GLOBAL EXPLORERS: AN EXAMINATION OF PROGRAM PROCESSES AND OUTCOMES

A Dissertation

by

MATHEW DAVID DUERDEN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2009

Major Subject: Recreation, Park and Tourism Sciences

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Approved by:

Chair of Committee,	Peter A. Witt
Committee Members,	Amanda Stronza
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ABSTRACT

Global Explorers: An Examination of Program Processes
and Outcomes. (August 2009)
Mathew David Duerden, B.A., Brigham Young University;
M.S., Brigham Young University
Chair of Advisory Committee: Dr. Peter A. Witt

This study utilizes longitudinal, mixed-method data drawn from participants in an environmental education/international immersion program for middle high-school students to study outcomes and processes associated with program participation. Studies of program outcomes and processes are important for better understanding the design and impact of youth programs.

The first study investigated the relationships between experience types (i.e., indirect vs. direct) and learning outcomes (i.e., knowledge vs. attitudes). In other words, what is the difference in impacts between reading a book about the rain forest and actually traveling to the rain forest? Findings suggest that experience type plays a significant role in the type of learning outcomes as well as how these outcomes influence behavior. More specifically, direct experiences appear to catalyze knowledge in a way that facilitates future behavior development. The qualitative data also suggest that participants' perceptions of perceived freedom during the program moderated whether participation was experienced as direct or indirect.

The second study employed a social development model (SDM) to understand the relationship between within program socialization processes and program outcomes. The model provided a good fit for the data and predicted a significant portion of the variance in environmental behavior after controlling for baseline levels of this outcome variable. Additionally, analysis of qualitative data produced a proposed model of shared activities and bonding that suggests youth valued experiences where adults participated with them as equals rather than as disciplinarians or administrators.

The final study provided insights regarding the degree to which the program was implemented as originally planned and how the domains of implementation integrity influenced program outcomes. The findings suggest that of the measured implementation domains, only participant responsiveness was significantly related to program outcomes. Data also suggest that implementer efficacy can have differing impacts on program adherence. The qualitative data suggest that most participants positively perceived the program and felt it was well organized.

In sum, the findings provide a holistic perspective of the processes and outcomes of this program. Rather than merely presenting an overview of program impacts, the study offers insights into the processes (e.g., socialization) and characteristics (e.g., experience types) that produced observed outcomes. Thus, the study presents a more complete picture of what individuals gained through their participation in this program as well as the processes that led to these gains.

DEDICATION

I dedicate this dissertation to my family for their support, encouragement, love, and patience, without which none of this would have been possible.

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I would like to thank my committee chair, Dr. Witt, for his support, encouragement, and guidance. His mentorship proved invaluable during all stages of my graduate school experience. Without Dr. Witt I do not know if I would have ended up at Texas A&M or have had such a rewarding experience during my time here. I will always be indebted to him for making some of the most rewarding years of my life possible.

I also need to thank my committee members, Dr. Stronza, Dr. Scott, and Dr. Hughes for their insights and expertise. I had an all-star cast for my committee and feel lucky to have been able to work with each of them. I am thankful that because of Dr. Stronza the opportunity to work with Global Explorers became available. Additionally, her insights regarding methodology and field research were also invaluable. I appreciated Dr. Scott's willingness to jump into this project midstream and for his time, insights, and positive attitude and encouragement. Dr. Hughes' willingness to work with me through the analysis process, even when I responded to her insightful solutions with comments like, "can you explain that one more time" or "I'm not sure I know how to do that." All in all, I could not have asked for a more perfect committee. I also need to express appreciation for Dr. Watts' involvement in this project, although he had to leave early, his support during the beginning stages of the dissertation were very useful.

I also want to thank Global Explorers for making this opportunity available and for the great collaborative relationship we were able to develop. The success of this study is also in large part due to the cooperation of the teachers, students, and parents

who participated in the evaluation, especially those individuals associated with the case study group. I could not have ended working with a better group of people. Their support for the evaluation was above and beyond anything I had expected and the quality of this dissertation would have been greatly decreased without their help.

Last, but certainly not least, I want to thank my family for their love, support, patience, encouragement, and everything else they did to help see me through graduate school. Chenae was always supportive and optimistic and her insights at various points throughout the dissertation helped move the project along. My spirits were lifted at the end of each day when I came home to such a wonderful family. It's hard to not feel appreciated and loved when Jackson would ask me "how your day dad?" when I arrived home each evening. Layla was born the day after I handed the final manuscript off to my committee, thanks for the great timing, and came with her mom to support me during the defense. I also need to thank my parents for instilling a love of learning in me from an early age and for their constant encouragement and love.

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CHAPTER I

INTRODUCTION

Numerous youth programs exist that target a variety of outcomes (e.g., improved academic performance, pro-social functioning, civic engagement, etc.). These programs employ a range of theories, techniques and contexts to accomplish their aims. While it is important to evaluate the ability of these programs to reach targeted outcomes, it is equally essential to investigate the processes by which outcomes are attained. Understanding program processes (e.g., socialization, skill acquisition, etc.) and characteristics (e.g. contexts, staff, activities, etc.) that account for observed development among participants provides insights into how and why change occurs as a result of participation.

Better understanding of program processes and characteristics can lead to program improvement and the dissemination of information about replicable, efficacious programs (Rossi, Lipsey, & Freeman, 2004). Understanding program processes and characteristics is also important because these findings can be applicable across diverse fields. For example, if findings suggest a specific youth sports program promotes improved athletic ability, other sports programs could benefit from this information; but, if the study also evaluates program processes and if results indicate that supportive and caring relationships between staff and youth in the program partially account for observed outcomes, this information could benefit and be practically applied by almost

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This dissertation follows the style of the *Journal of Leisure Research*.

any youth program.

Given the importance of process and outcome research, the current study involved an evaluation of a multi-stage environmental education/international immersion program for adolescents, taking into account both program processes and outcomes. The results of this evaluation provide valuable information and insights to both youth development researchers and practitioners.

Context

Global Explorers (GEx) is a non-profit organization that provides international immersion experiences for middle and high school students and teachers. GEx was founded in 2003 and currently serves approximately 200 students per year. GEx programs consist of three stages: a preparatory after-school program, an international field workshop and a post-trip service project. The core GEx academic areas of science, culture, service and leadership provide a framework designed to promote "global citizenship."

GEx works with school teachers to recruit groups of at least 10 students to participate in one of eight international field workshops (Amazon, Arctic Summer, Arctic Winter, Baja, Costa Rica, Peru, Tanzania, and the Yucatan). Participating teachers receive lesson plans and materials to help prepare students for the international field workshop. This curriculum consists of 9 to 12 two-hour after school sessions specific to their group's chosen destination. Curriculum elements focus on culture, science, travel tips, language and leadership skills. Additionally, GEx provides teachers with recruiting, fundraising, and travel planning assistance.

All aspects of the international field workshop are arranged and supervised by GEx. In addition to local guides, GEx provides each group with a qualified volunteer field scientist as well as a GEx staff member. During the field workshop portion of the program, students and teachers take part in a variety of cultural, scientific, and service activities. Upon returning from the field workshop, participants design and implement a service project directed either towards the needs of their own community or the international community they visited.

Importance of the Evaluation

Even though the current evaluation focused on the implementation and outcomes associated with an international immersion and environmental education (EE) program, the results from this dissertation make positive contributions to fields such as EE, positive youth development, and evaluation science. The multifaceted nature of GEx programming and curricula allowed for assessments of the implementation, program effectiveness and outcomes, as well as the generation of important program process information. Additionally, the study dealt directly with important youth development research issues.

For example, the degree to which youth experience, interact with and appreciate natural environments, and the different impacts varying levels of exposure to nature have on young people has recently become a national topic of interest. The popularity of Richard Louv's book, *Last Child in the Woods* (2005), has increased awareness of issues regarding children's interaction, or lack thereof, with nature. Louv draws upon his own personal experiences, interviews with children, parents, educators, and other individuals,

as well as existing research findings to make the case that kids are spending less time outside, and are thereby missing out on a host of potential benefits attributed to contact with nature. While Louv has helped bring these issues to the national stage, researchers have been investigating related topics over the last several decades. Research questions that have already been addressed include: do nature experiences more effectively produce positive outcomes than other contexts (Taylor & Kuo, 2006), does contact with nature need to be direct or can indirect experience (e.g., classroom learning, zoos, nature centers) deliver the same benefits (Kellert, 2002), and how do nature experiences impact youths' environmental attitudes and identities (Kals & Ittner, 2003)?

These and other youth and nature related issues are extremely important especially considering that today's youth will be those determining future use and conservation of the world's natural resources. A generation of youth disengaged from nature would most likely be much less inclined to actively engage themselves in environmental issues. The findings from this dissertation provide some insights into how interaction with nature drives future environmental behavior, an important issue directly related to this area.

The fact that GEx programs include both direct (i.e., preparatory program) and indirect (i.e., international workshop) experiences enabled the evaluation to address, to some degree, both the separate and combined impact of these components. Insights gained regarding the impact of these experiences on participants' environmental knowledge, attitudes and behavior provides an important contribution to the EE literature. Based on prior research work in EE and the theory of planned behavior

(Ajzen, 1985, 1991), the current GEx evaluation was designed to increase understanding of how direct and indirect experiences with nature influence environmental knowledge, attitudes and behavior. This information can then be used to develop more effective educational experiences for youth participants.

In addition to the interplay between types of experiences and learning outcomes, the influence of within program relationships and socialization represent potential processes that contribute to outcomes. Research findings from a variety of theoretical perspectives (e.g., prevention science, resiliency and positive youth development) support the developmental importance of positive youth-adult relationships (Benard, 1991; Bocarro & Witt, 2005; Coie, et al., 1993; Scales, Benson, Leffert, & Blyth, 2000; Werner, 1986, 1989). To conceptualize the relationship between socialization and behavior within contexts, researchers developed the social development model (SDM) (Catalano & Hawkins, 1996; Hawkins & Weis, 1985). This model suggests that behavior is influenced through a variety of socialization processes including social bonding.

The predictive power of the SDM has received empirical support from studies conducted in a variety of contexts (Catalano, Oxford, Harachi, Abbott, & Haggerty, 1999; Fleming, Brewer, Gainey, Haggerty, & Catalano, 1997; Hawkins, Catalano, Kosterman, Abbott, & Hill, 1999; Lonczak, Abbott, Hawkins, Kosterman, & Catalano, 2002; Lonczak, et al., 2001). Results from these studies indicate that the SDM explains a significant percentage of variance associated with a wide variety of behaviors. This evaluation employed a SDM to assess the impact of socialization of processes within

GEx programs on program outcomes. Increasing the understanding of these processes work and impact outcomes has relevance across all youth development contexts.

The current study's findings also contribute to the field of evaluation science. The majority of evaluations focus on outcomes without assessing program implementation (Dane & Schneider, 1998). This oversight often leads to a superficial understanding of outcome findings. For example, in an evaluation of a youth media literacy program findings showed that program outcomes varied across different groups of participants (Pinkney, Watts, & Slaby, October 2006). Implementation data revealed that participants' satisfaction with the program also varied across groups and explained a portion of the observed outcome discrepancies. By collecting data on both program implementation and outcomes, this study was positioned to analyze the relationship between these two constructs. An increased understanding of this relationship provides valuable programming and evaluation insights.

Evaluation Foci

Drawing on longitudinal data gathered from GEx participants, their parents and teachers leading GEx groups, this evaluation focused on number of issues pertinent to understanding program processes. These foci are divided into three separate articles containing unique introductions, literature reviews, methods, findings, and conclusions. While GEx programs are designed to produce positive development in multiple domains (e.g., cultural sensitivity, leadership, civic engagement, etc.), this study focused primarily on the program's impact on EE related outcomes. Focusing on EE outcomes, as opposed to the other outcome areas addressed by GEx (e.g., culture, leadership and

service), focused and refines the scope of the research and enabled the study to positively contribute to the body of existing EE literature.

The first article (Chapter II) used the theory of planned behavior to investigate the impact of direct and indirect experiences on EE knowledge and attitude development and the subsequent influence of these constructs on pro-environmental behavior. The second article (Chapter III) employed a social development model to assess the impact of youth-adult relationships and social bonding within GEx programs to pro-environmental behavior. The final article (Chapter IV) evaluated the implementation of GEx programs and analyzed the relationship between program integrity and outcomes. The combined results of these studies provide a comprehensive picture of the processes and outcomes associated with GEx programs, information which is also important and applicable across a variety of fields associated with youth and their positive development.

CHAPTER II

THE IMPACT OF DIRECT AND INDIRECT EXPERIENCES ON THE DEVELOPMENT OF ENVIRONMENTAL KNOWLEDGE, ATTITUDE AND BEHAVIOR

Introduction

Does reading a book about the Peruvian Rain Forest, a rather indirect experience, have the same impact on an individual as a much more direct experience such as actually traveling to and spending time in that same location? While this may initially seem like a simple question, producing an answer that both describes and accounts for differences between the outcomes associated with these experiences proves to be much more complicated. Answers to this question have relevance for a wide variety of fields from entertainment to education. Anyone who is interested in providing individuals experiences aimed to produce certain outcomes should be interested in understanding the relationship between experience type (i.e., indirect vs. direct) and outcomes.

The relative impact of direct versus indirect experiences is not a new area of inquiry; for example, an established body of literature exists that addresses the complexities and characteristics of direct (i.e., experiential) experiences (see Warren, Mitten, & Loeffler, 2008). However, empirically validated insights to this question are still needed. Take for example the field of environmental education (EE), where researchers and practitioners debate over the relationship between experience type (i.e., indirect vs. direct) and learning outcomes. In other words, what type of learning

outcomes are indirect vs. direct experiences most likely to produce? For example, while many EE programs take place in classroom settings and involve primarily lecture-based learning, some programs incorporate or rely solely on natural settings and experiential learning.

Studies comparing programs with traditional (e.g., classrooms) versus non-traditional (e.g., wilderness) settings have produced contradictory findings. Some research findings suggest that outdoor contexts positively impact ecological attitudes and behavior (Dettmann-Easler & Pease, 1999; Dresner & Gill, 1994). Conversely, in a review of EE studies that looked at either traditional (e.g., classroom based) or non-traditional (e.g., workshops, nature camps, and field studies) program contexts, results indicated that classroom based programs were most effective (Zelezny, 1999). Unfortunately, the validity of these findings is inconclusive because of lack of uniformity among programs included in the non-traditional category (e.g., workshops, nature camps, and field studies of the impact of environmental education materials in work and home settings). In another study comparing students' knowledge and fascination about bats, results showed only small differences between students who received classroom lectures about bats and students who participated in field experiences as well as lectures (Kals & Ittner, 2003). Further research is needed to better understand the impacts of direct and indirect EE experiences.

A theoretical model of the impact of different types of nature experiences (e.g., direct, indirect and vicarious) on various modes of learning (e.g., cognitive, affective and evaluative) developed by Kellert (2002) is useful for addressing efficacy issues

regarding context and experiences. The theoretical and empirical work of Fazio, Zanna and others (e.g., Fazio & Zanna, 1978, 1981; Millar & Millar, 1996) also provides important insights into the influence of direct and indirect experiences on attitude development and behavior. For example, their findings suggest that indirect experiences lead to more cognitively based attitudes while direct experiences produce more affectively based attitudes (Millar & Millar, 1996).

Such a model also bears pertinence to an additional area of EE inquiry, the relationship between environmental knowledge, attitude, and behavior. While practitioners agree that the promotion of pro-environmental behavior is their primary aim (Mangas & Martinez, 1997), they disagree regarding the most effective methods to promote this outcome. Part of the issue revolves around whether EE programs should promote affective (i.e., attitudes and values) or cognitive (i.e., knowledge) learning. Supporters of the cognitive approach argue that most environmental educators overemphasize affective learning and call for a renewed effort to increase program participants' environmental knowledge (Ballantyne & Packer, 1996). Proponents of affective learning make the opposite claim, suggesting that cognitive learning has taken precedence over the development of pro-environmental attitudes in EE programs (Pomerantz, 1990-1991; Pooley & O'Connor, 2000).

To further complicate the issue, research findings regarding the causal influence of environmental attitudes and knowledge on behavior have been mixed and inconclusive (Bogner, 1998; Hanna, 1995; Orams, 1994, 1997). Part of the problem may be that many EE studies measure attitudes and knowledge but do not measure behavior

(Leeming, Dwyer, & Porter, 1993), thus hindering attempts to understand potential antecedents of actual performance. In order for EE programs to more effectively influence the development of pro-environmental behaviors among participants, a clearer understanding of the relationships between environmental knowledge, attitudes, and most importantly, behavior is needed.

Since the targeted outcome of most EE programs is improved pro-environmental behavior, this study also incorporates the theory of planned behavior (TPB; Ajzen, 1985, 1991) to clarify the processes linking knowledge and attitude to behavior. The TPB suggests that an individual's intention to engage in a particular behavior is the best predictor of actual behavior. Furthermore, behavioral intentions are influenced by an individual's knowledge about and attitudes towards the behavior in question. Societal norms as well as perceptions of behavioral constraints also impact these intentions.

Therefore, the purpose of this study was to investigate the relationship between experience type (i.e., indirect vs. direct) and learning outcomes (e.g., knowledge, attitude, and behavior). Data, both quantitative and qualitative, to investigate the influence of indirect and direct experiences on environmental knowledge, attitude and behavior were collected from middle and high school aged participants in a multi-stage (e.g., preparatory program and international workshop) environmental education, international immersion program. The work of Kellert (2002), Fazio and Zanna (1978, 1981) Millar (1996), and Ajzen (1985, 1991) provided a theoretical framework for the study.

Literature Review

Introduction

The following sections will highlight important literature related to the experience type and learning outcome relationship. While the potential breadth of such a review could be quite extensive, the current literature review is primarily delimited to EE research in order to reflect the study's context. The following sections deal first with the interrelationship between environmental knowledge, attitude and behavior and second with the impact of indirect and direct experiences, thus providing a holistic perspective of the processes associated with EE program under investigation.

Environmental Knowledge, Attitude and Behavior

Research findings have shown the supposed link from environmental knowledge and attitudes to pro-environmental behavior to be somewhat tenuous (Kaiser & Gutscher, 2003). Multiple reasons most likely account for this disconnect, but conducting theoretically sound research with accurate conceptualizations of key constructs may be part of the solution (Kaiser, Wolfing, & Fuhrer, 1999). Additionally, the application of an appropriate theoretical framework may also aid inquiry in this area. For example findings from EE studies employing the TPB model suggest that environmental knowledge and attitudes both hold predictive power in terms of pro-environmental behavior (Kaiser & Fuhrer, 2003; Kaiser, et al., 1999).

The theory of planned behavior (TPB) presents an empirically validated model of the predictors that lead to behavior (Ajzen, 1985; Ajzen & Madden, 1986). TPB suggests that a particular behavior is best predicted by an individual's intention to engage in that

behavior. Intention is in turn influenced by the individual's attitude towards the behavior, perceived control they have over actually engaging in the behavior (i.e., perceived behavioral control), and the social norms associated with the behavior (e.g., support or lack thereof from key individuals). Kaiser and Fuhrer (2003) also argue that different forms of environmental knowledge serve as distal influencers of behavior through such mediators as attitude. This framework presents an effective approach to understanding the processes whereby individuals contemplate and then actually implement certain behaviors. For the purpose of this study, TPB will be employed to investigate the relationship between knowledge and attitudes gained from participating in GEx and pro-environmental behavior.

EE Experience Types

In order to understand the impact EE programs have on pro-environmental behavior, a clear understanding of the program experience itself is essential. EE encompasses a wide spectrum of programs that employ a variety of curricula, philosophies, learning experiences and settings. For example, a review of 700 different EE curricula used in the United States reported varying levels of emphasis on knowledge attainment, attitude development, and behavior adoption (Pomerantz, 1990-1991). To date, empirically validated EE practices do not exist, and until more clearly defined approaches are developed and adopted researchers need to carefully consider the type of program under investigation, especially when attempting to generalize findings.

