on components of an instrument administered by Roy (2006) to students embarking on study abroad. The questionnaire, consisting of 14 open-ended and multiple-choice questions, was adapted to refer to the related travel, and gathered information regarding pre-travel attitudes and behaviors.

Interview questions (Appendix G) for current and former EWB members were formulated based on interview scripts incorporated in the research work of King (2006), and Roy (2006). The questions were revised slightly and made applicable to the current study.

In accordance with Rowan University policy governing the use of human subjects in research, approval from the Institutional Review Board (see Appendix D) was obtained prior to conducting the study.

Data Collection

Prior to departing for travel to El Salvador in March 2008, all six student participants were informed of the study via email and asked to complete an informed consent form (Appendix E), pre-travel questionnaire, and the *Global-Mindedness Scale*.

The three documents were attached to the email as separate documents. Several follow-up emails were sent reminding participants to return the two questionnaires. Students were also informed that at some point upon their return, they would be interviewed. Informed consent forms were returned to researcher in hard copy. All six returned the pre-travel questionnaire via email. Five of the six completed and returned the GMS either electronically, or in hard copy and returned in person.

After their return, the six students who traveled to El Salvador were contacted to schedule individual interviews. Five of the six members responded affirmatively. Four were interviewed in person on Rowan University premises within the three-week period following their return. The fifth travel team member responded to interview questions via email. The sixth member did not respond to several requests for interview. The interview questions that guided the interviews can be found in Appendix G.

The EWB alumni contacted for interview were derived from a list of former chapter members, which was provided by the chapter's faculty advisor. An electronic mail from the chapter advisor, copying the researcher, was sent to a total of 15 alumni. The email message included greetings from the chapter advisor, as well as a brief update of recent activities of the student chapter. A request for volunteers to participate in the study, along with contact information for the researcher was included (Appendix F). Three former members responded to the email and were contacted for interview. The researcher chose a fourth subject, the current president of the student chapter, to supplement the information sought from this group. The chapter president had traveled on two previous past EWB projects, but was not part of the current travel team. The subject was also a senior graduating in May. She was contacted personally by the

researcher, and asked to participate in the study. Two of the alumni agreed to meet the researcher on Rowan University premises for the interviews. Two subjects were interviewed in their respective places of work, which were within close proximity of the Rowan University campus. In general, the interviews with alumni took approximately 45 minutes to an hour to complete. Interviews questions for the alumni followed the same general themes as the questions posed to the current members (Appendix G). Interviews of both current and alumni were audio tape-recorded and transcribed by the researcher. Written notes taken by the researcher during the interviews provided supplemental information. Interview transcriptions were used for content analysis.

Data Analysis

In order to address Research Questions 1 and 2, data collected via the GMS were used to compare participant responses before their travel abroad, and after return to determine if an international service project experience would affect changes to dimensions of global-mindedness as described by Hett. Data were entered and analyzed using Statistical Package for Social Sciences (SPSS) computer software. Descriptive statistics including frequency distribution, percentages, and measures of central tendency were used to draw conclusions in with regard to the research questions. Paired samples *t*-tests were done to compare pre- and post-test scores. Variations in participant responses were assumed to conclude that participation in the international service-learning experience affected changes in global-mindedness. To further address the research questions, interviews of members of the project team were conducted to determine whether the experience impacted participants in a transformative manner. Interviews of former EWB members were conducted to examine long-term impact as proposed in

Research Question 3. Data gathered from both sets of interviews were interpreted utilizing content analysis as delineated by Sisco (1981).

CHAPTER FOUR

FINDINGS

Study findings are the result of pre-travel questionnaires, pre- and post- travel GMS collected, and participant interviews conducted during the spring term of 2008. Survey responses were coded and analyzed using SPSS software. A content analysis was utilized for examination of the interviews.

Profile of the Samples

The participants of the study fell into two categories. Six students specifically designated to travel to the project site in Spring 2008 made up the convenience sample of the travel team. A second sample group was former active members of Rowan's EWB student chapter. Four were interviewed to examine the long-range impact of involvement in EWB. The purposeful sampling was selected based on the potential to provide information-rich cases. The project team members were surveyed before and after travel utilizing the *Global-Mindedness Scale*, and interviewed following their return to examine the immediate impact of participation in the international community service project.

The Project Team

The Engineers Without Borders student chapter is an engineering student organization, however, its membership is open to the campus community. Two non-engineering majors were recruited during this period and joined the chapter. Both students were Spanish speakers and were recruited for their translating abilities.

The travel team was composed of six Rowan University students, accompanied by a Rowan University civil and environmental engineering professor who oversaw the project. Three of the students were in their junior year of study at Rowan, and three were in their senior year. There were three female and three male students. Demographic information can be found in Table 4.1 below (for purposes of confidentiality students are identified as Student A, B, C, etc.).

Table 4.1

<i>Demographic Information – Project Team</i>					
Student	Age	Gender	Ethnicity/Race	Major	Class Year
A	20	F	Latino	Communications	Junior
B	21	M	White	Civil & Environmental Engineering	Senior
C		M	White	Civil & Environmental Engineering	Senior
D	22	F	Latino	Civil & Environmental Engineering	Junior
E	20	F	Latino	Elementary Education	Senior
F	21	M	White	Civil & Environmental Engineering	Junior

As part of the pre-travel questionnaire, students were asked to provide information regarding their involvement in the chapter. All six members of the travel team completed the questionnaire. The information included length of time in EWB, and the level of participation in the student chapter. Table 4.2 summarizes the information. Students B, C, and D indicated that they were in their second year with EWB and had traveled to La Ceiba as part of the first assessment team in 2007.