The variety of EE programs and practices does not hamper the generalizability of research findings from specific programs, especially if the influences of different types

of general program components (e.g., activities, settings, etc.) are considered. For example, the impact of program settings (i.e., indoor vs. outdoor) has already received some research attention. Results from a meta-analyses comparing the effectiveness of classroom versus non-traditional settings (e.g., nature camps and field studies) suggest that classroom based programs more effectively influenced behavior (Zelezny, 1999). The applicability of these findings is tenuous, however, as a result of lack of uniformity within and between the comparison groups. Both of the indoor and outdoor setting ranged widely in age, including elementary, middle school, and college students as well as older adults. Additionally, the non-traditional category consisted of programs with a variety of different settings as opposed to a specific shared setting.

Another study examined the impact of classroom instruction and direct experiences on a group of 9 to 13 year old students involved in a bat education program (Kals & Ittner, 2003). Students were divided into three groups: one that received classroom instruction; one that took part in classroom instructions and direct outdoor experiences; and a control group. Findings from the study indicated that while both treatment groups experienced positive environmental identity growth, no major differences existed between them. In another study, positive results regarding outdoor contexts were found in a comparison of students involved in a residential environmental education program that involved direct exposure to nature versus students enrolled in classroom based programs (Dettmann-Easler & Pease, 1999). Students in the residential program developed significantly more positive wildlife attitudes than the classroom students. While these research efforts represent preliminary attempts to understand the

impact of context on EE program outcomes, the shortage of applicable studies and contradictory existing findings make it difficult to answer questions regarding the influence of settings on outcomes.

Although the lack of empirical evidence limits understanding regarding the influence of settings on EE program outcomes, two theoretical perspectives exist that may assist research efforts in this area. The first addresses the developmental impact of direct, indirect, and vicarious nature experiences on children and young adolescents (Kellert, 2002). The second body of work suggests that direct and indirect experiences exert unique influences on affective and cognitive based attitudes (Fazio & Zanna, 1978, 1981; Millar & Millar, 1996). The synthesis of these frameworks provides a theory-based approach to understanding the influence of indoor and outdoor settings on EE program outcomes.

Kellert (2002) proposes a framework linking direct, indirect, and vicarious nature experiences to cognitive, affective, and evaluative modes of learning. Direct experiences involve contact with natural green spaces and wildlife free from human development. Indirect nature experiences usually occur at man-made nature sites (e.g., zoos, nature centers, etc.), while vicarious experiences involve classroom instruction, books and other media about nature. Kellert suggests that each of these experiences exert different influences on cognitive (i.e., intellectual), affective (i.e., emotional), and evaluative (i.e., moral) development. For the purpose of this study, the category of indirect experiences will encompass both indirect and vicarious experiences and affective and evaluative learning will be combined into attitudinal learning.

Although Kellert's model has not been directly tested, research findings support the developmental importance contact with nature holds for children and adolescents (Louv, 2008). Direct and indirect contact with nature has been linked to improved cognitive functioning (Wells, 2000), increased self-discipline (Taylor, Kuo, & Sullivan, 2002), and reductions in symptoms associated with ADHD (Kuo & Faber Taylor, 2004). While studies involving both direct and indirect nature experiences have produced positive results, questions still remain regarding how different types of contact with nature impact psychological functioning. For example, findings from a study examining the influence of different views of nature (e.g., window, plasma screen, and no window) from an office setting on participants' stress levels suggest that those individuals who could view nature through a window exhibited greater stress reduction than individuals who viewed the same nature scene through a plasma screen and the no window group (Kahn, et al., In Review). Results show that even slight differences in the type of nature exposure produces different outcomes and that direct nature contact appears most beneficial. This finding is troubling considering that children today appear to have increasingly less direct contact with nature (Louv, 2005).

Some insights regarding the different impacts of direct and indirect nature experiences can be extrapolated from research examining the influence of experiences on attitude development (Fazio & Zanna, 1978, 1981; Millar & Millar, 1996). Findings from a series of experiments on the impact of direct and indirect experiences on attitude-behavior consistency, led Fazio and Zanna to conclude that direct experiences produce attitudes that are more likely to lead to behavior than attitudes developed as a result of

indirect experiences. Research stemming from these findings suggests that direct experiences lead to affective based attitudes while indirect experiences lead to cognitive based attitudes (Millar & Millar). These findings also suggest that affective based attitudes more accurately predict intrinsically motivated behavior whereas cognitive based attitudes are more closely associated with extrinsically motivated behavior.

With regards to this study, these findings suggest that indirect EE experiences should lead to cognitively based attitudes that promote extrinsically motivated behavior, whereas direct EE experiences should produce affectively based attitudes that encourage intrinsic behaviors. Research focusing on the relationship between different experiences and learning outcomes will add to the existing literature as well as provide EE practitioners with important insights regarding how best to develop programs that promote pro-environmental behavior. In addition to understanding the influence of direct and indirect experiences, focus also needs to be given to the processes whereby knowledge and attitudes lead to actual behaviors.

Summary and Hypotheses

Questions exist regarding the influence of direct and indirect nature experiences on environmental knowledge acquisition and attitude development. Furthermore, research findings remain inconclusive regarding the ability of environmental knowledge and attitude to predict pro-environmental behavior. However, theoretical work regarding the influence of direct and indirect experiences on knowledge and attitudes (Fazio & Zanna, 1978, 1981; Kellert, 2002; Millar & Millar, 1996), and the antecedents of behavior (Ajzen, 1985; Kaiser, et al., 1999) provide a framework to investigate the

impact of EE on pro-environmental behavior (see Figure 2.3). Based upon this model, the following hypotheses were tested ($p < .05$):

1. Participants will experience significantly greater growth on the knowledge, attitude, and behavior measures than the comparison group from baseline to follow-up data collection periods.
2. The preparatory component (indirect nature experience) will produce greater knowledge growth than the field workshop (direct nature experience) for the participants.
3. The field workshop (direct nature experience) will produce greater attitude growth than the preparatory component (indirect nature experience) for the participants.
4. For both the preparatory and field workshop program components, attitudes will be significantly stronger predictors of behavior than knowledge, within a TPB context.

The following qualitative research questions complement the information gleaned from the quantitative investigation:

1. How do participants perceive the differing impacts of the indirect and direct program components on their overall experience?
2. Do participants perceive the program as having an impact on their environmental knowledge, attitudes, and pro-environmental behavior?

Methods

Mixed-Method Design

This study employed a quasi-experimental, concurrent nested mixed-method design (Hanson, Creswell, Clark, Petska, & Creswell, 2005) to address the hypotheses and research questions. The quasi-experimental design employs a non-equivalent comparison group (Babbie, 2005) design which helps promote some degree of external validity despite the lack of random assignment to participant and comparison groups. The mixed-method design involves the simultaneous collection and analysis of both quantitative and qualitative data. In the case of this study emphasis was given to the quantitative data and hypotheses and the qualitative data was used to gain additional insights. The following sections provide an overview of pertinent areas related to the study's methodology.

Program Description

This study represents a component of a larger evaluation of programs offered by Global Explorers (GEx). GEx is a non-profit organization that provides international immersion experiences for middle school and high school students and teachers. The programs focus on four core disciplines (science, culture, leadership and service) with the overall goal of helping students develop into responsible global citizens (Global Explorers, 2008). Each offering is comprised of three stages: a preparatory program, an international field workshop, and a post-trip service project. During the preparatory program youth participate in 9 to 12 sessions, ranging in length from approximately 1 to

3 hours, specific to each groups' travel destination. Many of the groups also participate in additional fundraising and other preparatory activities.

The international field workshop lasts between 7 and 14 days. Each group consists of students, teachers, and optional adult chaperones and travels independently from other GEx groups. All aspects of the international field workshop are arranged and supervised by GEx staff. In addition to local guides, GEx provides each group with a volunteer field scientist as well as a GEx staff member. During this portion of the program students and teachers take part in a variety of cultural, scientific, and service activities led by GEx staff and local, contracted guide services. Locations include Peru, Costa Rica, and Tanzania. Upon returning from the field workshop, participants design and implement a service project directed either towards the needs of their own community or the international community they visited.

Population

GEx promotes their programs to middle and high school teachers across the United States. Teachers interested in sponsoring a GEx trip must recruit students from their school to enroll in the program. Data for this study were collected from seven different groups of participants from schools who traveled with GEx during 2008. These students also participated in a pre-travel, preparatory program implemented by their sponsoring teacher and supported with GEx curricula. For this purpose of this study, each participating teacher was also asked by the researchers to recruit students to participate in the comparison group (Babbie, 2005). Consent forms were collected from

all teachers and parents who had children involved in the study. Assent was obtained from participating students.

All groups (N = 10) participating in a GEx program were invited to take part in the program evaluation. Three groups declined involvement due to perceived logistical difficulties and or lack of interest from teachers and participants. Of the 215 youth who participated in a GEx program during 2008, 108 from seven different groups agreed to take part in the evaluation. It was also planned to have each teacher recruit a group of students from their school to serve in a non-equivalent comparison group (Babbie, 2005) but only three of the seven teachers complied with this request. The participant group consisted of 51 females and 57 males while 49 students (females = 29; males 20) served as comparisons. At the beginning of the study, participating and comparison students had mean ages of 14.5 (SD = 1.65) and 13.6 (SD = .89) respectively. Eighty-two percent of the participants and 90% of the comparisons were White.

In an effort to address concerns associated with external validity, due to the lack of randomized assignment of students to participant and comparison groups, one-way ANOVA's and chi-square tests were conducted to investigate the possibility of group age, gender, and ethnicity differences as well as baseline equivalence on all outcome measures. The only significant differences between the groups was for age (F (1, 150) = 11.7; p = .001) and environmental knowledge (F (1, 150) = 12.41; p = .001) with the participants reporting higher means for both variables. The difference in environmental knowledge scores at baseline may suggest some degree of self-selection into the program.

Quantitative Methodology

Data collection. A number of different procedures were employed to collect questionnaire data from participant and comparison group members. At the completion of the preparatory program (T2), program participants completed a questionnaire (see Appendix A) containing both traditional and retrospective pre-test items. The traditional items addressed issues related to socialization processes within the preparatory program. The retrospective pre-test items assessed pre (T1) and post preparatory program (T2) levels of self-reported program outcome variables (i.e., environmental knowledge, attitude, and behavior). Students in the comparison group also completed the retrospective pre-test items during approximately the same time frame as their participating counterparts.

Retrospective pre-tests were employed in this study for two reasons: (1) logistical limitations did not allow for data collection before all groups began their participation and (2) to guard against self-report bias. Retrospective pre-tests occurred at the conclusion of the preparatory program and required respondents to indicate their current perception of the degree to which they possessed a specific trait, attitude, or attribute previous to their participation in the preparatory program (Sibthorp, Paisley, Gookin, & Ward, 2007). The retrospective wording for this study was "at the beginning of the school year, how would you have responded to this statement [referring to the statement associated with that particular item]?" Use of this approach guarded against response-shift bias which occurs between pre and posttests when individuals' internal scale of measurement changes as a result of an experience (Pratt, McGuigan, & Katzev, 2000;

Sibthorp, et al.). For example, a youth participant might rate themselves high on a pretest skills inventory as a result of inaccurate perceptions of the difficulty of tasks they will be required to complete. After completing the tasks, even though the individual gained a greater degree of competence from their experience, they might rate themselves lower on the posttest than the pretest due to a more accurate perception of task difficulty.

In order to provide information regarding the unique impact of this program component, at the conclusion of the international field workshop (T3), participants completed all items from the T2 questionnaire. A final round of data collection occurred during the fall of 2008 (T4) to follow-up with both groups. T4 data collection was planned to occur after all groups had completed their post-trip service projects. Time between post-travel and follow-up data collection periods ranged from 3 to 7 months. Due to logistical difficulties associated with collecting data from the comparison group during the summer, data were only gathered from the comparisons at T1, T2, and T4.

Table 2.1 contains a complete breakdown of the responses collected at each of four data collection periods. While the number of questionnaires collected across the first three data collection occasions remained static, some attrition occurred at T4 despite extensive efforts to maintain a high response rates. At T4, respondents were invited through email to complete an online survey. Reminder emails were sent to non-respondents approximately every 10 days. After three reminder emails had been sent, hard copies of the questionnaire with pre-paid return envelopes were mailed to non-respondents. Additionally, the PI visited the case study group during this period and hand delivered questionnaires to a number of participant and comparison group students.

Despite these efforts, the participant and comparison groups experienced a 31% and 39% decline in response rate respectively (see Table 2.1).

Table 2.1

Participant and Comparison Group Data Collection Overview

Group	T1	T2	T3	T4
Participants	106	106	108	75
Comparisons	49	49	---	30

An attrition analysis was conducted in order to identify potential differences between those individuals with and without complete data. One-way ANOVA's were utilized to test for differences between these groups on applicable study variables and demographics. These analyses revealed no significant differences between those with and without complete data within both the participant and comparison groups. The assumption that the data are missing at random was supported by these findings. This finding, along with the low rate of missing data (< 5%) from individuals who completed at least a portion of the survey at each time wave, provided justification for imputing some of the missing data. Imputation was conducted using the LISREL 8.8 multiple imputation procedure to address missing values at each time wave for individuals who completed at least some portion of the questionnaire. Data were not imputed if no response was collected from an individual for a particular wave of data collection.

Quantitative measures. A dearth of psychometrically sound measurement tools is one of the main weaknesses of the early environmental education research (Leeming & Dwyer, 1995; Leeming, et al., 1993). However, more recently a number of instruments have been developed to measure ecological knowledge, attitude, and behavior

specifically among children and adolescents (Bogner & Wiseman, 2006; Evans, et al., 2007; Kaiser, Oerke, & Bogner, 2007; Leeming & Dwyer, 1995; Musser & Malkus, 1994; Villacorta, Koestner, & Lekes, 2003). Due to the inclusion of an ecological attitude scale with behavioral and affective components, strong psychometric properties, and age appropriateness, three subscales from the Children's Environmental Attitude and Knowledge Scale (CHEAKS, Leeming & Dwyer, 1995) were chosen for this study.

The CHEAKS subscales, each containing 12 items, measure self-reported levels of environmental affect, verbal commitment, and actual commitment. For the purposes of this study's operationalization of TPB constructs, the affect items were used to measure attitude (EA), the verbal commitment items measured behavior intentions (EBI), and the actual commitment items measured behavior (EB). The attitude subscale contains such statements as "I get angry about the damage pollution does to the environment" and "I am frightened to think people don't care about the environment". Statements like "I would not be willing to save energy by using less air conditioning" and "To save water, I would be willing to turn off the water while I was my hands" are examples from the behavioral intention subscale. Items from the environmental behavior subscale included statements such as "I have asked my family to recycle some of the things that we use" and "I do not let a water faucet run when it is not necessary."

Previous work employing the attitude subscale suggests acceptable levels of reliability (Leeming & Dwyer, 1995). Cronbach's alpha for data collected from a sample of 4^{th} to 7^{th} grade students was .89. Two administrations, over an eight month period, of the attitude subscale produced a correlation coefficient of .70, suggesting acceptable

levels of test-retest reliability. Weak correlations between the attitude and knowledge subscales across both administrations (r = .125 to r = .127) lend support to the convergent and discriminate validity of these subscales. The authors also established contrasted-group validity for the scale by having teachers identify high and low environmentally conscious students and comparisons of these groups' scores revealed significant and expected differences. More recent research involving Irish adolescents (N = 388) supports Leeming and Dwyer's findings regarding the reliability and validity of the CHEAKS (Walsh-Daneshmandi & MacLachlan, 2006).

Perceived behavioral control (PBC) and social norm (SN) items were adapted from scales employed in a previous TPB study (Courneya, Bobick, & Schinke, 1999). Three items measured PBC (e.g., "For me to practice pro-environmental behavior is easy") and two items measured SN (e.g., "My parents are supportive of me practicing pro-environmental behavior"). These scales have produced adequate levels of reliability in previous research (.81 for PBC and .82 for SN; Courneya, et al.). A 5 item scale (e.g., "I can explain what the term ecology means") to measure environmental knowledge (EK) was developed by the authors through a review GEx curriculum and was evaluated for content validity by GEx administrators. All items employed in this study were assessed using a 5-point Likert response format (1 = very untrue to 5 = very true). All subscales produced adequate levels of internal consistency (see Table 2.2).

Table 2.2

Reliability Coefficients for All Study I Measures

Scale	Alpha Coefficients (T1)	(T2)	(T3)
Environmental Knowledge	0.78	0.83	0.77
Environmental Attitude	0.85	0.85	0.84
Pro- Environmental Behavioral Intentions	0.76	0.76	0.77
Pro-Environmental Behavior	0.75	0.71	0.65
Perceived Behavioral Control	0.72	0.75	0.83
Social Norms	0.78	0.79	0.7

Analysis Procedures. In order to test H1, repeated measures ANOVA's were conducted to compare intervention and comparison group scores on the EK, EA, and EB measures across T1, T2, and T4. Repeated measures ANOVAs were also used to compare participant EK and EA development between the preparatory and international field workshop portions of the program (H2 and H3). Finally, a combination of zero-order correlation comparisons and hierarchical regressions assess and compare the strength of regression coefficients of EK and EA on EB (H4).

Qualitative Methodology

Data collection. Working with GEx administrators, one of the participating groups was invited to serve as a case study for the qualitative portion of the evaluation. This group was selected for a variety of reasons including the number of student participants (N = 46), teacher supportiveness, and the fact they were traveling to Peru, which allowed GEx administrators to obtain interview and observation data pertaining to their most popular travel destination. Qualitative data collection involved focus groups

and dyadic interviews with members of this group (Table 2.3) as well as responses to a variety of open ended items on the T2, T3, and T4 questionnaires.

Table 2.3

Number of Case Study Interviews/Focus Groups

	Preparatory Program	International Workshop	Follow-up	Total
Participants	10	23	11	44
Parents	2	5	1	8
Group Sponsors	3	1	1	5
GEx Staff	---	2	---	2

These open ended items were gathered from all evaluation participants, not just the case study group. Focus groups and dyadic interviews were conducted with youth participants and their parents during three site visits conducted by the principle investigator (PI). The first two site visits occurred during the preparatory portion of the program (one during the middle and one towards the end), and a post-travel visit took place during the fall. Each site visit lasted approximately three days and allowed for multiple student focus groups (i.e., four to six participants) and one large parent focus group (i.e., eight to twelve parents). Additional parent focus groups were not possible due to logistical constraints. These focus groups allowed participants to share thoughts about their experiences in the program and to respond to a variety of questions designed to facilitate discussion regarding the study's research questions (Appendix B). The PI also observed various activities associated with the program (e.g., after school meetings).

The PI also traveled with and observed the case study group during their international field workshop in Peru. During this two week experience the PI conducted

program observations and interviews. The first week was spent at several guest lodges in the Peruvian Amazon basin and the second week took place in central Peru hiking the Inca Trail to Machu Picchu. The entire group participated in the Amazon portion of the trip with approximately half of the group staying for the Inca Trail portion. Interviews and focus groups were conducted with all participants, including teachers and GEx staff members, regarding a variety of issues including, but not limited to, those directly pertaining to this study. The PI also conducted participant observations each day of the workshop and took field notes regarding all aspects of the program. These notes were transcribed and incorporated into the analysis. The third site visit occurred during the fall of 2008. This visit allowed the PI to interview the same groups of individuals regarding their overall assessment of the program as well as their perceptions of the long term impact of their experiences.