Table 4.2

<i>Involvement in EWB (N = 6)</i>			
Student	When did you join EWB?	First Travel (yes/no)	Capacity of Involvement
A	2008	Yes	Meetings, travel/translator

B		No	Fundraising, project design, organizational, travel
	2007		
C		No	Fundraising, project design, organizational, travel
	2007		
D		No	Fundraising, project design, organizational, travel
	2007		
E	2008	Yes	Meetings, travel/translator
F	2007	Yes	Fundraising, project design, organizational, travel

The pre-travel questionnaire contained a combination of open-ended and multiple choice questions which prompted students to briefly examine feelings associated with the anticipated travel.

Table 4.3

Pre-Travel Attitudes

Questions/Responses

What are you most excited about?

Bringing back great people-related experiences; interact with community; learn more about their culture; and educational opportunities.

The people.

Re-experiencing the culture

Getting a chance to see a less-developed country and help provide what they cannot easily provide

Helping this community attain a sustainable source of drinking water; and going to a local market.

Working with the community.

What are you most apprehensive about?

The potential dangers.

The community not accepting our proposed ideas and having to start over.

Not being able to do everything we want to do.

Our team's preparation and local coordination since I'm the team's co-leader.

The bugs!

What do you expect will affect you the most while at the project site (multiple choice)?

Making cultural mistakes

Being an outsider; getting lost

Language/communication barriers

Not hearing news from home; not being able to eat/find comfort foods; being an outsider; language/communication barriers

Missing comforts of home. The environment.

What do you think your greatest single challenge overseas will be?

Being El Salvadorian for a week.
 The weather.
 Waking up early in the morning.
 Adjusting to a new culture and helping them efficiently.
 Eating beans and eggs 3 meals a day for 5 days.
 Adjusting to the rough outdoors.

All six members of the travel team were contacted before the scheduled departure via email message, and asked to complete the attached GMS. Instructions for completing and returning the questionnaire were also provided. Several reminders were sent to students about returning the questionnaire. Five of the six members of the travel team completed the GMS within the two-week period prior to the departure date. The sixth participant did not respond to the messages nor return the GMS, although he had completed the pre-travel questionnaire. Demographic information for the five respondents is found in Table 4.4.

Table 4.4

<i>Demographic Information - Respondents (n = 5)</i>				
Age	Gender	Ethnicity/Race	Major	Class Year
20	F	Latino	Communications	Junior
	M	White	Civil & Environmental Engineering	Senior
21				
	M	White	Civil & Environmental Engineering	Senior
22				
	F	Latino	Civil & Environmental Engineering	Junior
20				
22	F	Latino	Elementary Education	Senior

Analysis of the Data

Research Question 1: Does participation in an EWB service-learning experience abroad help develop students' understanding of their connectedness to the world, and help develop a global perspective and sense of civic responsibility to the global community?

The 30 Likert-type items that comprise the *Global-Mindedness Scale* (GMS) were designed to address attitudes reflecting the five dimensions of global-mindedness as defined by Hett. These are responsibility, cultural pluralism, efficacy, global centrism, and interconnectedness. The pre-travel GMS yielded data that indicated students' responses to these statements before their experience abroad. The post-travel GMS provided students' responses to the same statements after returning from their travel. A mean value of 5 indicated that respondents strongly agreed with the statement. A mean value of 1 indicated that respondents strongly disagreed. Table 4.5 provides a comparison of the pre- and post- travel data. The statements are grouped by the dimension of global-mindedness they represent.

Table 4.5

Global-Mindedness Scale Pre- and Post- Travel Summary (n = 5)

Strongly Disagree = 1, Disagree = 2, No Opinion = 3, Agree = 4, Strongly Agree = 5

Statement	Pre		Post	
	<i>M</i>	<i>SD</i>	<i>M</i>	<i>SD</i>
<i>Dimension: Responsibility</i>				
The fact that a flood can kill 50,000 people in Bangladesh is very depressing to me.	4.60	0.55	5.00	0.00
When I see the conditions some people in the world live under, I feel a responsibility to do something about it.	4.40	0.55	4.80	0.45
When I hear that thousands of people are starving in an African country, I feel very frustrated.	4.80	0.45	4.60	0.55
I feel very concerned about the lives of people who live in politically repressive regimes.	4.20	0.45	4.60	0.55
I sometimes try to imagine how a person who is always hungry must feel.	3.60	1.14	4.40	0.89
Americans have a moral obligation to share their wealth with the less fortunate people of the world.	4.00	1.00	4.20	1.10
I feel an obligation to speak out when I see our government doing something I consider wrong.	3.80	1.09	3.80	0.84
<i>Dimension: Cultural Pluralism</i>				
It is important that American universities and colleges provide programs designed to promote understanding among students of different ethnic and cultural backgrounds.	4.60	0.55	4.80	0.45
It is important that we educate people to understand the impact that current policies might have on future generations.	4.40	0.55	4.80	0.45

Americans can learn something of value from all different cultures.	5.00	0.00	4.80	0.45
I enjoy trying to understand people's behavior in the context of their culture.	4.60	0.55	4.60	0.55
I generally find it stimulating to spend an evening talking with people from another culture.	4.60	0.55	4.60	0.55
The US is enriched by the fact that it is comprised of many people from different cultures and countries.	3.80	1.09	4.50	0.58
My opinions about national policies are based on how those policies might affect the rest of the world as well as the US.	4.40	0.55	3.00	1.58
I have very little in common with people in underdeveloped nations.	3.80	1.48	2.80	1.48
<i>Dimension: Efficacy</i>				
I think my behavior can impact people in other countries.	4.60	0.55	4.80	0.45
It is very important to me to choose a career in which I can have a positive affect on the quality of life for future generations.	4.80	0.45	4.50	0.58
I am able to affect what happens on the global level by what I do in my own community.	4.20	0.84	4.25	0.50
Really, there is nothing I can do about the problems of the world.	1.40	0.55	1.40	0.55
Generally, an individual's actions are too small to have a significant affect on the ecosystem.	1.20	0.55	1.20	0.45
<i>Dimension: Interconnectedness</i>				
I often think about the kind of world we are creating for future generations.	4.20	1.30	4.75	0.50
I think of myself, not only as a citizen of my country, but also as a citizen of the world.	4.60	0.55	4.60	0.55
It is really important to me to consider myself as a member of the global community.	4.00	1.00	4.60	0.55
I feel a strong kinship with the worldwide human family.	3.20	1.09	3.80	1.30
In the long run, American will probably benefit from the fact that the world is becoming more interconnected.	3.20	1.09	3.40	1.52
<i>Dimension: Globalcentrism</i>				
Americans should be permitted to pursue the standard of living they can afford, even if it has a negative impact on the environment.	1.80	0.84	1.40	0.89
Americans values are probably the best.	1.60	0.89	1.40	0.89
I sometimes feel irritated with people from other countries because they don't understand how we do things here.	2.00	1.22	1.80	0.45
The needs of the US must continue to be our highest priority in negotiating with other countries.	2.50	1.00	2.40	1.14
The present distribution of the world's wealth and resources should be maintained because it promotes survival of the fittest.	2.20	1.64	2.20	1.64

An overall review of the pre-travel data suggests that the students in general appeared to possess a moderate predisposition to some of the global-mindedness attitudes prior to the travel experience. Students generally agreed (Strongly Disagree = 1,

Disagree = 2, No Opinion = 3, Agree = 4, Strongly Agree = 5) with five of the six statements reflecting the dimension of responsibility (standard deviations between .44 and 1.0). Two statements reflecting the same dimension: “I feel an obligation to speak out when I see our government doing something I consider wrong,” and “I sometimes try to imagine how a person who is always hungry must feel,” received mean scores between 3.60 and 3.80. These statements generated more variability in responses.

Similar levels of agreement were found with statements reflecting cultural pluralism and efficacy. Six of the eight statements reflecting cultural pluralism produced mean scores between 4.4 and 5.0 (standard deviations between .54 and .00). The two remaining statements: “The US is enriched by the fact that it is comprised of many people from different cultures and countries,” and “I have very little in common with people in underdeveloped nations,” each received a mean score of 3.80 with a standard deviation of 1.09 and 1.48, respectively. The highest ranked item overall fell under the category of cultural pluralism, “Americans can learn something of value from all culture,” with a mean score of 5.0 ($SD=.000$). Statements reflecting efficacy garnered responses that indicated general agreement with positive statements and disagreement with negative statements. Two statements in the efficacy category were structured as reverse statements. The statements, “Really, there is nothing I can do about the problems of the world,” and “Generally, an individual’s actions are too small to have a significant affect on the ecosystem,” received a mean response of 1.40 and 1.20, respectively (standard deviation of .54 in both cases), indicating disagreement or strong disagreement with the statement. The remaining three statements yielded mean scores above 4.0.

Responses to statements representative of the last two dimensions, interconnectedness and globalcentrism, were slightly more varied. The statement reflective of interconnectedness, “I think of myself, not only as a citizen of my country, but also as a citizen of the world,” had a mean value of 4.60 ($SD=.547$). The remaining four statements in this category generated mean scores ranging from 3.20 to 4.20 with standard deviations ranging from 1.00 to 1.30. All five of the statements reflective of globalcentrism were designed as reverse statements. The highest mean value of 2.50 ($SD=1.00$) was attributed to the statement, “The needs of the US must continue to be our highest priority in negotiating with other countries,” indicating that respondents generally disagreed with the statement. The lowest ranked statement in this category, “Americans values are probably the best,” had a mean value of 1.60 ($SD=.894$).

Post-travel GMS yielded data changes in some responses as a result of the project travel. The researcher acknowledged that, by conventional criteria, the small sample size potentially might not yield statistically significant findings. However, paired t tests comparing the pre- and post-travel data were conducted to quantify any positive or negative changes in the responses. Table 4.6 illustrates the results of the test.

Table 4.6

Pre- Post- Travel Changes

	<i>M</i>		<i>SD</i>		<i>df</i>	<i>t</i>	<i>Sig. (2-tailed)</i>
	Pre-test	Post-test	Pre-test	Post-test			
Responsibility	4.20	4.48	.432	.397	6	2.33	.058
Cultural-Pluralism	4.40	4.23	.414	.834	7	.652	.535
Efficacy	3.24	3.23	1.78	1.77	4	.123	.908
Interconnectedness	3.84	4.23	.622	.594	4	3.17	.033
Global Centrism	2.02	1.84	.349	.456	4	2.71	.053

The post-travel mean score for statements reflective of interconnectedness increased from 3.84 ($SD = .62$) on the pretest, to 4.23 ($SD = .594$) on the post-test. This dimension yielded the most statistically significant difference among respondents at the .05 level. The data suggests that students' attitude toward interconnectedness was positively impacted after their travel to El Salvador.

Although less statistically significant, positive impact was also noted in the dimension of responsibility, with a positive change in the pre- and post-travel mean scores from 4.20 ($SD = .432$) in the pre-test, to 4.48 ($SD = .397$) in the post-travel survey at the .05 level.

Research Question 2: Does the EWB experience have a transformative impact on participating students?