Analysis procedures. All interviews were recorded and transcribed. During the transcription process actual names were replaced with pseudonyms. Field notes taken by the PI were also be transcribed. The analysis process was guided by grounded theory methodology as outlined by Strauss and Corbin (1998a) and the study's research questions. The nature of qualitative inquiry also enabled the researchers to remain open to potential insights that might emerge outside of the scope of the study's original focus. Through these processes, the researchers allowed the data to speak for itself as opposed to forcing findings to conform to a predetermined theoretical framework (Strauss & Corbin, 1998a).

The analysis process began with careful readings of pertinent portions of the transcripts in order to identify repeated words, phrases and themes. This open coding process enabled the development of themes that were grounded in the data themselves (Strauss & Corbin, 1998b). The number of categories was determined by the nature of the data and was not constrained. That being said, commonalities between categories allowed for the development of more abstract categories under which related sub-categories were grouped; this process is referred to as axial coding (Strauss and Corbin). This process also involved identifying relationships between categories. Axial coding occurred concurrently with open coding. Once fairly developed categories emerged, the researchers moved to selective coding, whereby a core category was identified and the focus of the analysis shifted to connecting other categories to this core category in order to begin the development of a grounded theory (Strauss and Corbin). Additionally, categories that appeared to be unrelated to the core categories were trimmed from the analysis. Data collection and analysis continued until the data under analysis promoted no additional category development; this is referred to as theoretical saturation (Strauss and Corbin).

Memo writing, an essential aspect of qualitative research, occurred throughout the data collection and analysis processes. Memoing is essentially note taking that occurs during the coding process. Strauss and Corbin (1998a) identify three types of memos: (1) code notes, (2) theory notes and (3) operational notes. Code notes refer to memos regarding any aspects of the coding process. For example, memos about why certain quotes were assigned to a particular code or the reason behind a given code name.

Theory notes deal with issues regarding conceptual relationships, whereas operational notes deal with logistical aspects of the study. The final step of the analysis process involved the integration of themes and relationships between these themes into a coherent response to the study's research questions. Throughout the analysis process, codes, analyses and the emerging theory were reviewed by co-PI's as well as the participants themselves to insure that all analyses remained true to the raw data and lived experience of the respondents (Strauss & Corbin, 1998a). Creswell (2007) suggests researchers employ at least two validation strategies to ensure the quality of their work; this study employed four: extensive time spent in the field with the subjects; the use of multiple forms of data (e.g., interviews with parents; teachers; GEx staff and youth; field notes; and open ended survey questions), member checking; and peer review.

Researcher's relationship to the data. As noted, the PI spent a significant amount of time with members of the case study group, during which time efforts were made to be a passive observer of the program as opposed to an active participant. The focus was on building rapport with all participants in order to develop relationships that would foster the open sharing of information. The PI has previous experience as a director of programs for youth and taking on the role of observer represented a new experience, one that required a conscious effort not to take a more participatory place in the program. This being said, it must be acknowledged that the PI's presence in the field invariably impacted the youths' experience. For example, without the interviews and focus groups many of the youth would not have had a comparable opportunity to discuss and debrief their experiences.

Integration of Qualitative and Quantitative Analyses

Mixed-methods designs involve both the collection of different types of data as well as an integrated analysis of this information. Unfortunately, the analysis portion of this process is often neglected in most mixed-method research (Caracelli & Greene, 1993). Therefore, the analysis of qualitative and quantitative data in this study occurred jointly and informed each other. However, emphasis in this study was given to the quantitative findings with the qualitative data used in a supporting role.

Findings

Quantitative Findings

Descriptive findings and gender differences. As previously mentioned, no significant differences, aside from the participant group having a higher mean age than the comparisons, were found on any demographic or baseline variables between the two groups. A full presentation of the descriptive statistics of all relevant variables is provided in Table 2.4. Gender differences on the study variables within the comparison and participant groups were analyzed using one-way ANOVA's. Participating boys reported higher levels of EK at T1 ($F(1, 101) = 10.49$, $p = .002$), PC at T1 ($F(1, 101) = 5.15$, $p = .03$), and EK at T4 ($F(1, 74) = 6.69$, $p = .01$). Participating girls reported higher levels of EBI at T2 ($F(1, 101) = 6.45$, $p = .01$), SN at T2 ($F(1, 101) = 4.27$, $p = .04$), EBI at T3 ($F(1, 101) = 7.47$, $p = .01$), EB at T3 ($F(1, 105) = 4.01$, $p = .048$), and EBI at T4 ($F(1, 74) = 4.42$, $p = .04$). Females in the comparison group reported higher levels at T1 of EA ($F(1, 47) = 7.13$, $p = .01$), EBI ($F(1, 47) = 6.48$, $p = .01$) and SN ($F(1, 47) = 6.63$,

p = .01) and at T2 of EA (F(1, 47) = 9.97, p = .003), EBI (F(1, 47) = 7.54, p = .01) and SN (F(1, 47) = 10.16, p = .003).

Table 2.4

Participant and Comparison Study I Descriptive Statistics

		T1		T2		T3		T4	
Measure	Group	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Environmental Knowledge	Comparison	1.73	0.70	2.53	0.96	---	---	2.84	1.01
	Participant	2.25	0.92	3.90	0.81	4.19	0.77	4.42	0.68
Environmental Attitudes	Comparison	3.19	0.79	3.57	0.81	---	---	3.68	0.78
	Participant	3.21	0.80	3.77	0.69	3.97	0.64	3.94	0.65
Pro-Environmental Behavioral Intentions	Comparison	3.10	0.71	3.49	0.76	---	---	3.66	0.59
	Participant	3.11	0.67	3.68	0.60	3.82	0.64	3.89	0.60
Pro-Environmental Behavior	Comparison	2.80	0.67	3.07	0.77	---	---	3.26	0.74
	Participant	2.90	0.80	3.31	0.68	3.49	0.64	3.64	0.65
Perceived Behavioral Control	Comparison	2.90	1.06	3.31	1.13	---	---	3.32	1.09
	Participant	3.09	1.02	3.77	0.84	4.04	0.88	3.97	0.82
Social Norms	Comparison	3.53	1.39	3.68	1.36	---	---	3.63	1.14
	Participant	3.48	1.25	3.79	1.11	4.04	0.97	4.12	1.03

Hypothesis 1. Results from repeated measures ANOVA's comparing participant and comparison EK, EA, and EB scores across T1, T2, and T4 (T3 was not used in the analysis due to the lack of comparison data from this collection period) partially supported the hypothesis that the participant group would experience significant growth in these areas in relation to the comparison group. The main effects for these analyses are time of testing (i.e., T1, T2, and T3) and group (i.e., participant or comparison).

For EK there was a significant main effect of time of testing (F(2, 208) = 150.38, p < .001, partial eta squared = .59) as well as a significant interaction effect (see Figure

2.1) for time of testing x group (i.e., participant or comparison; $F(2, 208) = 16.38$, $p < .001$, partial eta squared = .14). There was also a significant effect of group indicating that participants reported higher EK scores across all time periods than the comparisons ($F(1, 104) = 85.81$, $p < .001$, partial eta squared = .45).

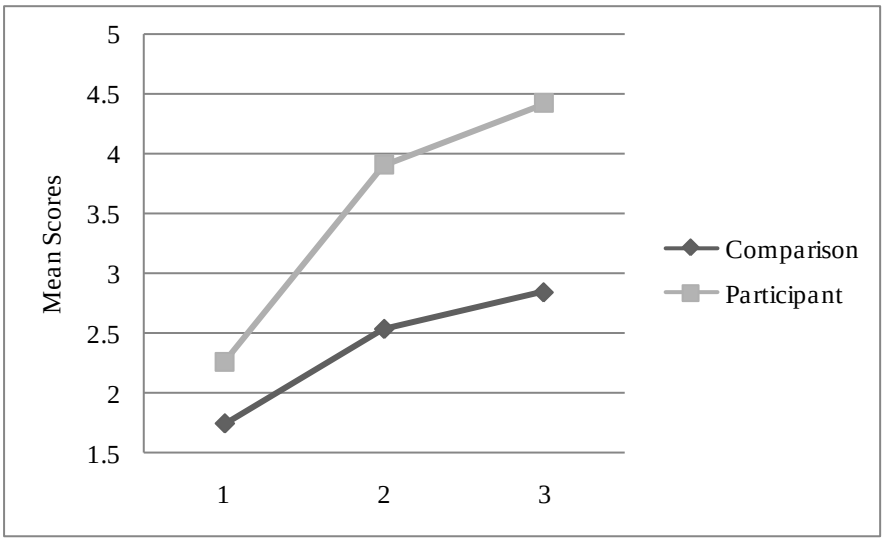

Figure 2.1. Environmental knowledge time x group interaction

For EA there was a significant main effect of time of testing ($F(2, 208) = 42.73$, $p < .001$, partial eta squared = .29) and a significant interaction (see Figure 2.2) effect for time of testing x group ($F(2, 208) = 2.75$, $p = .04$, partial eta squared = .03). There was no significant effect of group ($F(1, 104) = .94$, $p = .17$, partial eta squared = .01).

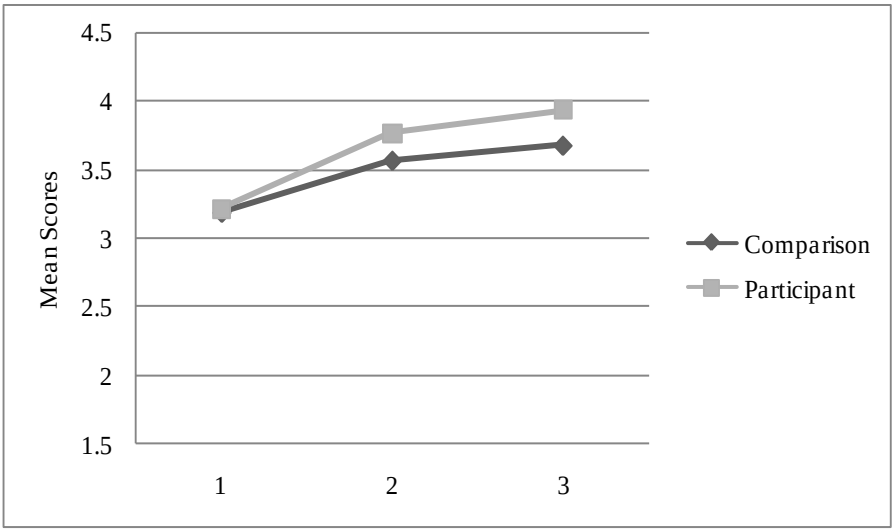

Figure 2.2. Environmental attitudes time x group interaction

For EB Mauchly's test indicated that the sphericity assumption had been violated for the main effect of time ($\chi^2(2) = 24.22$, $p < .001$). Accordingly, Huynh-Feldt estimates of sphericity were used to correct the degrees of freedom ($\varepsilon = .85$). Results revealed a significant main effect for time of testing ($F(1.69, 176.07) = 42.976$, $p < .001$, partial eta squared = .29) and a significant interaction effect (see Figure 2.3) for time between time of testing x group ($F(1.69, 176.07) = 2.68$, $p < .04$, partial eta squared = .03). There was also a significant effect of group ($F(1, 104) = 2.99$, $p = .05$, partial eta squared = .03). In summary, it appears that the program had a significant impact on participant reported levels of EK, EA and EB.

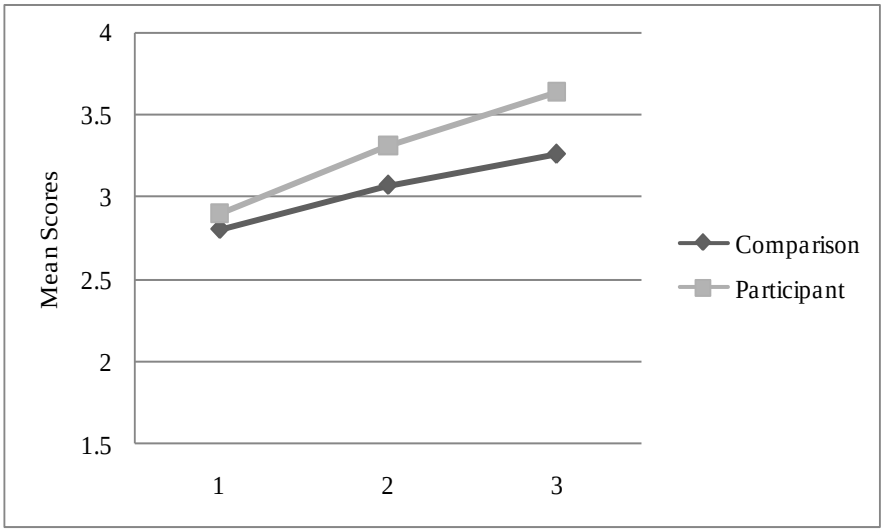

Figure 2.3. Environmental behavior time x group interaction

Hypotheses 2 and 3. To test the differences between EK and EA growth patterns across the preparatory and international workshop portions of the program a repeated measures ANOVA with two within-subject factors (i.e., Time = T1, T2, and T3; Benefit = EK and EA) was run on the participant data. There was a significant main effect for time ($F(2, 202) = 291.93$, $p < .001$, partial eta squared = .74) as well as a significant linear trend ($F(1, 101) = 424.67$, $p < .001$, partial eta squared = .81). There was also a significant main effect for benefit ($F(1, 101) = 10.97$, $p = .001$, partial eta squared = .10) with higher overall EA ($M = 3.67$) than EK ($M = 3.45$) scores which is primarily due to low EK scores at T1. The interaction effect between time and benefit was also significant ($F(2, 202) = 119.19$, $p < .001$, partial eta squared = .54) which indicates that the development of EK and EA differed across time periods (see Figure 2.4).

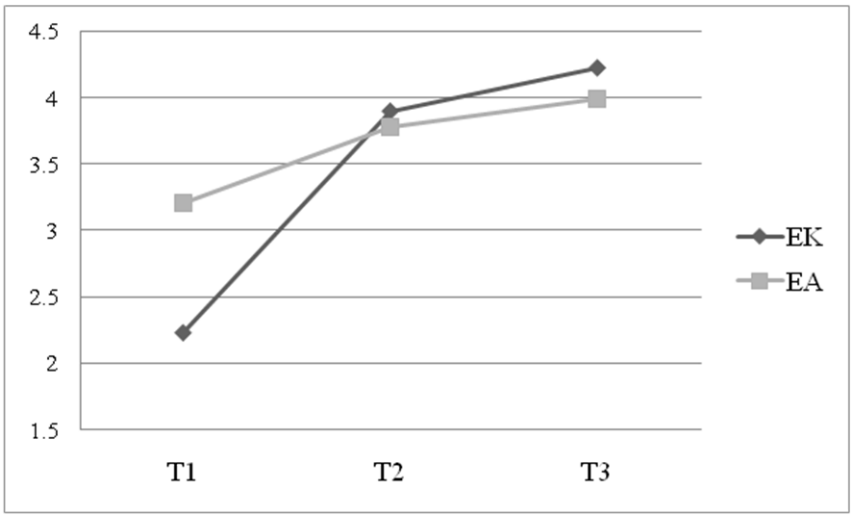

Figure 2.4. Time x benefit interaction

In order to address whether or not the preparatory and international workshop portions of the program produced different degrees of EK and EA growth Cohen's D effect sizes (Cohen, 1988) were calculated for each outcome variable during each program component (see Table 2.5). Results indicated that greater EK than EA gains were experienced in both the preparatory and international workshop program components, though the difference was greatest in terms of growth during the preparatory program. Thus H2 but not H3 was supported by the findings from these analyses.

Table 2.5

Environmental Knowledge and Environmental Attitude Cohen's D Effect Sizes by Program Component

Outcome	Preparatory	International Workshop
Environmental Knowledge	1.97	.43
Environmental Attitudes	.76	.32

Hypothesis 4. The results from two separate analyses indicate partial support for the hypothesis that EA would be more strongly related to EB than EK within each program component. The first, involved reviewing and comparing the zero-order correlations between variables of interest (see Tables 2.6 and 2.7) from the preparatory program (T2) and the international workshop (T3). All correlations were significant at the .01 level. To assess the hypotheses that $r_{EK, EB} < r_{EA, EB}$ at T2 and $r_{EK, EB} < r_{EA, EB}$ at T3, a test for differences between dependent correlations was conducted using procedures outlined by Dawson and Trapp (2004). Results from these tests indicate that EA had a significantly stronger correlation ($t = 2.01$, $p = .02$) with EB than did EK at T2, whereas no significant difference ($t = .10$, $p = .46$) existed between $r_{EK, EB}$ and $r_{EA, EB}$ at T3.

Table 2.6

Zero-Order Correlations between Preparatory Outcomes (n = 103)

	1	2	3
1. Environmental Knowledge	---	0.51	0.29
2. Environmental Attitudes		---	0.47
3. Pro-Environmental Behavior			---

Table 2.7

Zero-Order Correlations between International Workshop Outcomes (n = 102)

	1	2	3
1. Environmental Knowledge	---	0.34	0.52
2. Environmental Attitudes		---	0.52
3. Pro-Environmental Behavior			---

As noted in the literature review, the authors were also interested in examining the relation between EK, EA, and EB from a theory of planned behavior perspective. Accordingly, and following an analysis strategy drawn from the TPB literature (Courneya, et al., 1999), separate hierarchical regression analyses (HRA) were run for both T2 and T3. The sequence and content of each regression block was based upon the TPB framework. For both time periods EB was regressed upon pro-environmental behavior intentions (EBI; Block 1), perceived behavior control (PBC) and social norms (SN; Block 2), and EA and EK (Block 3).

Results from the T2 HRA (see Table 2.8) indicated that Block 1 (EBI) accounted for 18% of the variance in EB, Block 2's (PC and SN) contribution was non-significant, and that Block 3 (EK and EA) explained an additional 7% of the variance. In the final equation only two of the five predictors, SN ($\beta = .24$, $p = .02$) and EA ($\beta = .32$, $p = .01$), proved significant. Results from the T3 HRA (see Table 2.9) indicated that Block 1 (EBI) accounted for 23% of the variance in EB, Block 2 (PC and SN) contributed 7% more explained variance, and that Block 3 (EK and EA) explained an additional 16% of the variance. All blocks were significant at the .05 level. In the final equation three of the five predictors, SN ($\beta = .19$, $p = .04$), EA ($\beta = .25$, $p = .01$), and EK ($\beta = .34$, $p < .001$), proved significant. These findings suggest that while EA was a stronger predictor of EB than EK in terms of the growth participants reported during the preparatory portion of the program, both EA and EK had equally strong and significant relations with EB as a result of the international workshop.

Table 2.8

Hierarchical Regression Results for the Prediction of Environmental Behavior at T2 (n =107)

Step/Predictor	R^2	ΔR^2	ΔF	*B*	*SE*	β
1. Pro-Environmental Behavioral Intentions	.18	.18	22.58**	.12	.14	.11
2. Perceived Behavioral Control	.22	.04	2.24	-.02	.08	-.03
Social Norms				.15	.06	.24*
3. Environmental Attitudes	.29	.07	4.95**	.32	.12	.32**
Environmental Knowledge				.06	.09	.07

Note. Significant values and unstandardized and standardized regression coefficients reflect the results of the final regression equation. *$p < .05$. **$p < .01$

Table 2.9

Hierarchical Regression Results for the Prediction of Environmental Behavior at T3 (n =102)

Step/Predictor	R^2	ΔR^2	ΔF	*B*	*SE*	β
1. Pro-Environmental Behavioral Intentions	.23	.23	31.80**	.14	.09	.14
2. Perceived Behavioral Control	.30	.07	5.09**	.01	.07	.02
Social Norms				.12	.06	.19*
3. Environmental Attitudes	.46	.16	14.77**	.26	.09	.25**
Environmental Knowledge				.28	.07	.34**

Note. Significant values and unstandardized and standardized regression coefficients reflect the results of the final regression equation. *$p < .05$. **$p < .01$

Qualitative Findings

The qualitative research questions focused on understanding the role of perceived indirect and direct experiences during participants' GEx experience and how they influenced environmental knowledge, attitude, and behavior outcomes. As the analysis of qualitative material proceeded it became clear that participants made clear distinctions between the indirect and direct portions of the program and associated different outcomes to each experience type. These "direct vs. indirect" quotes became the focal point for the study's qualitative analysis.