The researcher relied on the qualitative data gathered from the interviews to explore Research Questions 1 and 2. Units for analysis were key words, phrases or concepts referred to most frequently by interviewees, and which address the concepts of global-mindedness and transformation as derived from the literature review.

All six members of the project team were contacted following their return from El Salvador and asked to participate in interviews about the recent trip. The same five students who completed and returned the second GMS responded and scheduled time for the researcher to interview. Demographic information for the students who were interviewed is shown in Table 4.7. Interviews were conducted in person with all but one of the students within a three-week period after their return from El Salvador. One student was interviewed by email.

Table 4.7

<i>Demographic Information - Interviewees</i>				
Age	Gender	Ethnicity/Race	Major	Class Year
20	F	Latino	Communications	Junior
	M	White	Civil & Environmental	Senior
21			Engineering	
	M	White	Civil & Environmental	Senior
22			Engineering	
	F	Latino	Civil & Environmental	Junior
20			Engineering	
22	F	Latino	Elementary Education	Senior

Interview questions based on the literature review related to global-mindedness and transformation guided the interviews (see Appendix G). A consistent base of questions was utilized with each interviewee. However, flexibility was exercised to pursue or explore related themes or topics as they arose within the interview. Earlier interviews revealed insight into new areas that prompted additional questions that were incorporated into later interviews.

Several recurring themes applicable to the dimensions of global-mindedness discussed herein emerged from the students' interviews. Several questions in particular appeared to guide responses that addressed the themes of global-mindedness. Table 4.8 summarizes the questions that triggered the most relevant responses to these concepts.

Table 4.8

Guiding Interview Questions

Interview Questions

What was most rewarding part of experience?

What was hardest part about leaving?

How do you see your place in the world?

What has been the best learning experience?

What was the hardest part about leaving?

Did the experience cause you to rethink your future goals (professionally or personally)?

Have you shared these feelings with friends or family?

Hett (1993) defined cultural pluralism as “an appreciation of the diversity of cultures in the world and a belief that they all have something of value to offer. This is accompanied by taking pleasure in exploring and trying to understand other cultural frameworks” (Hett, p. 143). All five interviewees indicated that one of the high points of their experience was the interaction with the people. Three of the five students indicated that the hardest part about leaving was not having the opportunity to spend more time with the community. “It would have been nice to stay another week just to hang out with the community more,” and, “we really bonded with the community...it was really hard to leave after that,” stated Student B. Members of the project team repeatedly commented on how happy the people seemed despite the sub par conditions in which they lived. “It touched me deeply how friendly they were and how little they have,” said Student E. “They are so happy with the way they live,” added Student E. “That made me appreciate everything we have here...I will never complain again.”

Feelings encompassing dimensions of responsibility and efficacy were also evident in students’ responses about the experience in El Salvador. All five students expressed a desire to continue to do volunteer work of some sort. The two male respondents stated that they had considered or were considering joining the Peace Corps. “I haven’t made up my mind yet,” stated Student B, “but the idea of helping people rather than just going straight into a business and make money...you just can’t turn down feeling that way again.” The majority of the students communicated that they felt their

actions could make a difference. As defined by Hett (1993), responsibility is a deep, personal concern for people worldwide that surfaces as a sense of moral responsibility to attempt to improve conditions. “It’s like a ripple. We do one thing—one drop and it affects everything,” stated Student E. Student C commented, “I feel like I should give back to anybody that I can help.”

Responses reflecting globalcentrism also emerged from the interviews. According to Hett, globalcentrism is “thinking in terms of what is good for the global community, not just what will benefit one’s own country” (Hett, p. 143). Student E expressed a similar mindset in the following statement, “I really feel I can make a difference in anything...in America or a third world country. I really think I can make a change, a difference.”

The concept of transformation was presented to the students in a question that first defined the term transformation, and then proceeded to ask if they felt the experience had that type of effect on them. As defined by Mezirow, transformation is a change in perspective that forces an individual to self-examine previously held assumptions, values or beliefs and is initiated by a disorienting dilemma or critical incident that triggers self-examination. All five students responded that the experience had transformed their perspective on things. “Absolutely,” responded a student who had traveled to El Salvador the previous year. “It’s definitely given me a new outlook on how the world is outside of the US—of the world in general...I just don’t take certain things for granted anymore.” Student E expressed her own surprise at the degree of impact she experienced. “I didn’t realize how much of a change, or how much I would feel so

passionate about it, or feel about it in just a week...in a week I realized things we need to do here at home.” “For the rest of my life, I’ll be changed.”

According to transformation theory, reflection is necessary in order for transformation to take place. Although structured reflection did not take place during the mission, students indicated engagement in other forms of reflection. Student B mentioned that he kept a journal on this, his second trip, to El Salvador and would write down a page or so about what he did, how he felt. “I’m actually in the process of making copies to send to my grandmother in Oregon,” he shared. All students indicated that they had reflected on the experience with friends and family. Student A commented, “It made me examine my life, my family, my upbringing...it opened my eyes to the world around us...it motivates me to want to travel the world and help others.”

For all five students, the theme of appreciation for the things and comforts they currently enjoy emerged consistently. Students reported that they no longer took things for granted. Daily routines such as brushing their teeth, or taking a shower have taken on a new meaning. Another theme that emerged was a new consciousness of the environment and a stated resolve to conserve resources.

Research Question 3: What is the impact of the EWB experience on former members?

Three former EWB members agreed to participate in interviews for purposes of this study. A fourth subject, the current president of the student chapter, was also selected as part of this sample group. The chapter president has been an active member since 2005, would be graduating in May of 2008 and joining the workforce, and had not traveled on any EWB trips since the spring of 2007. The researcher felt the subject could

provide information that would enhance the exploratory study in the area of long-term impact. Demographic information is contained in Table 4.9.