Analysis of the qualitative data suggests that a link existed between the direct experiences associated with the international workshop and environmental attitudes and behavior. Additionally, it appears that participants perceived the Inca Trail to be a more direct experience than the Amazon. This finding suggests that a continuum may exist in terms of the magnitude of the direct experience. Further analysis of participants' comparisons of the Amazon and Inca Trail experiences provided insights, that will be discussed towards the end of the qualitative findings, into potential factors that promote and hinder the directness of such an experience. The remainder of this section provides an overview of codes associated with the main category of "direct vs. indirect experiences."

Direct vs. indirect experiences. From the beginning of the program participants drew a conscious division between the indirect experience they were having in the preparatory program and the direct experience they were anticipating having during the international workshop:

> I've always liked hands-on things, like in science we do labs and stuff like that. And it'll be just like one big lab in science. When you go out, instead of watching it on a movie or seeing it in a text book your there and you're learning about it.

Some youth anticipated that the direct nature of the international workshop would also have a greater affective impact than the indirect preparatory experience:

> I feel like you really care about it [the rain forest] more, because if you are just reading about it in class you are just like, this is just another thing you learned about but if you are like there, you are in it and it really makes you see.

The international workshop appears to have validated participants' assumption that this portion of the program would be a significant direct experience. Participants reported a number of reasons why the travel portion of the program was such a powerful experience. For some it was the full sensory experience, as described by the following participant: "seeing it firsthand really you know just like hits you. Like all your senses, you smell different things; you see frogs and different insects and birds constantly." The fact that a direct experience was far superior to watching something on TV was a common sentiment: "this feels more real. Because when you look at something on TV, it is many-many miles away, but when you are there, you can actually breathe the atmosphere and live the picture."

Influence of experience type on learning outcomes. While participants and parents commented on the knowledge gained by participants, it appears that most of these comments dealt with the preparatory program rather than the international workshop. When asked what was gained from the preparatory program most youth shared what had been learned rather than how attitudes or behavior had been impacted:

- I learned that uh, in rain forests, there aren't as many, it's not as nutritional as I used to think it was.
- I learned that there's a little parasite that will get inside your bloodstream and mate inside your organs and then make you poop out eggs.

In contrast, once the international workshop began the majority of the comments dealing with program impacts focused on the development of environmental attitudes and behavior due to the direct nature of the experience. For some students just knowing about the rain forest was not enough to actually impact their attitude and behavior, for that a more direct experience was needed. The following comment was shared by a student during the Amazon portion of the international workshop:

> I knew about it, I was not really interested in it. I was not really you know save the environment and stuff like. I knew like what would happen but now I am just like you know I don't want all this to go away, this is beautiful.

The direct experience appears to have acted as a catalyst, converting preexisting knowledge into action. This process is apparent from the following participant who e a heightened interest in biology as a result of the international workshop:

> I did not like, I did not have much interest, I liked animals and stuff like plants and animals but I did not have much interest in biology and coming here how diverse it is and how unbelievably you know cool these plants are and new and different, I have got like this brand new I would love them so much and just stay here and learn about the bugs and the dirt.

The open ended responses on the post-travel questionnaires also support the attitudinal and behavioral impacts of the international workshop:

- I can do a lot to help the environment even more than I thought.

- I learned how important the environment is and how there is so much work to be done. It is definitely very important to get people involved and keep all these amazing things around.

In summary, the qualitative data suggest that the preparatory program was seen as more indirect experience that helped students learn about culture, science, etc., whereas the international workshop was a direct experience that impacted participants environmental attitudes and behavior.

Amazon vs. Inca Trail. Approximately half of the participants from the Amazon experience also spent an additional week in Southern Peru hiking the Inca Trail to Machu Picchu. The opportunity to participate in two very different direct experiences provided participants the opportunity to compare and contrast these program offerings. While participants spoke very highly of both experiences, the general consensus emerged that the Inca Trail was the more enjoyable and direct experience of the two. While a number of reasons were given for the Inca Trail preference such as opportunities for physical challenge and a more enjoyable climate, the most commonly mentioned factor related to both satisfaction and perceptions of directness was perceived freedom. Some of the participants felt that they were afforded more independence and freedom while on the trail as opposed to the Amazon. These feelings impacted not only participants satisfaction related to these program components but also the degree to which they saw each experience as direct.

Some students felt that even though they had spent a week in the heart of the Amazon rain forest that the experience had been somewhat constrained. In reflecting

upon his time in the rain forest one participant shared the following insight, “I thought we would go into the jungle more in the rainforest, it was really contained and stuff.” Others expressed disappointment at not seeing as wide of variety of animals as they had hoped to see in the rain forest:

> YOUTH: The main forest is definitely not how I pictured it.
>
> PI: How is it different?
>
> YOUTH: I really thought that they would be an animal like every ten feet, like some giant mammals.

After a series of focus groups where comparisons between the Amazon and Inca Trial were main topics of discussion the PI made the following field notes:

> In the Amazon most of the interaction with nature was indirect (e.g., don’t touch the plants, wear full jungle attire, stay on the path, etc.). Although we were in the middle of the Amazon most of the programming precluded us from directly interacting with the nature around us. One of the boys mentioned he wished they had been allowed more time to actually be in the rain forest, and I agree. We went on some 30 minute hikes but what type of impact would [a] 3 hour hike have had on the group? I realize that there are safety concerns but it seems more direct contact would be good.

This insight highlights the importance of activity planning because the place itself had the potential to be a direct experience, but due in part to programming design it was not necessarily seen that way by some of the participants.

When asked to explain the reason why they saw the Inca Trail as a more direct experience than the Amazon many of the participants focused on the different degrees of perceived freedom between the two experiences. The youth felt they were afforded more freedom along the Inca Trail as they were in the Amazon. For example one youth made the following comparison:

> Yeah like in the rainforest it really kind of, like you can tell that from the school, you don't go off the trail at all but then for some reason the Inca trail kind of gives you the sense of like independence even though you are still in the trail but you are kind of hiking up the mountain it is pretty cool.

Some felt that they Amazon experience was too structured and that this hampered their ability to have a direct experience while in the rain forest. The following conversation exemplifies this perspective:

> PI: Ok let me make sure I am understanding this right. So like the rainforest was cool but it felt pretty structured like stay on the path and don't touch things like that.
>
> YOUTH: I just think there was a lot more than we could have seen
>
> YOUTH: If we have had a little more freedom.
>
> PI: Whereas this you feel like you have a little bit more freedom to explore and to
>
> YOUTH: Yeah you don't have color groups; you can just walk with whoever and in your own pace.
>
> YOUTH: You can go ahead of some people.

YOUTH: And you can just top and like look whatever you want.

PI: Ok without like somebody saying ok now we have to go do this or that.

YOUTH: Yeah the rainforest was really like thing after another.

YOUTH: Here is it just like hike.

YOUTH: Like I know today just like getting down Tad and I were like with a couple of people and my mom again and we took like 3 hours to get down a trail that was supposed to be an hour and half. But it was nice, it was really nice because we got to see everything and take it in and look closely at details, like we were, we finished like an hour and half behind everyone but at the rainforest if we did that we would be dead.

Another participant provided the following explanation of why he preferred the Inca Trail over than the Amazon even though both experiences were enjoyable:

Just because I felt more independent because we are on our own a little more, and just like it was a challenge. Whereas in the rainforest we are like, there were like strict things you had to do at certain times, but I don't know, I enjoyed both of them a lot.

Proposed direct experience continuum. While both the Amazon and Inca Trail experiences were viewed as direct experiences that positively impacted many participants' environmental attitudes and behaviors, the Inca Trail was preferred by many of the youth because it afforded a greater sense of perceived freedom. For example, even though a week spent in the Amazon may on the surface seem like a very direct nature experience, some participants did not feel they were given the opportunity

to freely interact with the rain forest and thus classified this portion of the program as less direct than the Inca Trail. Thus, perceived freedom appears to moderate individuals' perception of the directness of an experience.

Discussion

Both the quantitative and qualitative data provide increased understanding of the relation between learning experiences and outcomes. Findings also build upon and offer insights regarding previous empirical (Fazio & Zanna, 1978, 1981) and theoretical (Kellert, 2002) work in this area. The following sections include sequential quantitative and qualitative discussions followed by a synthesis of the study's findings.

Quantitative Discussion

Findings from this study provide partial support for the study's hypotheses. In terms of outcome differences between the participant and comparison group, the program had a significant impact on EK, EA, and EB. In terms of the type of growth participants experienced across the programs' two components, results indicate that greater environmental knowledge (d = 1.97) than attitude (d = .76) growth occurred during the preparatory program and that growth attributed to the international workshop for both outcomes was fairly similar (d = .43 for EK and d = .32 for EA). The drop off in growth during the international workshop may be due to a ceiling effect. In other words, the potential for increased growth during the international workshop was limited by growth which already occurred. The use of retrospective pre-tests and the varying time spans between questionnaire administrations may also have influenced the observed growth patterns. Finally, correlation coefficient comparisons and HRA's suggest that EA

had a stronger effect on EB during the preparatory program whereas both EK and EA had equally strong relations to EB during the international workshop.

Trying to understand the reasons why individuals behave in certain ways is a complex task that requires exploring and attempting to understand multiple levels of intricate relations. For example, the connections between knowledge, attitudes and behavior must be teased apart. Additionally, it is important, especially for practitioners, to understand the ways in which various contexts and experiences impact these outcomes in order to more effectively develop programs. While theoretical work has already occurred on both of these levels (see Ajzen, 1985; Fazio & Zanna, 1978, 1981), additional questions remain regarding the impact that different contexts and experiences have on the developmental antecedents of behavior. This study's findings provide some insight into this issue and highlights additional questions that deserve further attention.

It is interesting to note the different dynamics in terms of EK, EA and EB in the preparatory and international workshop portions of the program. While growth and relational strength between these variables operated as hypothesized during the preparatory or indirect program component (greater EK growth than EA and EA more strongly related to EB), results indicated a different dynamic occurred during the direct experience portion of the program (i.e., international workshop). As a result of this program component, individuals experienced fairly similar levels of growth on both EK and EA and both of these variables also had comparable connections to EB. This finding runs contrary to Fazio and Zanna's (1978, 1981) claims that direct experiences lead to stronger attitudinal than cognitive development.

The consecutive nature of the program's components deserves consideration when attempting to explain the study's results. Youth first participated in the preparatory program (i.e., indirect experience) which prepared them for the subsequent international workshop (i.e., direct experience). Participants gained EK during the preparatory portion of the program but had few opportunities (based upon case study program observations) to actually apply their newfound knowledge in this portion of the program due to the indirect nature of the experience. Therefore, the international workshop provided students their first real opportunity to directly apply the knowledge accumulated in preparation for travel. For example, students had to draw upon their understanding of rain forest ecology, acquired during the preparatory program, to fully engage in the activities that took place in the Amazonian Rain Forest. In other words, the sequencing of the program, an indirect followed by a direct experience, may have created a context that highlighted the importance of EK across all program components.

This is not to say that the international workshop did not impact EA but that its structure provided a more direct way to apply EK than EA. It may also be that EA came to play a more important role in participants' lives and had a greater impact on EB once they exited the program and faced opportunities and decisions in which their attitudes towards the environment and pro-environmental behavior could play a greater role. This assumption appears to be born out in a post-hoc HRA utilizing participants' follow-up data. Results from this analysis, which was conducted with the same design as those conducted at T2 and T3, indicate that EA is a significant predictor ($\beta = .30$, $p = .02$) of

EB at T4 while EK is not significantly ($\beta = .18$, $p = .09$) related to EB (for full results see Table 2.10).

Table 2.10

Hierarchical Regression Results for the Prediction of Environmental Behavior at T4 (n =75)

Step/Predictor	R^2	ΔR^2	ΔF	B	SE	β
1. Pro-Environmental Behavioral Intentions	.23	.23	21.73**	.22	.12	.20
2. Perceived Behavioral Control	.28	.06	2.77	.11	.09	.14
Social Norms				.01	.07	.01
3. Environmental Attitudes	.39	.11	6.37**	.30	.12	.30*
Environmental Knowledge				.18	.10	.18

Note. Significant values and unstandardized and standardized regression coefficients reflect the results of the final regression equation. *$p < .05$. **$p < .01$

The fluctuating degree to which EB is influenced by EK and EA across the program's components as well as post-program suggests that a deeper understanding of the characteristics and qualities of indirect and direct experiences is needed in order to more fully understand their impact on the development of knowledge, attitudes, and behavior. While this program provided participants with a very direct experience in the form of the international workshop, the experience appears to have been structured in such a way that was more conducive to the development and application of knowledge than attitudes. Direct experiences may be on the whole more favorable for attitude development, as suggested by Fazio and Zanna (1978, 1981), but this appears to be contingent upon how they are structured. The qualitative findings from this study provide some insights regarding the characteristics of experience types; in other words, what makes an experience direct or indirect. Such information may prove useful to

practitioners in their efforts to design both direct and indirect experiences capable of effectively promoting targeted knowledge, attitude, and behavior outcomes.

Qualitative Discussion

The qualitative portion of this study provides additional insight into the relation between experience type and learning outcomes. The findings appear to support previous research related to the impact of indirect and direct experiences on learning outcomes (see Fazio & Zanna, 1978, 1981; Kellert, 2002). Additionally, results from the qualitative analysis also highlight some factors that may moderate youths' perceptions of the degree to which an experience is direct or indirect. To support the first point, participants, when discussing learning outcomes associated with the program, more frequently mentioned gaining knowledge during the preparatory program whereas environmental attitude and behavior growth were associated with the international workshop. Thus the indirect experience led to growth in knowledge while the direct experience produced attitude and behavior development.

Perhaps even more important than these findings, are insights regarding a potential key component of direct nature experiences. The qualitative data suggest that merely exposing youth to natural settings does not automatically guarantee they will perceive the experience as direct contact with nature. For example, participants in this program had the opportunity to spend a week in one of the most ecologically diverse natural environments in the world and some still came away from the experience with the feeling that the rain forest "was really contained." In contrast, while on the Inca Trail portion of the program participants felt they had more opportunities to

autonomously interact with nature which led some to classify this experience as more satisfying and more connected to the natural environment. The perceived level of freedom afforded the youth to interact with nature in these different contexts appears to have moderated the perceived "directness" of their experience.

Synthesis of the Findings

What insights can be drawn from a synthesis of the study's quantitative and qualitative findings? First, the indirect experience portion of the program (i.e., preparatory program) led to growth in EK, this claim is supported by both the quantitative and qualitative findings. Second, direct experiences appear slightly more complex in terms of their relation to learning outcomes. For example, analyses indicated that while EK, in the context of a TPB model, was not a significant predictor of EB during the preparatory program or follow-up period, EK was a significant, positive predictor of EB during the international workshop. In other words, the relation between EK and EB, in the context of a direct experience (i.e., the international workshop), became activated.

The suggestion was made earlier that this transformation may occur through direct experience providing opportunities for the application of already acquired knowledge which catalyzes EK into something more powerful than mere facts and figures. Otherwise stated, while participants gained EK during the indirect experience, it may not have impacted EB because they did not receive sufficient opportunities for the application of this knowledge. In contrast, the DE provided multiple, intense opportunities for participants to apply what they had learned during the preparatory

program about science and culture. The qualitative data bears out the viability of this explanation, for example, the following quote from one of the youth participants highlights this transformative process:

> I think, you know, before we learned about the rainforest and stuff, I knew about the rainforest and all the environmental stuff, I knew about it but I did not really like you know do anything about it. But now you know after I have seen it…like that now with us being here it is making like care more and do more to save the environment.

It can be inferred from this statement that the individual's EK had lain dormant up until the direct experience at which time it transformed into something powerful enough to influence attitudes and future behavior.

Additionally, the qualitative findings suggest that experiences are perceived to be direct in part due to the degree that individuals are afforded freedom and autonomy during the experience. As noted in the qualitative findings section, this insight came to light during discussions with participants regarding the differences between the Amazon and Inca Trail portions of the international workshop. Youth felt that they were afforded more freedom and therefore more opportunities to interact with their environs along the Inca Trail. In summary, the quantitative and qualitative findings present an interesting picture of the relationships between experience type and learning outcomes. These findings highlight the complexity of this relation and that further research is needed to more fully understand the unique characteristics and impacts of direct experiences.

Theoretical Implications

The study's findings have implications for theoretical frameworks associated with indirect and direct experiences. While previous research proposes connections between cognitive learning and indirect experiences and affective learning and direct experiences (Millar & Millar, 1996), the results from this study suggest that those relationships may be more complex. For example, the direct experience of the GEx program produced similar cognitive and affective growth. Additionally, the direct experience appears to have catalyzed participants' environmental knowledge into a more powerful motivating force than it had been during the indirect portion of their involvement. It may be that direct experiences promote affective growth through the metamorphosis of cognitive learning. To test this idea future research should investigate and compare the interaction of cognitive and affective learning within direct and indirect experiences. This interaction, based upon the study's qualitative findings, may be moderated by the degree to which an individual perceives the experience as direct.

Programmatic Implications

The data indicate that GEx programs impacted participants in terms of the outcomes addressed in this study. Although analyses revealed that EK was the only outcome variable on which the participants significantly differed from the comparisons across time, differences on EA and EB measures were approaching significance and the spread between the two groups appeared to be increasing over time. The varying degree of outcome impacts suggests that EK is a more proximal outcome for EE programs while EA and EB development, while still targetable program goals, may be more distal.

The study's results suggest that practitioners can influence EB through both EK and EA development and that indirect and direct experiences can both be structured to facilitate the connection of these constructs to EB. For example, although attitudes have theoretically stronger links to behavior, this study's findings suggest that knowledge may also influence behavior when opportunities for its direct application are provided.

Additionally, the results of this study provide support for an argument against the assumption that merely placing youth in contact with natural spaces constitutes a direct experience with nature. If youth do not perceive an experience as direct then they are also not as likely to be impacted as would be expected from a direct experience. The qualitative results from this study highlight the importance of perceived freedom in direct experiences. When youth are placed in a natural environment and also provided the freedom to interact with their surroundings the likelihood of their perceiving the experience as direct appears to increase. This is an important point for practitioners to consider when designing programs, especially those with experiential components. Of course such allowances of freedom must be balanced with safety concerns and the need for structured, intentional programming.

Limitations

There were several limitations to the study. Although a quasi-experimental design was employed to improve the external validity of the findings, the lack of randomization adversely affects the generalizability of the study's findings. Additionally, the study's sample size, although fairly large for an evaluation of a program of this type, was small and most likely suffered from a certain degree of self-

selection bias. Although the authors attempted to implement procedures to secure a larger sample size, difficulties in recruiting both participant and comparison participants hampered these efforts. Variability in program implementation as well as differences in terms of data collection time periods and the sequencing of program components across the groups was also a limitation in terms of the potential uniformity of participants' experiences. The use of self-report data also leads to a variety of potential limitations, such as response bias, especially when working with adolescents. To address this concern, efforts were made to clearly communicate the importance of responding truthfully to all questions and that responses would be kept confidential and only be seen by the researchers.

Conclusion

This study represents a unique and important contribution to the EE literature in terms of its use of longitudinal data related to EK, EA, and EB as well as key TPB constructs. The findings presented in this article provide important insights regarding the role of EK and EA in the development of EB and the role of indirect and direct experiences in this process. These insights also highlight additional related research areas that deserve further investigation.