Table 4.9

<i>Demographic Information – EWB Alumni</i>					
	Age	Gender	Ethnicity/Race	Major/Occupation	Last year of EWB Travel
A	24	M	African American	Civil Engineer	2005
B	25	F	Latino/Hispanic	Civil Engineer	2005
C	24	F	White	Mechanical Engineering/Graduating Senior	2007
D	33	M	White	Civil Engineer	2005

Similar questions posed to current members were asked of the former members of EWB. However, emphasis of the questioning was on exploring the existence of long-lasting changes in attitudes of global- or civic-mindedness.

Two themes found in the interviews with current members in particular persisted with the former members. A respect and appreciation for people and a desire to continue to help the local and world community, were expressed as lingering affects of their previous EWB experience. “I appreciate things more...value people more,” reflected Alumni B, a female interviewee who traveled to Honduras and Thailand with EWB. The experience, she continued, “opened my eyes to other cultures...it is something I will always remember.” Alumni C expressed an increased respect for the people she encountered. “The respect factor went up immensely...seeing all the work they do. It’s not like they sit around waiting for a handout. You can see their bodies just fatigued.” Her views of world poverty were also changed as a result. “You assume growing up...and it’s a naïve thought...that people are poor because they didn’t work very

hard...that they are lazy or uneducated...whatever. But they aren't lazy or dumb...they are very smart. You learn that you can't just generalize."

Interviewees agreed that their experience in the international service projects was "eye-opening" to the issues of needs around the world and in the local community. Although some of the interviewees indicated a predisposition to civic-minded attitudes prior to involvement with EWB, they indicated that the experience helped cement those feelings. "I always wanted to help [the community], but the wider scale came after EWB. It became more global...a bigger picture," stated Alumni A who has remained active in EWB through involvement in an EWB professional chapter in the region and who has taken on a leadership role. He is currently president of the regional chapter, which is planning a water implementation trip to Rwanda in Summer 2008.

Transformative aspects were also evident in the interviewees' responses. "You can't have that type of experience and keep it to yourself...if you do, then you've missed a really big something. It [the experience] validates certain ideas you had, and others you find you've been completely wrong about...it's completely humbling." This sentiment, expressed by Alumni F, was echoed by others. "The value of people changed for me. Currently I feed the homeless, and I don't think I would be doing that today if I hadn't experienced EWB," said another interviewee.

CHAPTER FIVE

SUMMARY, DISCUSSION, CONCLUSIONS, AND RECOMMENDATIONS

Summary of the Study

This study investigated the impact of international service projects on students engaged in the Engineers Without Borders (EWB) student organization at Rowan University. The exploratory study was structured to specifically assess the transformative potential of these experiences as they relate to the development of students' global perspective and interconnectedness with the worldwide community.

Present and former chapter members participated in the study which consisted of pre- and post-travel surveys and interviews of present members of a project team, and interviews of former chapter members. Five current chapter members, part of a project team traveling to El Salvador in Spring 2008, participated in the pre- and post-travel study. Four former members participated in interviews to assess long-term affects of involvement in EWB.

Although the sample size was limited, data gathered from pre- and post-travel inquiries were analyzed for statistical significance. Interviews were analyzed using content analysis.

Discussion of the Findings

Evidence of global-mindedness was apparent in the research findings that resulted from comparisons of the pre- and post-travel *Global-Mindedness Scale* responses.

Taking into account the small sample size, notable changes were present. Interviews with the project team members supplemented the data results with qualitative information that supported the notion that EWB experiences produced transformative affects on participants. Furthermore, the long-lasting effects of international service projects on former members of EWB was evident in the responses garnered from personal interviews which indicated an enduring commitment to volunteerism and community work, even after terminated membership with the student chapter.

Research Question 1: Do EWB service-learning experiences abroad help develop students' understanding of their connectedness to the world, and help develop a global perspective and sense of civic responsibility to the global community?

The findings of this exploratory study suggest that experiences like the ones that are an integral part of the Engineers Without Borders mission, impact changes in cultural awareness, humanism, civic responsibility, respect for other cultures and reciprocity between the server and the served (Kraft as cited in Sternberger et al., 2005). Changes between pre- and post-travel GMS responses suggest that students became more globally minded as a result of their international service-learning experiences. Students expressed significant changes in perspective regarding responsibility to the global community and humankind as a result of the experience. Students' sense of interconnectedness seemed to be positively impacted after their travel.

The cross-cultural experiences appear to be valuable in spite of the limited stay in a foreign community. Willard-Holt (2001) found similar results in a study examining the impact of a short-term visit and teaching experience in another culture (Mexico) on pre-service teachers. Although they were in El Salvador for only six days, EWB students, without exception, reported that they had experienced significant personal changes as a result of their experience.

Consistent with the findings of Myers-Lipton's (1994) and Malone et al. (2002), this study found increases in civic responsibility, and new perspectives in the areas of identity and personal development, and service and responsibility a consequence of the service-learning experience. EWB participants returned from their travel resolved to do more to help other communities and demonstrated interest in exploring alternative organizations like the Peace Corps to further the endeavor.

Research Question 2: Does the EWB experience have a transformative impact on participating students?

The transformative aspect of the experience was supported by the findings of this study. Participants appeared to experience changes in perspective as described by Mezirow & Associates (1990), whose learning model purports a process in which individuals experience changes in how they understand their identity, culture, and behavior. As expressed by students during interviews, a reexamination of attitudes, values and self resulted from the EWB travel experience. Participants noted new meanings to prior perspectives. These findings support the conclusions drawn by Story (1998) and Roy (2006) in their respective studies on the transformative affects of international experiences on students.