Although behavior modification and or development remain the primary goals of many programs and interventions, a clear understanding of how to best achieve these ends is still developing. Within the realm of EE programs the debate focuses on the role and efficacy of environmental knowledge and attitude development when the ultimate goal is the promotion of pro-environmental behavior. This study provides insight into

this issue by proposing that the issue is more complex than which antecedent is more important knowledge or attitudes but rather that practitioners also need to consider the role of experience type. It appears that a combination of both indirect and direct experiences that provide opportunities for both the attainment and application of environmental knowledge and attitudes, coupled with the promotion of perceived freedom, is an effective method of promoting pro-environmental behavior.

CHAPTER III

THE INFLUENCE OF SOCIALIZATION ON YOUTH PROGRAM OUTCOMES: A SOCIAL DEVELOPMENT MODEL PERSPECTIVE

Introduction

The individuals with whom adolescents interact across the various contexts of their lives exert a powerful developmental influence. This holds true for parents (Baumrind, 1991), peers (Hartup, 1996), teachers (Hughes & Kwok, 2007; Hughes, Cavell, & Willson, 2001), and other non-parental adults such as mentors (Beier, Rosenfeld, Spitalny, Zansky, & Bontempo, 2000). Although interpersonal relationships and the socialization they foster play major developmental roles during adolescence, their influence is often overlooked when evaluating the impact of programs and services offered by youth serving agencies (Grossman & Bulle, 2006).

The social developmental model (SDM) presents a theoretical approach to understanding the impact of relationships and socialization on behavior (Catalano & Hawkins, 1996; Hawkins & Weis, 1985). The model integrates aspects of social control theory (Hirschi, 1969), social learning theory (Bandura, 1977) and differential association theory (Matsueda, 1982) to create a framework of key processes that influence behavior through social bonding. SDM posits that individuals develop strong bonds to groups and organizations where they experience opportunities for involvement, have the skills needed for involvement, and receive positive feedback regarding their involvement (Hawkins, Catalano, & Arthur, 2002). Once social bonds are formed they

have the ability to influence subsequent behavior because bonding leads individuals to act in accordance with the norms and expectations of the group (Catalano & Hawkins, 1996). The SDM also acknowledges that reciprocal relationships exist between different socializing contexts (e.g., home and school) and that bonding in one context will impact subsequent bonding in future contexts (Catalano & Hawkins, 1996).

Research findings support SDM's ability to predict a variety of negative adolescent behaviors (Catalano, et al., 1999; Lonczak, et al., 2002; Lonczak, et al., 2001). While SDM's are conceptualized to predict both negative and positive behaviors (Hawkins & Weis, 1985), the preponderance of studies utilizing this model have operated from a deficit-based approach to youth development. SDM's ability to explain the development of positive behaviors is an area of inquiry that could provide valuable insights for both researchers and practitioners.

Therefore the purpose of this study was to employ a SDM to assess the mediating influence of socializing processes on bonding, beliefs, and behavior within a multi-component international immersion program for middle and high school aged youth. The findings from this study provide important insights regarding the influence of interpersonal processes on program outcomes and represent a unique, positive youth development application of a SDM.

Literature Review

The SDM (see Figure 3.1) resulted from efforts to explain the origins and processes associated with adolescent deviance (Hawkins & Weis, 1985). Social learning theory, social control theory, and differential associate theory were drawn upon to create

a framework to explain both deviant and prosocial behavior from a social development perspective. Social learning theory suggests that behaviors, especially repeated behaviors, result in part from positive reinforcement (Akers, 1977; Bandura, 1977). Social control theory highlights the importance of bonds to different socializing units (e.g., family, school, peers, etc.) in the development of behavior (Hirschi, 1969). Differential association theory proposes that both deviant and prosocial behaviors arise as a result of similar developmental pathways (Matsueda, 1982). The SDM is able to successfully synthesize these independent frameworks in part because of assumption congruence across theories (Catalano & Hawkins, 1996).

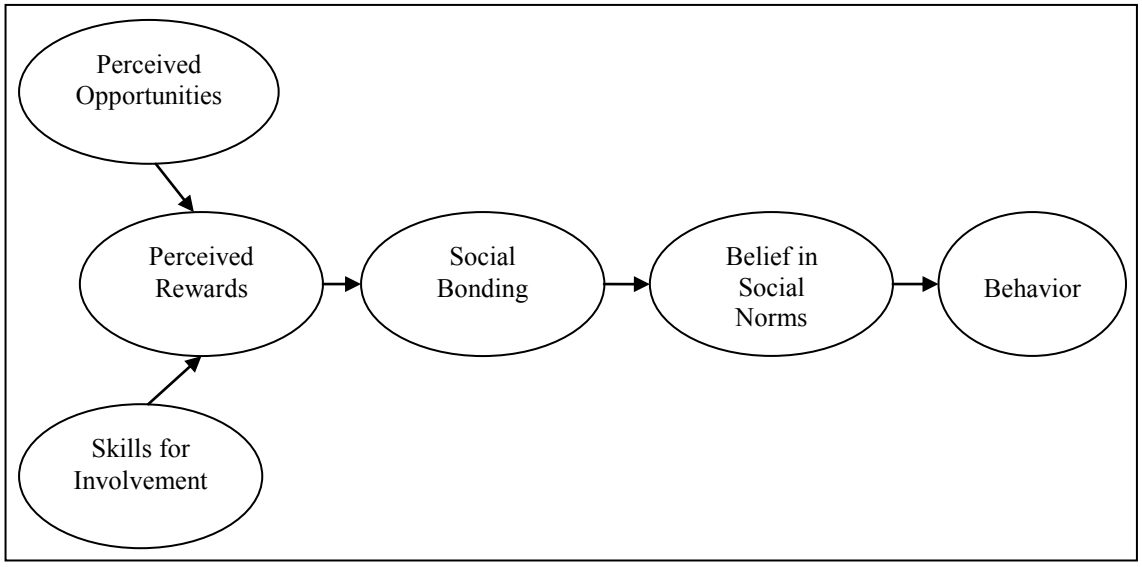

Figure 3.1. Social development model

The SDM identifies key constructs--perceived opportunities for involvement, skills for involvement, and perceived rewards for involvement--that influence the development of social bonds and beliefs in societal norms which in turn affect behavior (Catalano & Hawkins, 1996). For socialization to occur youth need to be aware of

opportunities to become involved within a socializing unit and subsequently engage in these opportunities. In order to successfully participate in a given activity adolescents also need to possess and apply appropriate skills. Actual involvement and skill levels influence the type and degree of reinforcement the individual receives. Perceived positive reinforcement leads the individual to form social bonds. These bonds consist of attachment to the socializing unit as well as a commitment to act according to the unit's associated beliefs and norms (Catalano & Hawkins). This commitment, in turn, influences future behavior. The developmental pathway outlined in the SDM can lead to either prosocial or deviant behaviors (Hawkins & Weis, 1985) and different socializing units vary in salience across developmental stages (i.e., peers exert a greater influence during adolescence than childhood) (Catalano & Hawkins, 1996).

The SDM has proven effective in predicting a variety of negative behaviors. In a study of alcohol misuse at age 14 and 16, a SDM explained 45% of the variance in alcohol misuse at age 16 and significantly mediated the relation between age 14 and 16 drinking (Lonczak, et al., 2001). In a study using the SDM to address antisocial behavior among elementary school children, analyses revealed that the SDM was able to explain 25-35% of the variance in behavior for children whose parents modeled deviant behaviors and those that did not (Catalano, et al., 1999). This study's findings lend support to the SDM model's ability to assess the impact of both prosocial and deviant bonding. Similar findings have also shown that children's drug use is significantly related to parents' drug use (Fleming, et al., 1997). Additional research has also validated the effectiveness of interventions based upon the SDM to promote positive

behavior (Catalano, Haggerty, Oesterle, Fleming, & Hawkins, 2004; Hawkins, et al., 1999; Lonczak, et al., 2002).

Research employing the SDM has led to some refinements of Hawkin's (1985) original model. For example, Catalano and Hawkins (1996) propose that each developmental stage (e.g., childhood, early adolescence, etc.) requires a slightly different SDM to account for the shifting salience of family, peers, and non-parental adults across these time periods. These authors also propose that reciprocal relationships exist between these different stages. For example, socialization within the family during childhood influences later within-school socialization processes (Catalano & Hawkins; Catalano, et al., 1999). Other research has shown that the strength of pathways between some of the model's variables (e.g., skills to rewards and values and anti-social behavior) is influenced by external factors such as parents modeling of either pro- or anti-social behavior (Catalano, et al., 1999).

Although the SDM is designed to explain the development of both negative and positive behaviors, the model itself has generally been employed to study deviance. This is unfortunate because the explanatory power of the SDM could assist researchers and practitioners focused on more positive aspects of youth development. Positive socialization is a key process of youth development and an important aspect of any youth program (Bocarro & Witt, 2005). This assertion presumably could apply to youth focused EE efforts but research in this area is sparse. The research that has considered the influence of social context on environmental constructs (e.g., attitude, beliefs, behaviors, etc.) has produced findings that support further investigation in this area. For

example, in a study of environmental concern and behavior among a sample of Norwegian adults, social context was one of the most powerful predictors of pro-environmental behavior of all external factors considered (Olli, Grendstad, & Wollebaek, 2001). Additional findings suggest that parents and peers play an important role in the development of self-regulated pro-environmental behavior (Villacorta, et al., 2003).

It appears that the SDM provides an effective framework for understanding the role of socialization and bonding in terms of behavior development. Additionally, the use of the SDM in EE research addresses a gap in the existing literature, the role of social contexts in the formation of pro-environmental behavior. This study tested the mediating affect of a conceptual SDM (see Figure 3.2) on the development of participants' pro-environmental behavior over the duration of an immersion based environmental education program. Accordingly, the study tested the following hypotheses at the .05 significance level:

1. Participants will experience a significantly greater increase in self-reported levels of program outcomes in comparison to the controls.
2. The conceptual SDM will partially mediate the development of program outcomes that occur during both the preparatory (T2) and international workshop (T3) portions of the program.

The qualitative portion of the study was guided by the following research questions:

1. From the participants' perspective, what role do socialization processes play in the overall program experience?

2. What influence do these processes have across the different program components?

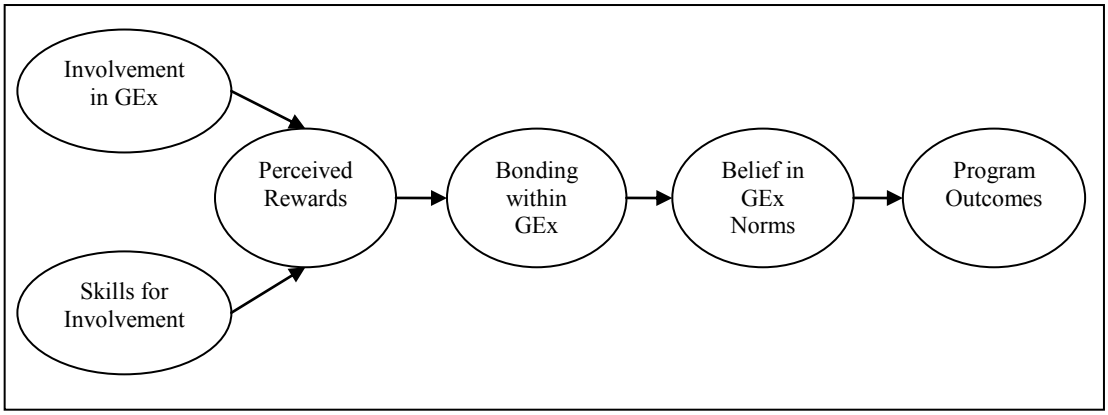

Figure 3.2. Proposed conceptual model

Methods

This study employed a quasi experimental, concurrent nested mixed-method design (Hanson, et al., 2005) to address the hypotheses and research question. This particular design involves the simultaneous collection and analysis of both qualitative and quantitative data. In the case of this study, emphasis was given to the quantitative data and hypotheses and the qualitative data was used to gain additional insights. The following sections provide an overview of pertinent areas related to the study's methodology.

Program Description

This study represents a component of a larger evaluation of programs offered by Global Explorers (GEx), a non-profit organization that provides international immersion

experiences for middle school and high school students and teachers. GEx programs are composed of three stages: a preparatory program, an international field workshop, and a post-trip service project. During the preparatory program youth participate in 9 to 12 two hour sessions, which focus on culture, science, language, service, and leadership. Session content is specific to each groups' travel destination,

The international field workshop lasts between 7 and 14 days depending on the location. Each group--consisting of students, teachers, and optional adult chaperones--travels independently from other GEx groups. All aspects of the international field workshop are arranged and supervised by GEx staff. In addition to local guides, GEx provides each group with a volunteer field scientist as well as a GEx staff member. During this portion of the program students and teachers take part in a variety of cultural, scientific, and service activities. Upon returning from the field workshop, participants design and implement a service project directed either towards the needs of their own community or the international community they visited.

Population

GEx promotes their programs to middle and high school teachers across the United States. Teachers interested in sponsoring GEx trip must recruit students from their school to enroll in the program. Data for this study were collected from seven different groups of who traveled with GEx during 2008. These students also participated in a pre-travel, preparatory program supported with GEx curricular materials and implemented by their sponsoring teacher. For this purpose of this study, each participating teacher was also asked by the researchers to recruit students to serve as

members of the comparison group. Consent forms were collected from all teachers and parents whose children were involved in the study. Assent was obtained from participating students.

The participant group consisted of 108 students (females = 51; males = 57) while 49 students (females = 29; males = 20) served as comparisons. The authors had originally hoped to collect data from a larger portion of the 215 youth who participated in a GEx program during 2008 but a number of the groups either declined participation or had low response rates primarily due to lack of support for the evaluation from some teachers. It was also planned to have each teacher recruit a group of students from their school to serve in a non-equivalent comparison group (Babbie, 2005) but only three of the seven teachers complied with this request. At the beginning of the study, participating and comparison students had a mean age of 14.5 (*SD* = 1.65) and 13.6 (*SD* = .89) respectively. Eighty-two percent of the participants and 90% of the comparisons were White. In an effort to address concerns associated with external validity, due to the lack of randomized assignment of youth to participant and comparison groups, one-way ANOVA's and chi-square tests were conducted to investigate the possibility of group age, gender, ethnicity differences as well as baseline equivalence on program measures. Results indicated that participants had slightly higher composite program outcome scores at baseline (F (1, 150) = 4.08; p = .05) and had a higher mean age (F (1, 150) = 11.7; p = .001) than the comparisons.

Quantitative Methodology

Data collection. A number of different procedures were employed to collect questionnaire data from participant and comparison groups. At the completion of the preparatory program (T2), participants completed a questionnaire (Appendix A) containing both traditional and retrospective pre-test items. The traditional items addressed issues related to socialization processes within the preparatory program. The retrospective pre-test items assessed pre (T1) and post preparatory program (T2) levels of self-reported program outcome variables (i.e., environmental knowledge, attitude, and behavior). Students in the comparison group also completed the retrospective pre-test items during approximately the same time frame as their participating counterparts.

Retrospective pre-tests were employed in this study for two reasons: (1) logistical limitations did not allow for data collection before all groups began participating in the program and (2) the desire to guard against self-report bias. Retrospective pre-tests occurred at the conclusion of the preparatory program and required respondents to indicate their current perception of the degree to which they possessed a specific trait, attitude, or attribute previous to their participation in the preparatory program (Sibthorp, et al., 2007). The retrospective wording for this study was "at the beginning of the school year, how would you have responded to this statement [referring to the statement associated with that particular item]?" Use of this approach guarded against response-shift bias which occurs between pre and posttests when individuals' internal scale of measurement changes as a result of an experience (Pratt, et al., 2000; Sibthorp, et al.). For example, a youth participant might rate themselves high on a pretest skills inventory

as a result of inaccurate perceptions of the difficulty of tasks they will be required to complete. After completing the tasks, even though the individual gained a greater degree of competence from their experience, they might rate themselves lower on the posttest than the pretest due to a more accurate perception of task difficulty.

After completing the international field workshop (T3), participants completed all items from the T2 questionnaire in order to provide information regarding the unique impact of this program component. In order to follow-up with both groups a final round of data collection occurred during the fall of 2008 (T4). T4 data collection was planned to occur after all groups had completed their post-trip service projects. Time between post-travel and follow-up data collection periods ranged from three to seven months. Due to logistical difficulties associated with collecting data from the comparison group during the summer, data were only gathered from the comparisons at T1, T2, and T4. Table 2.1 contains a complete breakdown of the responses collected at each of four data collection periods. At T4, in contrast to paper and pencil questionnaires used at all other collection periods, respondents were invited through email to complete an online survey. Reminder emails were sent to non-respondents approximately every 10 days. After three reminder emails had been sent, hard copies of the questionnaire with pre-paid return envelopes were mailed to non-respondents. Additionally, the PI visited the case study group during this period and hand delivered questionnaires to a number of participant and comparison group students.

In terms of attrition, the participant group experienced a 31% decline in response rate and the comparison group exhibited a 39% decline. An attrition analysis was conducted in order to identify potential differences between those individuals with and without complete data. One-way ANOVA's were utilized to test for differences between these groups on applicable study variables and demographics. These analyses revealed no significant differences between those with and without complete data within both the participant and comparison groups. The assumption that the data are missing at random was supported by these findings. This finding, along with the low rate of missing data (< 5%) for the data from individuals who completed at least a portion of the survey at each time wave, provided justification for imputing some of the missing data. Imputation was conducted using the LISREL 8.8 multiple imputation procedure to address missing values at each time wave for individuals who completed at least some portion of the questionnaire. Data was not imputed if no response were collected from an individual at a particular time wave.

Measures. Items adapted from the Seattle Social Development Project (Hawkins, et al., 2003) were used to measure opportunities for involvement, skills for involvement, rewards and recognition, and bonding at T2 and T3. Sample items for the various items included statements such as: "I had lots of chances to participate in GEx activities" (opportunities for involvement), I had difficulty following directions during GEx activities" (skills), "My GEx teachers praised or complimented me when I worked hard" (rewards), and "I liked the GEx program" (bonding). These scales have produced adequate estimates of internal consistency in previous studies (e.g., .64 for opportunities

for involvement, .68 for rewards and recognition, and .76 for bonding; personal communication Karl G. Hill, October 25, 2007). No statistics were available from previous studies for the skills scale. A six item scale (e.g., I believe that learning about science can help us reduce our impact on the environment) to measure GEx beliefs about service, science, culture and leadership was developed by the authors through a review of GEx curriculum and was evaluated for content validity by GEx administrators.

Environmental attitudes (EA) and pro-environmental behavior (EB) were measured through the use of the affect and behavioral commitment subscales from the Children's Environmental Attitude and Knowledge Scale (CHEAKS, Leeming & Dwyer, 1995). These subscales consist of 12 items each. The EA subscale contains such statements as "I get angry about the damage pollution does to the environment" and "I am frightened to think people don't care about the environment." Items from the EB subscale included statements such as "I have asked my family to recycle some of the things that we use" and "I do not let a water faucet run when it is not necessary." Previous testing of the CHEAKS subscale, from which this study's EA and EB measures were drawn, suggested acceptable levels of reliability and validity (Leeming & Dwyer, 1995). Data collected from a sample of 4th to 7th grade students returned a Cronbach alpha coefficient of .89. Recent research involving Irish adolescents (N = 388) supports Leeming and Dwyer's findings regarding the reliability and validity of the CHEAKS (Walsh-Daneshmandi & MacLachlan, 2006). Finally, a five item scale (e.g., "I can explain what the term ecology means") to measure environmental knowledge (EK) was developed by the authors through a review GEx curriculum and was evaluated for

content validity by GEx administrators. All items employed in this study were assessed using a 5-point Likert response format (1 = very untrue to 5 = very true) and all measures produced adequate levels of internal consistency (Table 3.1).

Table 3.1

Reliability Coefficients for All Study II Measures

	Alpha Coefficients			
Scale	Pre-Program	Post Preparatory	Post Travel	Follow-up
Opportunities	---	.67	.61	---
Skills	---	.75	.79	---
Rewards	---	.75	.70	---
Bonding	---	.75	.87	---
Beliefs	---	.63	.61	---
Environmental Knowledge	0.78	0.83	0.77	.88
Environmental Attitude	0.85	0.85	0.84	.86
Environmental Behavior	0.75	0.71	0.65	.75

Analysis procedures. In order to guard against the familywise error rate that would arise if multiple analyses were conducted for each of the program outcomes and due to the study's relatively low sample size, a composite outcome score (KAB) was created by taking the mean of the EK, EA, and EB mean scores at each time period. These items were significantly correlated (.30 to .58) across all time periods and the new KAB variable produced adequate reliability coefficients (T1 = .68; T2 = .68; T3 = .71; and T4 = .74). Accordingly, the KAB was employed in the study's analyses.

The first hypothesis, that the participants would experience a significantly greater increase in program outcomes in comparison to the controls, was tested using a repeated measures ANOVA. Covariance structure analyses using LISREL 8.80 were employed to

test the second hypothesis, regarding the mediating role of the SDM on the development of pro-environmental behavior. Two separate structural test models were analyzed, one for the preparatory and one for the international workshop portions of the program. The analyses of two separate models allows for the investigation of the unique contribution of the socializing processes from each program context to the overall development of pro-environmental behavior.

The first model included KAB measured at T1 and T2 and all T2 SDM variables. The second model included KAB measured at T2 and T3 and all T3 SDM variables. A number of analysis adaptations were necessary due to the relatively small sample size. Item parceling was used to create the "observed" model variables as opposed to employing confirmatory factor analysis (CFA) to test and refine latent variables created from multiple scale items. While the use of CFA and latent variables to create a structural model is the preferred analysis strategy, the number of parameters that would need to be estimated for this study's models would lead to an unacceptably low parameter to sample size ratio. Kline (2005) suggests that researchers should strive for at least a 5:1 sample size to parameter ratio and for this study to meet this benchmark item parceling was necessary. A parcel is the sum or mean of several items that are all assumed to measure the same construct (Kishton & Widaman, 1994).

Qualitative Methodology

Data collection. Working with GEx administrators, one of the participating groups was invited to serve as a case study for the qualitative portion of the evaluation. This group was selected for a number of reasons including size (N = 46), teacher

supportiveness, and the fact they were traveling to Peru, which allowed GEx administrators to obtain interview and observation data pertaining to their most popular travel destination. Qualitative data collection involved focus groups and dyadic interviews (Table 2.3) as well as responses to a variety of open ended items on the T2, T3, and T4 questionnaires.

These open ended items were gathered from all evaluation participants, not just the case study group. Focus groups and dyadic interviews were conducted with youth participants and their parents during three site visits conducted by the principle investigator (PI). The first two site visits, one during the middle and one towards the end, occurred during the preparatory portion of the program and a post-travel visit took place during the fall. Each site visit lasted approximately three days and allowed for multiple student focus groups (i.e., four to six participants) and one large parent focus group (i.e., eight to twelve parents). Additional parent focus groups were not possible due to logistical constraints. These focus groups allowed participants to share thoughts about their experiences in the program and to respond to a variety of questions designed to facilitate discussion regarding the study's research questions (Appendix B). The PI also observed various activities associated with the program (e.g., after school meetings).

The PI also traveled with and observed the group during their international field workshop in Peru. During this two week experience the PI conducted program observations and interviews. The first week was spent at several guest lodges in the Peruvian Amazon basin and the second week took place in central Peru hiking the Inca Trail to Machu Picchu. The entire group participated in the Amazon portion of the trip

with approximately half of the group staying for the Inca Trail portion. Interviews and focus groups were conducted with all participants, including teachers and GEx staff members, regarding a variety of issues including but not limited to those directly pertaining to this study. The PI also conducted participant observations each day of the workshop and took field notes regarding all aspects of the program. These notes were transcribed and incorporated into the analysis. The third site visit occurred during the fall of 2008. This visit allowed the PI to interview the same groups of individuals regarding their overall assessment of the program as well as their perceptions of the long term impact of their experiences.

Analysis procedures. All interviews were recorded and transcribed. During the transcription process actual names were replaced with pseudonyms. Field notes taken by the PI were also be transcribed. The analysis process was guided by grounded theory methodology as outlined by Strauss and Corbin (1998a) and the study's research questions. The nature of qualitative inquiry also enabled the researchers to remain open to potential insights that might emerge outside of the scope of the study's original focus. Through these processes, the researchers allowed the data to speak for itself as opposed to forcing findings to conform to a predetermined theoretical framework (Strauss & Corbin, 1998a).

The analysis process began with careful readings of pertinent portions of the transcripts in order to identify repeated words, phrases and themes. This open coding process enabled the development of themes that were grounded in the data themselves (Strauss & Corbin, 1998b). The number of categories was determined by the nature of

the data and was not constrained. That being said, commonalities between categories allowed for the development of more abstract categories under which related sub-categories were grouped; this process is referred to as axial coding (Strauss and Corbin). This process also involved identifying relationships between categories. Axial coding occurred concurrently with open coding. Once fairly developed categories emerged, the researchers moved to selective coding, whereby a core category was identified and the focus of the analysis shifted to connecting other categories to this core category in order to begin the development of a grounded theory (Strauss and Corbin). Additionally, categories that appeared to be unrelated to the core categories were trimmed from the analysis. Data collection and analysis continued until the data under analysis promoted no additional category development; this is referred to as theoretical saturation (Strauss and Corbin).

Memo writing, an essential aspect of qualitative research, occurred throughout the data collection and analysis processes. Memoing is essentially note taking that occurs during the coding process. Strauss and Corbin (1998a) identify three types of memos: (1) code notes, (2) theory notes and (3) operational notes. Code notes refer to memos regarding any aspects of the coding process. For example, memos about why certain quotes were assigned to a particular code or the reason behind a given code name. Theory notes deal with issues regarding conceptual relationships, whereas operational notes deal with logistical aspects of the study. The final step of the analysis process involved the integration of themes and relationships between these themes into a coherent response to the study's research questions. Throughout the analysis process,

codes, analyses and the emerging theory were reviewed by co-PI's as well as the participants themselves to insure that all analyses remained true to the raw data and lived experience of the respondents (Strauss & Corbin, 1998a). Creswell (2007) suggests researchers employ at least two validation strategies to ensure the quality of their work; this study employed four: extensive time spent in the field with the subjects; the use of multiple forms of data (e.g., interviews with parents; teachers; GEx staff and youth; field notes; and open ended survey questions), member checking; and peer review.

Researcher's relation to the data. As noted, the PI spent a significant amount of time with members of the case study group, during which time efforts were made to be a passive observer of the program as opposed to an active participant. The focus was on building rapport with all participants in order to develop relationships that would foster the open sharing of information. The PI has previous experience as a director of programs for youth and taking on the role of observer represented a new experience, one that required a conscious effort not to take a more participatory place in the program. This being said, it must be acknowledged that the PI's presence in the field invariably impacted the youths' experience. For example, without the interviews and focus groups many of the youth would not have had a comparable opportunity to discuss and debrief their experiences.

Integration of Qualitative and Quantitative Analyses

Mixed-methods designs involve both the collection of different types of data as well as an integrated analysis of this information. Unfortunately, the analysis portion of this process is often neglected in most mixed-method research (Caracelli & Greene,

1993). Therefore, the analysis of qualitative and quantitative data in this study occurred jointly and informed each other. As noted previously, emphasis in this study was given to the quantitative findings with the qualitative data serving a supporting role.

Findings

Quantitative Findings

Descriptive statistics. A full presentation of the descriptive statistics of all relevant variables is provided in Table 3.2. Gender differences on the study variables within the comparison and participant groups were analyzed using one-way ANOVA's. Comparison girls reporting higher levels of pro-environmental behavior at T2 ($F(1, 47) = 5.76$, $p = .02$) was the only significant gender difference.

Table 3.2

Participant and Comparison Study II Descriptive Statistics

		T1		T2		T3		T4	
Measure	Group	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
KAB	Participant	2.79	.66	3.66	.57	3.88	.55	4.00	.53
	Comparison	2.57	.52	3.03	.65	---	---	3.26	.60
Opportunities	Participant	---	---	4.00	0.62	4.28	0.56	---	---
Rewards	Participant	---	---	4.00	0.71	3.23	0.47	---	---
Bonding	Participant	---	---	4.47	0.54	4.65	0.51	---	---
Skills	Participant	---	---	3.92	0.98	3.55	0.41	---	---
Beliefs	Participant	---	---	4.60	0.40	4.65	0.37	---	---

Hypothesis 1. Results from a repeated measures ANOVA comparing participant and comparison KAB scores across T1, T2, and T4 (T3 was not used in the analysis due to the lack of comparison data from this collection period) supported the hypothesis that the participant group would experience significant environmental behavior growth in

relation to the comparisons. Although Levene's tests indicated non-homogenous error variance between the participant and comparison groups for KAB at T1, assumptions for sphericity were met which represents the most critical assumption for repeated measures ANOVA's (Field, 2005), consequently, no transformations were made to the data. Results revealed a significant main effect for time of testing ($F(2, 208) = 130.43$, $p < .001$, partial eta squared = .56), a significant interaction effect for time of testing x group (i.e., participant or comparison; $F(2, 208) = 11.20$, $p < .001$, partial eta squared = .10) and a significant group effect ($F(1, 104) = 27.49$, $p < .001$, partial eta squared = .21). These findings indicate that the participant group reported higher overall KAB scores and experienced a significantly greater growth pattern (time x group interaction; see Figure 3.3) than the comparisons.

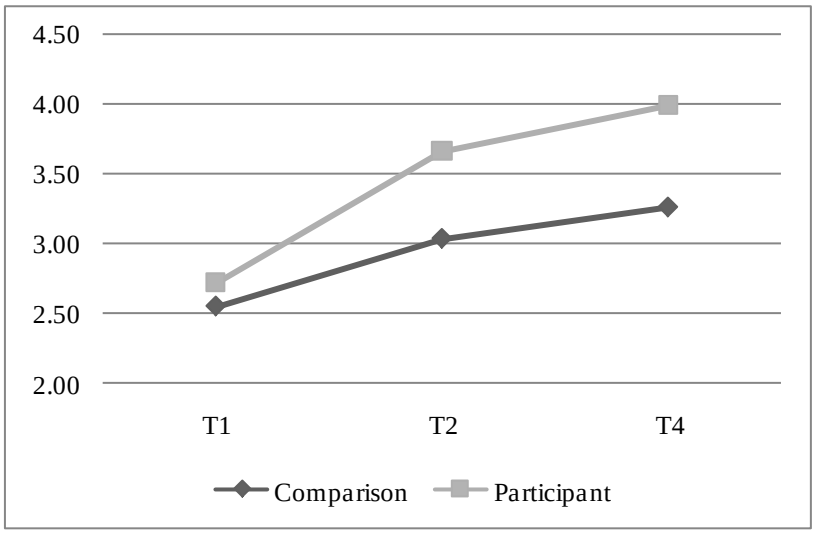

Figure 3.3. Participant vs. comparison KAB scores

Hypothesis 2a. A structural equation model analysis was used to test the hypothesized mediating role of the SDM in terms of KAB development during the

preparatory portion of the program. Before testing the conceptual model at T2, a correlation matrix of all of the model's variables (Table 3.3) was reviewed. Due to a non-significant correlation between T1 KAB and T2 opportunities, this path was removed and a path from T1 KAB to T2 beliefs was added (Figure 3.4). The authors considered this adaptation to be both empirically and theoretically justified. In this revised model belief mediates both relation between T1 KAB on T2 KAB and is in turn influenced by the SDM variables.

Table 3.3

Intercorrelations between T2 Model Variables (n = 103)

	1	2	3	4	5	6	7
1. T1 KAB	---	0.10	0.08	0.02	0.10	0.33**	0.60**
2. T2 Opportunities		---	0.52**	0.43**	0.16	0.41**	0.29**
3. T2 Rewards			---	0.41**	0.30**	0.25**	0.21*
4. T2 Bonding				---	0.28**	0.44**	0.25**
5. T2 Skills					---	0.24*	0.13
6. T2 Beliefs						---	0.57**
7. T2 KAB							---

* $p < .05$
** $p < .01$

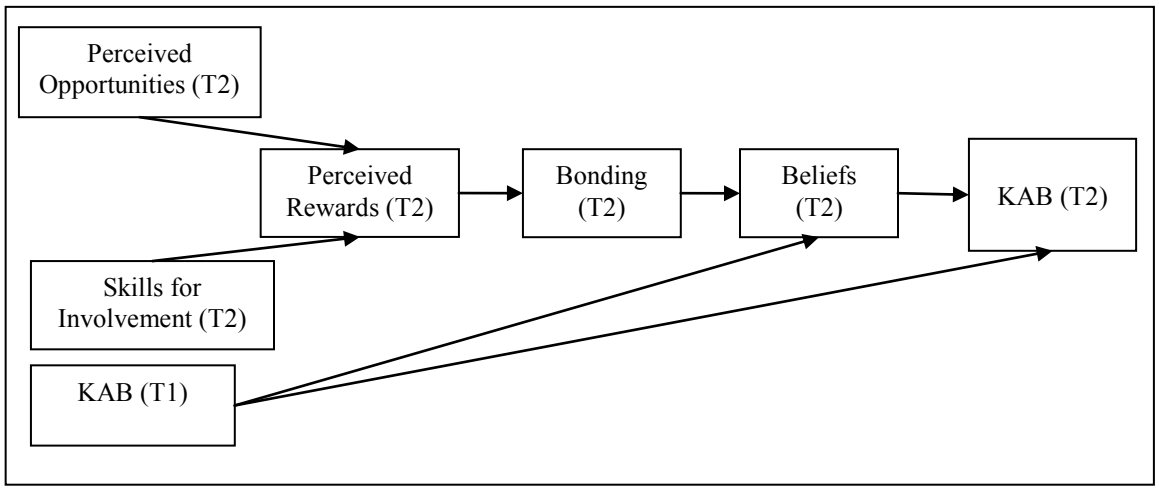

Figure 3.4. Preparatory program social development model

The model was run as specified in Figure 3.4. All exogenous variables (i.e., opportunities, skills, and KAB) were allowed to correlate with each other. Rewards and bonding were also allowed to correlate as this addition significantly improved model fit. Results indicated that all paths were significant and that the data fit the model very well (χ^2 = 11.41, 10 df, N = 103; NNFI = 0.99, CFI = 0.99 and RMSEA = 0.03). The model explains 52% of the variance in T2 KAB. The full results from this model are presented in Figure 3.5. The indirect effect of T1 KAB to T2 KAB was significant (t = 3.18), thus T2 Beliefs partially mediated the development of KAB from T1 to T2. Table 3.4 contains a complete presentation of all direct and indirect model effects.

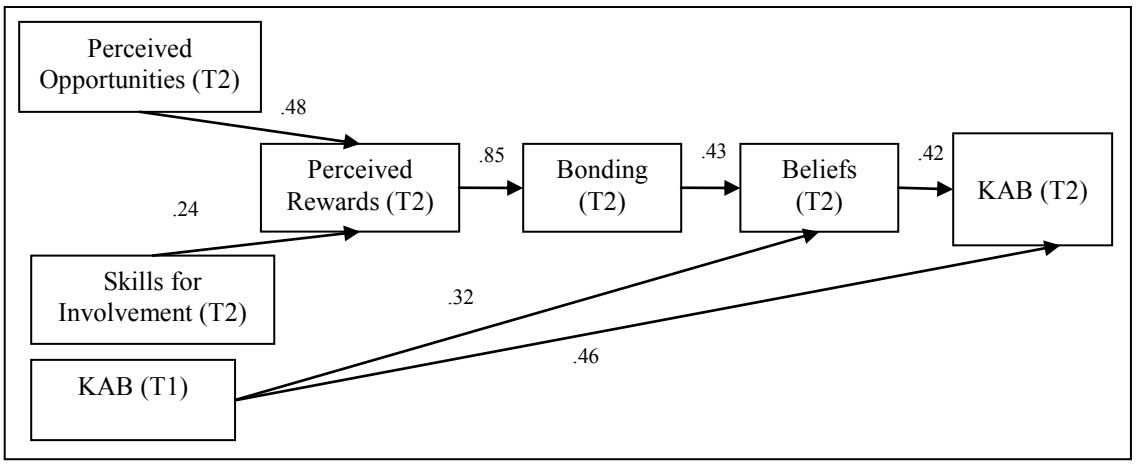

Figure 3.5. Preparatory program social development model results

Table 3.4

Summary of Preparatory Program Effects

Path	Indirect	Total	*SE*	*t*
T1 KAB → T2 KAB	---	.59**	.07	7.69
T1 KAB → T2 KAB	.13**	---	.04	3.18
T2 Opportunities → T2 KAB	.07**	---	.02	3.01
T2 Skills → T2 KAB	.04*	---	.01	2.39
T2 Rewards → T2 KAB	.15**	---	.04	2.91
T2 Bonding → T2 KAB	.18**	---	.05	3.82

*Significant at the $p < .05$ level
*Significant at the $p < .01$ level

Due to the fact that the social development model makes claims regarding the predictive sequence of its variables two nested models were run to test this assumption. The first model involved all T2 model variables except for T1 KAB. The second model contained the same variables but with all paths running in the opposite direction (e.g., T2 KAB predicting T2 Beliefs). The difference in fit between the two models, forward nested ($\chi^2 = 11.56$, 8 df, $N = 103$; NNFI = 0.96, CFI = 0.98 and RMSEA = 0.06) and

backward nested (χ^2 = 11.13, 7 df, N = 103; NNFI = 0.5, CFI = 0.98 and RMSEA = 0.07), is non-significant in terms of a change in chi-square (.43).

Hypothesis 2b. The same model was retested at T3 to determine the mediating effects of the SDM during the international workshop portion of the program. A correlation matrix including all of the model's variables (Table 3.5) was developed for all variables associated with the model. All proposed model relationships were supported by the appropriate, significant correlations.

Table 3.5

Intercorrelations between T3 Model Variables (n = 103)

	1	2	3	4	5	6	7
1. T2 KAB	---	0.29**	0.48**	0.32**	0.02	0.52**	0.76**
2. T3 Opportunities		---	0.54**	0.38**	0.31**	0.26**	0.31**
3. T3 Rewards			---	0.57**	0.29**	0.39**	0.59**
4. T3 Bonding				---	0.21*	0.55**	0.43**
5. T3 Skills					---	0.11	0.17
6. T3 Beliefs						---	0.56**
7. T3 KAB							---

* $p < .05$
** $p < .01$

All exogenous variables (i.e., KAB, opportunities and skills) were allowed to freely correlate with each other. Although all paths, except for skills→rewards (β = .14, $p > .05$), were significant, the fit of this model to the data was weak (χ^2 = 38.39, 11 df, N = 102; NNFI = 0.85, CFI = 0.92 and RMSEA = 0.14). A second model was run with an added path, based upon the modification indices, from KAB to rewards. In this revised model, which represented a significant chi-square change (19.17) from the initial model, all paths were significant and fit was adequate (χ^2 = 19.22, 10 df, N = 102; NNFI = 0.95,

CFI = 0.97 and RMSEA = 0.09). The model explains 61% of the variance in T3 KAB. The full results from this model are presented in Figure 3.6. The indirect effect of T2 KAB to T3 KAB was significant (t = 1.45), thus a portion of the SDM (i.e., rewards, bonding, and beliefs) partially mediated the development of KAB over the course of the international workshop. See Table 3.6 for a complete presentation of all direct and indirect model effects.