A transitivity of consciousness as described by Freire (1973) also appeared to have taken place for many of the participants. Students' expression of new awareness of social, political and economic relations within their existence suggests a transformation of consciousness from a state of naïve transitivity to one of critical transitivity as a result of their experience.

Research Question 3: What is the impact of the EWB experience on former members?

The passage of time does not appear to eliminate the impact of the service-learning experience on former EWB members. Interviewed alumni commented on the lasting impressions of their prior EWB involvement. Former EWB members now either professionals in the work force, or about to embark on their professional career, commented on the changes they experienced and expressed current involvement in community work.

Conclusions

The significance of educating for a global perspective cannot be questioned. As explored in the literature review, the past 10 years have seen a growing urgency in the United States and abroad to prepare a globally capable workforce. The experience afforded to students through participation in organizations such as Engineers Without Borders provides an opportunity to achieve this goal.

This study explored the impact of EWB on participants and found that students returned from their travel experience changed in terms of worldview, sense of civic responsibility, and interconnectedness to humankind. The changes appear to be positive in nature and suggest students' desire to continue involvement with the community.

Given the evident impact of EWB on participants, it is important to continue to assess and evaluate the program's strengths and weaknesses, and make changes accordingly.

As international borders become more permeable, higher education has an obligation to prepare students to function effectively in a global society. Hett (1993) stated it best: "The greatest hope for a world which now has the ability to destroy itself within hours is to educate for global-minded citizens who view themselves as part of a larger world system, who are free from the restraints of a blind patriotism, and who are knowledgeable about various cultural frameworks and value systems" (Hett, p. 2).

Recommendations for Practice

As illustrated by this study, the implications of experiential learning cannot go unnoticed. The immersion into the community they served, sharing their living quarters, food, and company, gave students a new appreciation for the people. It would be accurate to say that simply studying about the country, people or culture may not have produced the same enriching results. Ballou (1996) found weak impact on students' global-mindedness following a semester of international/intercultural courses. It is evident that the interactive component of an international service-learning experience affords students an opportunity for gaining global perspective that cannot be replicated in a classroom. Institutions serve their students well by encouraging and supporting programs that contain international and intercultural service-learning elements.

Interviewed members of the project team in the study indicated varying degrees of preparation for the cultural aspect of the mission prior to their departure. This aspect of preparation appeared to have been left to the students to manage independently. Several students indicated preparation for their travel by researching the economic and social

history of the country, or by learning several key phrases in the language. However, this type of preparation was not a required or formal part of the pre-travel preparation. The integration of a formal orientation for students that outlines the social, economic and cultural history of the host country provides another layer of preparation that will benefit participants.

Recommendations for Further Research

Considering the infancy of the EWB organization as well as the limited research currently available, there is the potential for a myriad of continued research. These would include quantitative studies with larger groups, across chapters, institutions, gender, race or ethnicity, and host country. Longitudinal studies to delve into the long-term impact might be studied down the road with members five or 10 years out of the organization. Research into how students are able to translate the transformative affects of their experience from intention to action over a long period of time should also prove valuable.

Additional research can be conducted utilizing the *Global-Mindedness Scale*. The scale could be administered to chapter members at the onset of their involvement in the EWB student chapter, then readministered to those who remain involved in the organization until graduation. Subsequent changes in responses may prove conclusive. Further examination of the GMS to determine relevance to current generational and societal changes since the scale was first developed fifteen years ago, may also produce significant information.

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APPENDIX A

Global-Mindedness Scale (GMS)

I am conducting this survey as part of my thesis research related to students' global perspectives and would appreciate your taking the time to complete it. While your participation in this survey is voluntary and you are not required to answer any of the questions herein, your cooperation and participation are important to the success of the project. If you choose to participate, please understand that all responses are strictly confidential and no personally identifiable information is being requested. Your completion of this survey constitutes consent and your willingness to participate. If you have any questions, you may contact Maria Perez-Colón, Perezcolon@rowan.edu; 856.256.5302 or Dr. Burt Sisco, Ed Leadership, sisco@rowan.edu, 856.256.3717.

If you have any questions about your rights as a research subject, you may contact the Associate Provost for Research at: Rowan University Institutional Review Board for the Protection of Human Subjects, Office of the Associate Provost for Research, 201 Mullica Hill Rd., Glassboro, NJ 08028-1701, Tel: 856-256-4053

Gender: _____ (1) Female _____ (2) Male

Age

Please read each of the following statements and decide whether or not you agree with it. Then circle the response that most accurately reflects your opinion. There are no "correct answers".

PART I

Strongly disagree = 1 Disagree = 2 No opinion = 3 Agree = 4 Strongly Agree = 5

	SD	D	NO	A	SA
1. I generally find it stimulating to spend an evening talking with people from another culture	1	2	3	4	5
2. I feel an obligation to speak out when I see our government doing something I consider wrong.	1	2	3	4	5
3. The US is enriched by the fact that it is comprised of many people from different cultures and countries.	1	2	3	4	5
4. Really, there is nothing I can do about the problems of the world.	1	2	3	4	5
5. The needs of the US must continue to be our highest priority in negotiating with other countries.	1	2	3	4	5
6. I often think about the kind of world we are creating for future generations.	1	2	3	4	5
7. When I hear that thousands of people are starving in an African country, I feel very frustrated.	1	2	3	4	5
8. Americans can learn something of value from all different cultures.	1	2	3	4	5
9. Generally, an individual's actions are too small to have a significant affect on the ecosystem.	1	2	3	4	5
10. Americans should be permitted to pursue the standard of living they can afford, even if it has a negative impact on the environment.	1	2	3	4	5
11. I think of myself, not only as a citizen of my country, but also as a citizen of the world.	1	2	3	4	5
12. When I see the conditions some people in the world live under, I feel a responsibility to do something about it.	1	2	3	4	5
13. I enjoy trying to understand people's behavior in the context of	1	2	3	4	5

their culture.					
14. My opinions about national policies are based on how those policies might affect the rest of the world as well as the US.	1	2	3	4	5
15. It is very important to me to choose a career in which I can have a positive affect on the quality of life for future generations.	1	2	3	4	5
16. Americans values are probably the best.	1	2	3	4	5
17. In the long run, American will probably benefit from the fact that the world is becoming more interconnected.	1	2	3	4	5
18. The fact that a flood can kill 50,000 people in Bangladesh is very depressing to me.	1	2	3	4	5
19. It is important that American universities and colleges provide programs designed to promote understanding among students of different ethnic and cultural backgrounds.	1	2	3	4	5
20. I think my behavior can impact people in other countries.	1	2	3	4	5
21. The present distribution of the world's wealth and resources should be maintained because it promotes survival of the fittest.	1	2	3	4	5
22. I feel a strong kinship with the worldwide human family.	1	2	3	4	5
23. I feel very concerned about the lives of people who live in politically repressive regimes.	1	2	3	4	5
24. It is important that we educate people to understand the impact that current policies might have on future generations.	1	2	3	4	5
25. It is really important to me to consider myself as a member of the global community.	1	2	3	4	5
26. I sometimes try to imagine how a person who is always hungry must feel.	1	2	3	4	5
27. I have very little in common with people in underdeveloped nations.	1	2	3	4	5
28. I am able to affect what happens on the global level by what I do in my own community.	1	2	3	4	5
29. I sometimes feel irritated with people from other countries because they don't understand how we do things here.	1	2	3	4	5
30. Americans have a moral obligation to share their wealth with the less fortunate peoples of the world.	1	2	3	4	5

Part II - - Demographics *Please circle your responses to the questions below.*

31. College Class (circle) (1) FR (2) SO (3) JR (4) SR

Major: _____

32. Please indicate below the category that best describes your ethnicity/race.

- ___ (1) African American/Black
- ___ (2) Native American/American Indian
- ___ (3) Asian American/Pacific Islander
- ___ (4) Latino/Hispanic
- ___ (5) White
- ___ (6) Other _____ (indicate)

33. How long have you been involved with EWB?

- (1) This is my first year (3) This is my third year
- (2) This is my second year (4) This is my fourth year

34. As an EWB member, in what capacity have you been most active?

- (1) Fundraising
- (2) Project design
- (3) Organization (scheduling meetings, maintaining organizational records)
- (4) Other _____

35. Will you be traveling on the next trip tentatively scheduled for Spring Break '08? (1)

Yes (2) No

36. If answered yes above, where will you be traveling? _____ (1) El Salvador _____

(2) Senegal

37. If you anticipate travel to the project site, in what ways have you prepared, or will you prepare, for your trip?

- (1) Studying the country/culture we will be visiting
- (2) Studying the language of the country
- (3) Studying the social/economic history of the country
- (4) I have not done much research into the country

38. Is this your first EWB travel? (1) Yes (2) No

APPENDIX B

Permission to Use Global-Mindedness Scale (GMS)



University of San Diego

School of Leadership and Education Sciences

28 September 1993

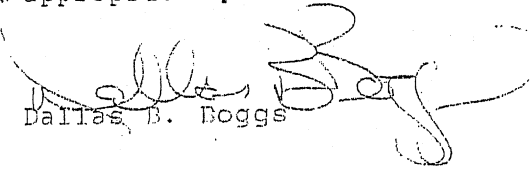
MEMORANDUM

For: Dr. Mary Scherr

From: Dallas Boggs

Subject: Doctoral Dissertation of Dr. E. Jane Hett

It is my pleasure to authorize you to share any or all portions of subject dissertation for educational and/or research purposes, as you deem appropriate.


Dallas B. Boggs

September 30, 1993

The above authorization is signed by Dallas Boggs, the husband of E. Jane Hett, who is now deceased.

Mary Woods Scherr, Ph.D.
Dissertation Director

APPENDIX C

Pre-departure Questionnaire

Pre-departure Questionnaire:

From Roy's (2006) pre-departure questionnaire

1. Have you traveled abroad before?
2. Have you lived abroad before?
3. What are you most excited about your traveling to the project site?
4. What are you most apprehensive, worried or concerned about your upcoming travel?
5. What language (s) do you speak?
6. For any language you speak other than English, indicate your level of competence below:
(1) fluent (2) can carry a conversation (3) can understand a bit
7. Have you taken any language training in the language of the country of your project site?
8. Of the choices below, what do you expect will affect you the most while you are at the project site?
 - a. Missing the comforts of my home and environment
 - b. Missing friends and family
 - c. Not hearing/knowning news from home
 - d. Not being able to eat/find comfort foods
 - e. Adjusting to new schedule and routines
 - f. Not knowing the cultural rules
 - g. Making cultural mistakes
 - h. Being an outsider
 - i. Language/communication barriers
 - j. Getting lost
 - k. Constantly dealing with uncomfortable situations
 - l. Other, please list:
9. At home your day is usually:
 - a. well-planned and scheduled
 - b. flexible and impromptu
10. When you find yourself faced with a new or unfamiliar situation:
 - a. do you ask questions to find what you need to understand the situation
 - b. wait and hope that someone else asks the question
 - c. find out what you need to know by watching what everyone else does