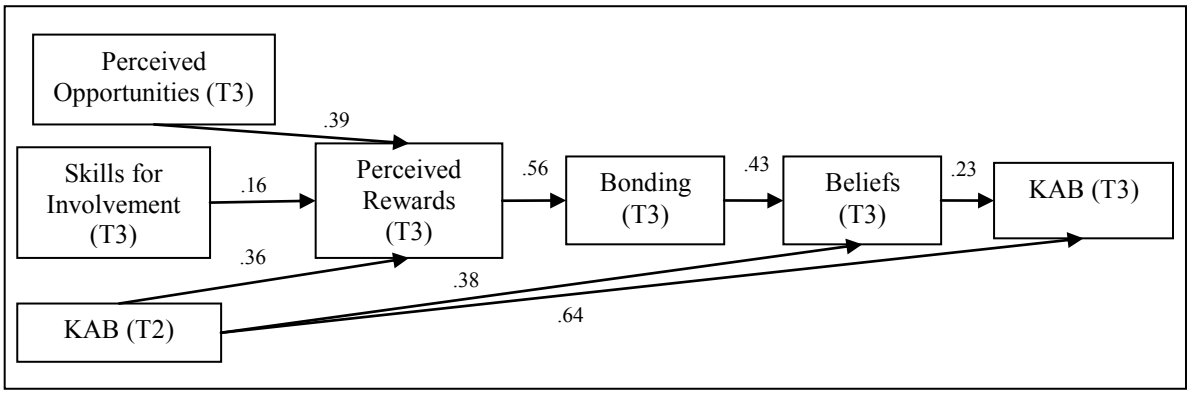

Figure 3.6. International workshop social development model results

Table 3.6

Summary of International Workshop Model Effects

Path	Indirect	Total	*SE*	*t*
T2 KAB → T3 KAB	---	.75**	.06	11.63
T2 KAB → T3 KAB	.11**	---	.04	2.79
T3 Opportunities → T3 KAB	.02*	---	.01	2.23
T3 Skills → T3 KAB	.01	---	.004	1.60
T3 Rewards → T3 KAB	.06*	---	.02	2.55
T3 Bonding → T3 KAB	.10**	---	.04	2.74

*Significant at the $p < .05$ level
*Significant at the $p < .01$ level

Due to the fact that this model makes claims regarding the predictive sequence of its variables two nested models were run to test this assumptions. The same procedure

was followed as outlined with T2 nested models. Neither model fit the data particularly well, forward nested (χ^2 = 40.63, 9 df, *N* = 102; NNFI = 0.77, CFI = 0.87 and RMSEA = 0.18) and backward nested (χ^2 = 37.92, 9 df, *N* = 102; NNFI = 0.79, CFI = 0.87 and RMSEA = 0.16), but the backward nested model has a significantly smaller (i.e., better) chi-square statistic.

Qualitative Findings

The focus of the qualitative research questions was to understand the role of socialization processes across the different components of the program. A number of quotes suggest that the development of a tight social bond within the group represented one of the key outcomes of these socialization processes (e.g., "I feel brought together with these people….because we did something really amazing together" [youth], "My favorite part of Global Explorers was the complete togetherness of everybody" [youth], "For me the highlight would be the camaraderie" [parent]). The social development model, which guides the quantitative portion of this study, is also interested in the antecedents and products of bonding to a context. In this section qualitative findings will be presented regarding the processes through which bonding developed. It is the researchers' hope that the presentation of both qualitative and quantitative data regarding the role of within program socialization will provide a holistic perspective of participants' Global Explorers social experience.

During the course of the qualitative analysis the core category of *shared experiential experiences* emerged as the main driving force behind social bonding. It also became clear that the nature and impact of these shared experiences differed

between the preparatory and international workshop portions of the program. Accordingly, the characteristics and role of shared experiences will be discussed separately for the preparatory and the international workshop portions of the program. Attention will then be given to occurrences that disrupted the shared nature of the experience. Finally, a theoretical scheme will be proposed regarding the interrelationship of these two categories of shared experiences and their impact on bonding as an outcome of participation.

Preparatory program shared experiences. When discussing their experience during the preparatory portion of the program, youth frequently highlighted the positive role of the team building and group activities. In describing what happened during the preparatory program one youth participant stated, "we do a lot of team work activities with the whole group at the meetings and that's always a lot of fun." When asked about learning outcomes related to preparatory program another youth replied "I have learned that team building is important. I have gotten to know how to work as a team and get to know different kinds of people."

In addition to the preparatory curriculum provided by GEx, the case study group also participated in a three day retreat at a local camp as part of their preparation for travel. This experience represented a key shared experiences for teachers, parents, and youth. The principal at the case study school, who had a son participating in the program and also traveled with group, shared the following thoughts on the impact of the retreat:

> You know our groups have already started to form and they really came together if you will, when we went to [the retreat], I mean it is just a, I don't know how to

> say it. It is just a very unique but rewarding experience. Even for me as the principal, their interaction that I have had with those twelve kids at [the retreat] that I know that I will not forget for a long time. That I would never have without this experience, even though my son's a part of the group, he is in one of the other groups and those kids and I have a bond in the hallway that I do not have with any of the other kid. So as a principal that is pretty valuable.

Thus, even at an early stage in the program shared experiences were allowing bonds to form within the group. During the preparatory program, the most commonly mentioned shared experience were group activities and team building exercises that allowed participants the opportunity to "get to know" one another. One of the teachers leading the group also pointed out the importance of the retreat in terms of the overall experience:

> Yeah it's huge. I mean we tell everyone this is, other than the trip itself, it's the single most important thing that we do before we go, just all the activity that they focus on, leadership, team building, all of those things, trust, that we talk about there and we do activities to build on those that makes, I think makes us better prepared when we get here [international workshop]….even the parents liked it because they got to know the kids better and they, you could see the personalities of the kids and what you might need to do on the trip to help them be more successful just based on those, I mean just those couple of days.

While some degree of bonding appears to have begun during the preparatory program, one of the main results of these shared experiences appears to have been the opportunity for the group to get to know each other.

When sharing comments about their experiences during the preparatory program, individuals often linked shared experiences and getting to know each other. One youth participant made the following comment when discussing the benefits of the retreat: "I think [the retreat] was really good because I got to know a lot of people I would be working with in the rainforest and got to know each other better." Another youth stated, "we learned each others' names a lot more, we got to spend a lot more time with each other, and we got to know each other." Thus, it appears that these early shared experiences were essential because they allowed the group to get to know each other which some individuals felt was a key component of the pre-travel preparation. For example, one youth participant felt it was important to "…know everybody in your group enough where you could feel safe being around them."

International workshop shared experiences. While the shared experiences during the preparatory program, aside from the three day retreat, were more short term and spaced out over weeks and months, the international workshop placed all participants into 24/7, intense contact over a 10 to 16 day period of time. Based upon the qualitative findings, the following sub-categories were linked to shared experiences during the international workshop: leaving the comfort zone; challenge; social support; and equal relationships. Each of these sub-categories will be discussed in this section.

While approximately 50% of the youth participants had traveled internationally before, only two had previously participated in a GEx program. For most of the group, outside of the teachers, the international workshop presented a very new type of experience. The culture, climate, language, food, and ecology presented a stark contrast to their home environs in the mid-west United States. Most participants at one point or another felt they had left their "comfort zone" or as one youth described the international workshop: "we have been kind of placed into whole different environment and everything." Leaving their comfort zone appears to have positively impacted many of the youth, as can be inferred from this quote from one of the youth:

> I think being away from home and my family and put in this totally different environment has definitely made me stronger and kind of showed me that I can do this. I have really gained a lot of confidence…. I was kind of put in a group that I did not have any close friends or anything so kind of had to make friends and you know make new friends and I have made some really close friends now because of this experience.

Adding to this "out of the comfort zone" perception were the physical and emotional challenges faced by many of the participants. For some individuals challenge resulted from the physical nature of the Inca Trail trek. In describing their experience along the trail, participants made the following comments:

- It is very physically and mentally challenging I have to say because of the elevation and the steepness of the mountains.

- Hiking the Inca Trail was an extremely challenging task. I felt great confidence in myself after completing it.

Others found different aspects of the trip challenging such as dealing with heights while traversing the rain forest canopy walkways ("when I got up there and I actually started walking and it was wobbly and that's when I got really scared because I am like oh it's not going to hold up, it's going to tip me over or something"), a new climate ("The climate was very different from home and was very uncomfortable"), or homesickness ("I did not really know how much I was going to miss my mom and my brother until now").

These and other challenges created opportunities for participants to both give and receive social support. They were put into foreign, sometimes challenging, situations where they had to rely on each other to make it. The PI made the following field note during one particularly difficult section of the trail:

> The group is being very supportive of each other and a lot encouragement is being given out. Each time we stop for a break group members continue to encourage those who are still hiking. Lots of "good job" and "just keep on coming" are heard along the trail.

One male participant shared the following social support experience he shared with his mom while hiking the Inca trail:

> I feel like the biggest, most important thing I learned today was that helping somebody else's experience could end up helping yours in the end. Because I stayed back with my mom today and I know that she appreciated it a lot because

> [we] all kept supporting her and telling her to keep going and I know that it meant a lot to her and in the end it made me feel like I had really changed her experience.

The support needed and given was not always due to physical challenges; at times, youth who were far away from home simply needed someone to talk to:

> I think just having somebody to talk to is really important and I think everybody kind of stepped up in this you know you were able to talk to them if you needed them and you know I think we just kind of grew closer that way.

While going through the various experiences associated with the international workshop, the nature of many of the relationships between adults, adults and youth, and peers appeared to change. Participants began to see each other from much more equitable perspectives. The salience of roles such as teacher, adult, student, cool kid, etc. was superseded by being a member of the "rainforest posse" as one youth defined it. The relationships became more equal during the international workshop, a process which one youth explained in the following manner:

> PI: So are there any other reasons why the relationships are more equal here?
>
> YOUTH: Just the adults and the kids doing the same physical demanding stuff side by side.
>
> PI: That's a good point.
>
> YOUTH: Like the kids you know we, it seems easy for us sometimes but really it is kind of demanding because we are not superstars or athletes, some of us are, but others that are not. It shows their determination and the adults they show their

> determination and just showing, being open lets you, lets others in. The more others get in you just come closer.

Social cliques that held sway at school dissolved as new relationships formed, sometimes across old social boundaries. One of the teachers shared the following example of this process:

> We talk about getting the kids out of their element like taking Betty out of her peer group and putting her with kids she would not normally run with, and she is in a situation where she is stuck, she can't call her friends, she can't text her friends, she cannot get on the computer with them, she is away from mom and dad, and then that causes her to let down some guards that she usually has and then realize that hey wow I do kind of like you, I never paid any attention to you before because I thought I was too cool for you but I like you.

Youth and adults also began to see each other differently. In talking about the teachers on the trip one youth commented:

> It is like the adults are kids too because they are here to learn and have fun just like we are and that way they are like us and how it is kind of strange calling your teachers by the first names but you know it just shows you that down here you are learning and being in this too.

After completing a difficult portion of the Inca trail a parent shared the following observation:

> I kind of see these kids as not kids anymore…I mean they are interacting with adults like adults, they are cheering us on just like we were cheering us on and

> they offering to pick up patch, and it was almost like they are starting to cross over from being a kid to being a adult and interacting with us on a adult level.

In summary, during the international workshop the shared experiences built upon the foundation of preparatory program shared experiences to provide a context in which group bonding appears to have occurred. One of the moms, who joined the group halfway through the trip, after they had already completed the Amazon portion of the experience, made the following observation about the bonding the group had experienced:

> When I walked in on you guys [in the Lima airport] and you guys were coming out and I honestly have never experienced something like that in my life, it was like you guys were this bonded group that had this deep relation….I was completely blown away walking into that. I mean it was almost I don't want to say spiritual but some kind of a relationship shift from this little group of people. I mean we go to a huge school system, a massive school system you know where I did not know these people before I did this experience and I think there were a ton of kids that [her son] did not now and all of a sudden you come back and you are bonded like part of a same team.

Thus, relationships had deepened and changed in ways that were immediately apparent to an outside observer.

Negative program experiences. Although shared experiences and bonding were common themes throughout the qualitative data collected from teachers, parents, and youth, situations did occur which at times undermined more positive social processes. In

contrast to experiences marked by equality and social support, instances of negative interactions did occur. These seem to be most closely associated with situations where youth felt a lack of control or involvement in the program. Some of the kids expressed a desire to play a more active role in the preparatory program, for example: "I don't think that they [the adults] involve us enough. They do a lot of the work, which is really good and they do paperwork and stuff but I don't think we're doing enough of it." During the international workshop logistical and safety concerns sometimes led the adults to take on more controlling roles. The PI made the following note regarding this phenomenon while waiting in the Lima airport:

> Adults shuttle the kids around and oversee all paperwork and logistics. Youth travelers have to make very few decisions and accordingly appear to get distracted easily. Adults constantly have to corral kids back into their groups. I wonder if it would be easier to manage the groups if the kids were given more leadership opportunities or more responsibility. I felt myself getting distracted because I didn't have anything to do and was just waiting for the adult leaders to tell me what to do as well.

The responsibilities that fell to the adults also appear to have created enough stress, at times, that it spilled over into negative interactions with the youth. This was noted by both youth ("I feel like a lot of the adults are really grouch though on this trip") and parents ("It was such a positive experience and there was so much that I enjoyed, the negatives however were when adults overreacted and yelled at the kids when I felt it was unjustified").

While the qualitative data and the PI's observations suggest that the majority of the social interactions within the program were positive, it is important to note and acknowledge negative occurrences. This both provides a more holistic picture of program processes and helps to develop a deeper understanding of processes through contrast and comparison. For example, one of the main differences between positive and negative social interactions is the degree to which individuals adhered to their traditional teacher, parent, and youth roles. The typical youth/adult social structure is inherently unequal with adults on top and youth on the bottom. To a large degree, it appears the shared experiences during the international workshop equalized youth/adult relationships and created situations where they could all become "like a kid in the candy shop", which was how one youth participant described their principal during the international workshop.

Proposed shared experience theoretical framework. While the nature, quality, and impacts of the shared experiences differed somewhat between the preparatory program and the international workshop, they both had experiential roots. Whether it was a team building experience during a pre-trip meeting or learning about leaf cutter ants while on a hike through the rain forest, these shared experiences combined to produce a profound sense of bonding among participants. Through the selective coding of the categories and subcategories that have been presented in this section, the authors propose the following theoretical framework to explain the interrelationship between these constructs (Figure 3.7).

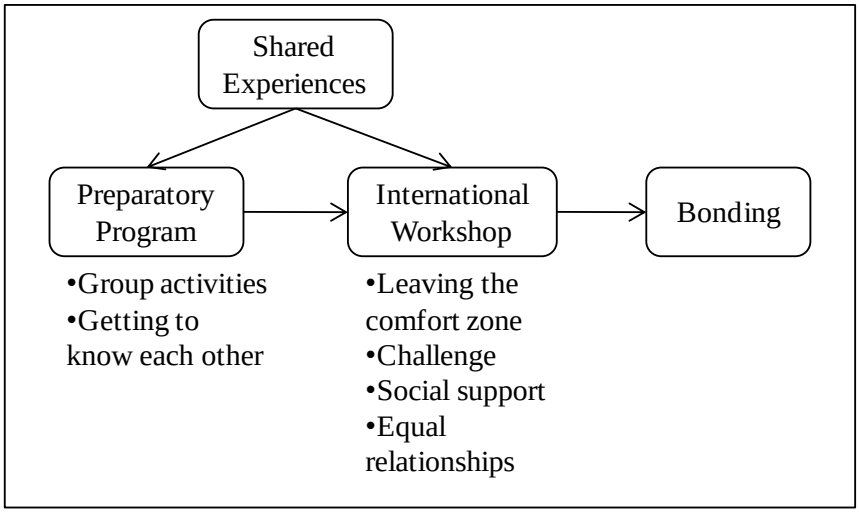

Figure 3.7. Shared experience and bonding framework

The framework suggests that bonding is an end result of the *accumulation* of shared experiences across the program. It also highlights the foundational importance of the preparatory program shared experiences which allowed the group to get to know each other and thereby prepare themselves to experience the more intense and rich shared experiences associated with the international workshop. It appears likely that without the socializing that occurred during the preparatory program, the international workshop bonding would not have been as strong. Even before traveling, the youth seemed aware of this connection and the importance of getting to know each other. For example, when asked why so much emphasis was put on preparation and team building prior to traveling one student replied, "so we know how to talk and communicate when we are in the rainforest and because we might be in harder conditions and we might need to help each other out." Thus, getting to know one another prior to the program's capstone experiences prepared the groundwork for strong social bonds to form as a result of the international workshop.

Discussion

The study's findings support the proposed hypotheses. The program appears to have had a significant impact on participants' development of environmental knowledge, attitudes, and behavior when evaluated against comparison group growth across a similar time period. Additionally, the results from the analyses of the conceptualized models suggest that the SDM partially mediated the development of pro-environmental behavior across both the preparatory and international workshop portions of the program. Accordingly, a number of insights regarding the reasons for these results as well as the application of the SDM to youth program contexts can be gained from these findings. Additionally, the study's qualitative findings provide some clarity to these quantitative conclusions and insights regarding the role and impact of within program socializing processes. The following sections offer discussion and integration of the quantitative and qualitative findings.

Quantitative Discussion

The quasi-experimental design employed by this study allows the researchers to make a strong case for the efficacy of the program under evaluation. Participants showed a significant increase in program outcomes in relation to the comparisons. The presence of significant participant growth on the outcomes allowed the researchers an opportunity to investigate the within program processes responsible for this positive development. The subsequent SDM findings provide valuable insights into the role that socialization processes had in the production of program outcomes.

This study also represents a unique application of the SDM to a youth program context with a focus on predicting targeted positive outcomes. The findings add to the literature in showing that the SDM functions well in a variety of contexts such as school, family, and now youth programs. Portions of the SDM played a partial mediating role in both the preparatory and international travel components of the program in terms of the development of program outcomes related to environmental knowledge, attitude, and behaviors. Additionally, the predictive structure of the SDM was validated as indirect effects of key variables (e.g., opportunities, rewards, bonding, etc.) on program outcomes were significant (see Tables 3.6 and 3.8). In other words, the SDM was still predictive of program outcomes associated with the preparatory of international workshop portions of the program after controlling for their respective baseline levels. Youth who felt more involved, rewarded, and bonded to the program also reported higher levels of program outcomes across both stages of their experience.

Notably, the SDM appeared to function more robustly during the preparatory program. Indirect effects and path coefficients were stronger in the preparatory model and the model delivered a better overall fit than the international workshop model. This finding is not too surprising due to the fact that it was noted by the PI during observations of both program components that more intentional and frequent youth/adult interactions occurred during the preparatory portion of the program. During the travel workshop much of the adults' (i.e., coordinators, teachers, and parents) attention was occupied with logistics and programming concerns, especially in the case study group due to its large size. Accordingly, socializing processes may not have been given a

chance to operate as fully during the travel experience. Conversely, it may have been that they were operating but the socialization was more of a peer to peer rather than a youth to adult process during this portion of the program, an area of socialization not directly monitored in this study. This represents an important area for future emphasis in SDM focused youth development research.