- d. avoid unfamiliar/uncomfortable situations
- e. other, explain:

11. Do unfamiliar surroundings and routines:

- a. Make you a bit anxious
- b. Excite you
- c. Other

12. My greatest single challenge overseas will be:

13. Rate your knowledge of the following about your project site country:

(1= no knowledge; 5 = wealth of knowledge)

- | | | | | | |
|---------------------------|---|---|---|---|---|
| 1. Customs and traditions | 1 | 2 | 3 | 4 | 5 |
| 2. History and politics | 1 | 2 | 3 | 4 | 5 |
| 3. Education system | 1 | 2 | 3 | 4 | 5 |

14. Have you prepared in any way for living at the project site country (be specific)?

APPENDIX D

Institutional Review Board Approval



January 2, 2008

Maria Perez-Cólon
College of Engineering, Rowan Hall
Rowan University
201 Mullica Hill Road
Glassboro, NJ 08028

Dear Maria Perez-Cólon:

In accordance with the University's IRB policies and 45 CFR 46, the Federal Policy for the Protection of Human Subjects, I am pleased to inform you that the Rowan University Institutional Review Board (IRB) has approved your project:

IRB application number: 2008-090

Project Title: Impact of Engineers Without Borders (EWB) Experience on its Participants

In accordance with federal law, this approval is effective for **one calendar year** from the date of this letter. If your research project extends beyond that date or if you need to make significant modifications to your study, you must notify the IRB immediately. Please reference the above-cited IRB application number in any future communications with our office regarding this research.

Please retain copies of consent forms for this research for three years after completion of the research.

If, during your research, you encounter any unanticipated problems involving risks to subjects, you must report this immediately to the Associate Provost for Research (856-256-4053).

If you have any questions, please contact Karen Heiser (heiser@rowan.edu or 856-256-4167).

Sincerely,

A handwritten signature in black ink, appearing to read "Roberta Dihoff".

Roberta Dihoff, Ph.D.
Chair, Rowan University IRB

c: Sisco, Burton, Educational Leadership, Education Hall

APPENDIX E

Informed Consent Form

Informed Consent Form

I agree to participate in a study entitled "Impact of Engineers Without Borders on Participants' Globalmindedness" which is being conducted by Maria Perez-Colón as part of a Masters thesis research in the Higher Education Administration Department at Rowan University

The purpose of this study is to examine the impact of the EWB experience on students' attitudes of globalmindedness.

I understand that I will be required to complete surveys and participate in interviews. My participation in the study is strictly voluntary.

The interview component of the study may be taped to ensure accuracy of obtained information. Participant may opt to participate in interview without being audiotaped if so desired.

(please initial)

I understand that my responses will be anonymous and that all the data gathered will be confidential. I agree that any information obtained from this study may be used in any way thought best for publication or education provided that I am in no way identified and my name is not used.

I understand that there are no physical or psychological risks involved in this study, and that I am free to withdraw my participation at any time without penalty.

I understand that my participation does not imply employment with the state of New Jersey, Rowan University, the principal investigator, or any other project facilitator.

If I have any questions or problems concerning my participation in this study, I may contact Maria Perez-Colón at (856) 256- 5302, or Dr. Burton Sisco, her advisor, at 856.256.3717.

(Signature of Participant)

(Date)

(Signature of Investigator)

(Date)

APPENDIX F

Sample Invitation to Participate in Interviews

Dear...

How are you doing? Since you left the EWB group has grown and still thriving. Attached is the progress to-date of the projects we have done so far and a letter we had sent to our past donors.

I am conducting research with Maria Perez Colon a graduate student of Education. We are determining the short- and long-term positive influence of EWB on participants like you.

As former EWB student chapter members, you can speak to the long lasting affect your experience with the organization and on the projects, had on you after you left Rowan.

This will also help us make a case to donors on how these projects not only help the community we serve but also have tremendous impact on the students that are involved.

Would you be willing to answer a few questions about your experience in a brief interview? If so, please respond to Maria Perez Colon at perezcolon@rowan.edu.

I am looking forward to hearing from you.

Yusuf A. Mehta, Ph.D., P.E.
Associate Professor
Department of Civil and Environmental Engineering
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201 Mullica Hill Road
329 Rowan Hall
Glassboro, NJ 08028
Email: mehta@rowan.edu
Phone: 856-256-5327 Fax: 856-256-5242
<http://users.rowan.edu/~mehta>

APPENDIX G

Interview Questions

Interviews post-travel

(components from C. King and L. Roy research)

Where was your project located?

How long was your stay?

What was the project site's primary language?

Were you able to communicate with locals in their primary language?

If not, how did you communicate?

How often did you interact with the local people in the course of your stay?

How many hours did you spend talking to local people in the course of a day?

More than 8

5-8

2-6

1 hour or less

Did you do any of the following activities while in the host country? (check all that apply)

Shop for groceries

Bank

Post office

Take public transportation

Describe the neighborhood you lived in.

Describe the work you did while you were there.

What were your first impressions?

Describe the logistics of arriving at the project site, i.e., how did you get from airport to the place you would be living in while there.

Tell me about some of the people you got to know.

What did you enjoy most about the experience?

What was the most difficult part of the entire experience?

What was your best day like?

What was your worst day like (disorienting dilemma, trigger)?

As you look back on the experience, what do you wish you had done differently?

What were your impressions as you prepared to return home?

What was the best part about leaving?

What was the hardest part about leaving?

How did you change as a person or how did the experience change you?

How did your view of the world change?

Did the experience change your ideas about your future?

Did you find it transformative (need to explain transformative first)?

Anything you'd like to add??