Qualitative Discussion

The inclusion of qualitative data in this study provides a level of detail that could not be obtained through quantitative findings alone. The quantitative findings provide empirical evidence of the relationship between bonding and program outcomes and the qualitative findings offer insights into the antecedents of bonding. At the heart of the processes that lead to bonding, the role of shared experiences was identified as a major component. While the SDM highlights the importance of perceived opportunities and rewards in the development of bonding, the framework that emerged from the qualitative analysis suggests what types of opportunities best promote bonding. For example, youth may receive opportunities for involvement within the program but these experiences may only lead to bonding if they are perceived as being truly shared by all individuals. If youth and adults take part in an experience where they participate on an equal level, the qualitative data suggest that bonding is much more likely to occur than if individuals remain in strictly defined youth participant and adult leader roles.

Synthesis of the Findings and Theoretical Implications

Both the quantitative and the qualitative data support the claim that socialization processes play an important role in the development of program outcomes. In terms of

implications for the SDM that can be drawn from the qualitative data, it appears that data should be collected not only on the degree to which opportunities within a context exist but also the nature of these experiences in terms of perceived equality. It may be that the perceived level of equality associated with a context's opportunities for involvement moderates the impact of this variable within the model. Additionally, other variables may have significant predictive links to bonding that the SDM does not yet account for such as perceived challenge and opportunities to provide and receive social support. Future research should be conducted to ascertain whether or not the adapting the involvement variable and adding additional variables (e.g., perceived challenge and social support) to the SDM would prove efficacious.

Programmatic Implications

For practitioners, the shared experience theoretical framework highlights the importance of groups receiving opportunities to get to know each other through shared experiential activities early on in the program cycle. Additionally, the data support the powerful role that adults can play in youth program contexts, as one mother noted:

> The most beneficial experience for Josh was the adult relationships he was able to form with the global explorer staff and instructors, the guides, and other adults in the travel group. This has brought him one step closer to adulthood himself through these interactions with strong adult role models.

That being noted, adults need to clearly understand their ability to positively impact youth participants and towards that end receive adequate mentoring training. Researchers have identified adequate and continuous training of adult mentors as one of

the key predictors of effective mentoring relationships (DuBois, Holloway, Valentine, & Cooper, 2002).

Involving adults and especially parents in youth programs is a noted best practice for youth program providers and educators (Eccles & Harold, 1993; Trotman, 2002). The research findings support the efficacy of this suggestion. For example, Catalano et al. (2002), in an extensive review of research and evaluations of youth programming, discovered that parental involvement is a common characteristic of effective programs. That being said, involving adults without providing them adequate direction and training may actually negatively impact youth participants' program experiences. Ineffective adult involvement can lead youth to adopt the perspective of taken by one of this program's participants that some adults in the program "were just grouchy, but they are old."

Limitations

There were several limitations to the study. Although a quasi-experimental design was employed to improve the external validity of the findings, the lack of randomization in terms of treatment and control assignment adversely affects generalizability. In addition, the amount of program implementation variability across the groups may have impacted this study's ability to identify within-person variability. Additionally, the small sample size, although naturally limited by the nature of the program, impacted the efficacy and scope of SEM analyses. A larger sample size would have allowed the testing of measurement models and more complex and perhaps more meaningful structural models. Of those variables tested, while most exhibited strong

psychometric properties, a number, especially the GEx beliefs scale, suffered from weak internal consistencies. Improved measurement of the beliefs variable may lead to more accurate assessments of the SDM in youth program contexts.

Conclusion

This study represents an important addition to both the youth program and SDM literature. First of all, the study supports the efficacy of the program under evaluation. Participants in this program experienced positive growth across a variety of outcome measures, growth which can, due the study's quasi-experimental design, be linked to the program itself. Findings also support the predictive efficacy of employing the SDM to understand the relationship between program processes and targeted outcomes within the context of youth programs. The application of the SDM in program contexts can also serve as a foundation for action-oriented research (Small & Uttal, 2005) in that it can promote the development of theoretically sound research that also produces findings with practitioner applicability. The simplicity of the SDM and its key constructs allow for a straightforward transition from findings to application.

In conclusion, this study makes a valuable contribution to both the SDM and youth program literature. The SDM deserves further consideration in the youth development literature for both its predictive power and its practitioner accessibility. Additionally, this study supports the important role that socialization processes play in program contexts. Regardless of the type of experience or the nature of the targeted outcomes both researchers and practitioners should always consider the quality and impact of relationships and bonding within their programs.

CHAPTER IV

THE RELATIONSHIP BETWEEN PROGRAM IMPLEMENTATION AND OUTCOMES

Introduction

Many youth programs appear to be effective, but it is often difficult for practitioners to identify program practices and structural elements that help create experiences that achieve desired outcomes. Although efforts have been made to identify best youth program practices (see Witt & Crompton, 1996), further efforts are required to rectify this situation. Additionally, the most effective practices from the best programs need to be disseminated. Unfortunately, dissemination efforts present a unique set of difficulties (Fox, Gottfredson, Kumpfer, & Beatty, 2004). Chief among them being that while research and evaluation findings may link outcomes to programs, these outcomes prove difficult to recreate without a clear understanding of program implementation (Moncher & Prinz, 1991).

Although most organizations develop plans detailing how various services and programs should be conducted, the level of actual adherence to these plans varies greatly (Durlak & Wells, 1997). Program integrity, the degree to which a program is implemented as originally planned, can be broken down into five dimensions: adherence, dosage, quality of delivery, participant responsiveness, and program differentiation (Dane & Schneider, 1998). Adherence refers to how closely program implementation matches operational expectations; dosage represents the amount of a provided service

received by a participant; quality of delivery deals with the manner in which the service was provided; participant responsiveness measures individuals' engagement and involvement in the program (Domitrovich & Greenberg, 2000; Pinkney, et al., October 2006); and program differentiation identifies program components in order to ascertain their unique contributions to the outcomes (Dusenbury, Brannigan, Falco, & Hansen, 2003).

Evaluating program integrity provides important information to multiple program stakeholders including evaluators, funders, and program staff and administrators (Rossi, et al., 2004). Obtaining a clear picture of how well a program was implemented allows evaluators to assess the possible moderating effect of program integrity on observed outcomes. Such an analysis also protects against type III error, attributing significant outcomes to an incorrectly implemented program (Dobson & Cook, 1980). Additionally, implementation findings enable funders to judge whether or not program providers are effectively utilizing financial resources and these findings can provide staff and administrators insights into how their programs are being run and how they can be improved (Rossi, et al.).

Implementation research, when integrated with outcome evaluations, can also benefit the identification of effective programs and practices. This information promotes the dissemination of empirically validated programs as well as providing insights regarding how programs should be designed and implemented in order to produce positive results. Youth program practitioners would greatly benefit from an increased focus on integrated evaluations that address both implementation and outcomes. Thus,

the purpose of this article is to present the results of an implementation evaluation of a multi-component environmental education/service learning program for middle and high school students. More specifically, the study analyzed the relation between program integrity and program outcomes in order to offer suggestions regarding the implication of these findings for best practices.

Literature Review

Reasons for Studying Implementation

Social science research and evaluation too often focuses solely on program outcomes without considering the program inputs and components responsible for observed changes. In research terms, this oversight equates to an overemphasis on accurately measuring the dependent variable (i.e., program outcomes) while giving little attention to the measurement of the independent variable (i.e., the program itself, Gresham & Gansle, 1993; Peterson, Homer, & Wonderlich, 1982). This type of research may produce misleading findings because of a lack of understanding of how program inputs lead to program outcomes (Chen, 1998). In addition to strengthening the explanatory power of research findings, studying program implementation can lead to a variety of other benefits ranging from improving the validity of findings to promoting the dissemination of best practices.

Assessing implementation integrity allows researchers to account for internal, external, and construct validity (Durlak, 1998; Gresham & Gansle, 1993; Moncher & Prinz, 1991). Understanding whether or not a program was implemented correctly allows researchers to more accurately interpret the relationship between the program and

observed outcomes (i.e., internal validity). This also helps researchers avoid Type III error, attributing program outcomes to a program with weak implementation integrity, meaning that factors external to the program were most likely responsible for observed changes (Dobson & Cook, 1980). Implementation research fosters external validity because researchers are able to accurately describe program components and the degree of program integrity thus fostering more accurate replication of the intervention. Weak external validity can impede practitioners from replicating programs that have been shown to produce positive outcomes, because they lack information regarding how best to implement the program and the degree of integrity needed to produce observed outcomes (Backer, Liberman, & Kuehnel, 1986). When implementation data is collected it allows researchers to more accurately determine the components of the program responsible for observed changes, thus promoting construct validity. Improved validity, through implementation research, increases the quality of research findings because it provides insights into how programs work and why they succeed or fail, rather than just focusing on outcomes (Chen, 1998; Domitrovich & Greenberg, 2000).

Existing research supports the case for assessing implementation when evaluating programs and interventions. Research findings suggest that implementation influences program outcomes (Dane & Schneider, 1998; Dusenbury, et al., 2003). Although implementation is often overlooked in outcome focused studies, assessing program integrity offers important insights into why outcomes do or do not occur. Research has also shown that implementation varies widely across sites and change

agents, meaning that a program implemented in multiple sites may experience varying degrees of success due to different degrees of program integrity (Durlak, 1998).

In addition to the aforementioned benefits of implementation research, gathering program integrity can increase statistical power and promote dissemination. Moncher and Prinz (1991) suggest that since higher levels of program integrity may increase a program's probability of producing targeted outcomes, they also improve researchers ability to detect change, thus guarding against type II error. Additionally, when researchers can accurately describe both program processes and outcomes, which they can if implementation data is gathered, it makes it easier to identify and disseminate information about programs that work (Domitrovich & Greenberg, 2000; Dusenbury, et al., 2003).

Evaluating Program Implementation

In order to evaluate program implementation researchers need to develop a holistic understanding of the program in question. For example, Potter et al. (2002) suggest that in order to accurately measure implementation, researchers need to focus on three key areas: program foundations, the implementation system, and program monitoring.

Many programs are based upon some type of theoretical foundation. Program theory explicates the processes whereby program components interact to produce desired outcomes (Scheirer, 1987). Although administrators and staff may possess an understanding of the theory underpinning their program, evaluators often have to work with program personnel to articulate the reasons a program is believed to work (Rossi, et

al., 2004). Once a clear understanding of program theory has been established it can be used to develop an implementation process theory, which outlines the processes whereby program services are delivered to participants (Scheirer).

The implementation system, as described by the process theory, represents the means and contexts involved in running the program (Potter, et al., 2002). The implementation system and the intervention interact to produce program outcomes (Chen, 1998). The evaluation of implementation systems requires an understanding of both within system domains (Chen), as well as factors that may moderate program efficacy (Dusenbury, et al., 2003). These domains include characteristics of the participant, implementer, delivery mode, implementing organization, interorganizational relationship (e.g., coordination between multiple agencies), micro context (e.g., individuals' social contexts), and macro context (Chen). Factors that may influence implementation system performance include implementer training, program characteristics (e.g., program complexity, availability of training manuals, etc.), implementer characteristics, and organizational characteristics (Dusenbury, et al.). While the degree to which the implementation system is evaluated must be tempered by practical considerations such as time and money, the explanatory power of the evaluation will be increased by collecting data regarding as many of the implementation factors as possible (Potter, et al.).

After developing a clear understanding of a program's foundation (i.e., program theory) and implementation system, a strategy can be developed to measure implementation integrity. This process is commonly known as program monitoring and

is defined by Rossi et al. (2004) as "the systematic documentation of aspects of program performance that are indicative of whether the program is functioning as intended" (p. 64). The success of any program monitoring plan is largely contingent upon the clear delineation of what data is being collected, how it is being collected, and by whom (Potter, et al., 2002). Program monitoring often involves the use of mixed methods (i.e., both quantitative and qualitative data collection), but the balance between methods should be dictated by the program itself. Chen (1998) suggests that qualitative data collection works best when contextual evidence is needed and preexisting credible sources of data are not readily available and that quantitative methods should be employed when extensive and precise data are required.

Current State of Implementation Research

As noted, the study of implementation is essential to truly understanding program outcomes. Unfortunately, reviews of research from a number of different disciplines suggest that issues pertaining to implementation are often ignored. In one of the first reviews to address implementation, Peterson et al. (1982) discovered that on average only 16% of the experimental studies published in the *Journal of Applied Behavior Analysis* between 1968 and 1980 that provided an operationalized definition of independent variables actually measured the degree of implementation of these variables. In a review of 181 studies of behavior interventions for young children only 14.4% included assessments of treatment integrity (Gresham & Gansle, 1993). Similarly, only 18.5% of 479 learning disability intervention studies published from 1995 to 1999 measured implementation (Gresham, MacMillan, Beebe-Frankenberger, & Bocian,

2000). Comparable reviews of prevention literature have also returned similarly low results (Dane & Schneider, 1998; Domitrovich & Greenberg, 2000). Finally, in their review of 359 treatment studies conducted from 1980 to 1988, Moncher and Prinz (1991) report that 45% include information about treatment implantation. While this latter study represents a slightly more positive perspective regarding the state of implementation research, the preponderance of evidence suggests a glaring gap in the intervention literature.

Those studies that do include measures of implementation integrity often report that this information contributes to the understanding of treatment performance and outcomes. Findings from studies of adolescent drug abuse prevention programs suggest that higher levels of implementation are related to increased program effectiveness and participant outcomes (Botvin, Baker, Dusenbury, Tortu, & Botvin, 1990; Dusenbury, et al., 2003; Pentz, et al., 1990). Participant satisfaction, a component of program integrity, was found to influence program outcomes of adolescent media literacy program (Pinkney, et al., October 2006). In addition to principal support, the level of program implementation, measured at the classroom level, was one of the key determinants of the success of a school-based, deviance prevention program (Kam, Greenberg, & Walls, 2003). The findings from these studies highlight the need to evaluate program implementation in order to more fully understand program functioning and impacts.

Conducting Effective Implementation Evaluations

Researchers have made a number of suggestions regarding key steps to conducting effective implementation evaluations. While the general framework of

implementation evaluations has been reviewed in preceding sections, the following paragraphs review more specific recommendations. First, uniform operationalized definitions of the components of program integrity need to be employed when studying implementation (Dusenbury, et al., 2003). This process allows for comparison of implementation research findings across programs and disciplines. Furthermore, all pertinent components of the program and implementation system need to be fully operationalized in order to facilitate accurate effective measurement (Gresham & Gansle, 1993; Peterson, et al., 1982).

One of the most important aspects of implementation research is the methods and measures used to actually collect the necessary data. Although multiple forms of data collection (e.g., observational, self-report, participant report) should be employed, consensus exists that observational data represent the most reliable method for assessing implementation (Durlak, 1998; Dusenbury, Brannigan, Hansen, Walsh, & Falco, 2005; Moncher & Prinz, 1991). Financial and other considerations may limit researchers' ability to conduct extensive site observations and some experience suggests that telephone interviews with implementers may be an appropriate compromise (Scheirer, 1987). When both self-report and observation data are collected they can be compared against each other to determine reliability (Dusenbury, et al., 2003). Aside from the measurement methods and types of data collected it is also important to gather information from as many sources and regarding as many aspects of implementation integrity as possible (Dane & Schneider, 1998).

To make full use of implementation data researchers need to always link these findings to program outcome data (Durlak, 1998). As noted earlier, research findings suggest that implementation impacts program outcomes in a variety of ways and investigating this relationship provides greater insights into program efficacy. Also, in order to increase the applicability of the relationship between implementation and outcome findings, researchers need to work with practitioners to develop a priori implementation and outcome benchmarks that will be used to determine if the program was ultimately successful (Rossi, et al., 2004).

Summary and Hypotheses/Research Questions

Implementation research is one of the most important, and at the same time most neglected, aspects of evaluation research. This is unfortunate due to the benefits related to quality implementation evaluations such as increased validity of findings, greater understanding of program outcomes, and improved dissemination of best practices. Effective implementation research requires researchers to clearly understand both a program's underlying theory as well as its implementation system in order to develop a program monitoring plan to assess integrity.

The current study was designed to draw on the guidelines and recommendations within the existing implementation literature to evaluate the relationships between implementation integrity and outcomes of an environmental/cultural education program for adolescents. Data were collected from the following implementation domains: adherence, quality of delivery, participant responsiveness, and dosage. In addition, data were collected regarding the following external factors: teacher and staff efficacy and

parental and administrative support and participation (e.g., parents accompanying their children on the international workshop). The study tested the following hypothesis at the .05 significance level:

1. Implementation integrity domain (e.g., adherence, participant responsiveness, etc.) scores will be positively related to observed program outcomes.

2. External factors (e.g., teacher self-efficacy, administrative support, etc.) would impact implementation integrity.

Qualitative data from program observations and focus groups was also collected in order to address the following research question:

1. How did participants, parents, and teachers involved in the program perceive key components of implementation integrity (e.g., participant responsiveness, program adherence, quality of delivery, etc.)?

Methods

A concurrent nested mixed-method design (Hanson, et al., 2005) was employed to address the hypotheses and research question. This particular design involves the simultaneous collection and analysis of both qualitative and quantitative data. In the case of this evaluation, emphasis was given to the quantitative implementation integrity data and hypotheses and the qualitative data were used to provide additional insights. The following sections provide an overview of pertinent areas related to the study's methodology.

Program Description

This study represents a component of a larger evaluation of programs run by Global Explorers (GEx), a non-profit organization that provides international immersion experiences for middle school and high school students and teachers. GEx programs are composed of three stages: a preparatory program, an international field workshop, and a post-trip service project. During the preparatory program youth participate in 9 to 12 two-hour sessions, which focus on culture, science, language, service, and leadership. Session content is specific to each groups' travel destination,

The international field workshop lasts between 7 and 14 days depending on the location. Each group—consisting of students, teachers, and optional adult chaperones—travels independently from other GEx groups. All aspects of the international field workshop are arranged and supervised by GEx staff. In addition to local guides, GEx provides each group with a volunteer field scientist as well as a GEx staff member. During this portion of the program students and teachers take part in a variety of cultural, scientific, and service activities. Upon returning from the field workshop, participants design and implement a service project directed either towards the needs of their own community or the international community they visited.

Study Population

GEx promotes their programs to middle and high school teachers across the United States. Teachers interested in sponsoring GEx trip must recruit students from their school to enroll in the program. Data for this study were collected from seven different groups of students who traveled with GEx during 2008. These students also

participated in a pre-travel, preparatory program supported with GEx curricular materials and implemented by their sponsoring teacher. Consent forms were collected from all teachers and parents whose children were involved in the study. Assent was obtained from participating students.

All groups (N = 10) participating in a GEx program were invited to take part in the program evaluation. Three groups declined involvement due to perceived logistical difficulties and or lack of interest from teachers and participants. Of the 215 youth who participated in a GEx program during 2008, 108 from seven different groups agreed to take part in the evaluation. The participant group consisted of 51 females and 57 males. At the beginning of the study, participating students had a mean age of 14.5 (SD = 1.65) and 82% were White. Data were also collected from participating teachers (n = 12), parents (n = 59), and GEx staff members (n = 4). Demographic data were not collected from these groups.

Program Monitoring Plan (Quantitative)

Data collection. A number of different procedures were employed to collect questionnaire data from participant and comparison groups. At the completion of the preparatory program (T2), participants completed a questionnaire (Appendix A) consisting of both traditional and retrospective pre-test items. The traditional items addressed issues related to socialization processes within the preparatory program. The retrospective pre-test items assessed pre (T1) and post preparatory program (T2) levels of self-reported program outcome variables (i.e., environmental knowledge, attitude, and

behavior). Students in the comparison group also completed the retrospective pre-test items during approximately the same time frame as their participating counterparts.

Retrospective pre-tests were employed in this study for two reasons: (1) logistical limitations did not allow for data collection before all groups began participating in the program and (2) the desire to guard against self-report bias. Retrospective pre-tests occurred at the conclusion of the preparatory program and required respondents to indicate their current perception of the degree to which they possessed a specific trait, attitude, or attribute previous to their participation in the preparatory program (Sibthorp, et al., 2007). The retrospective wording for this study was "at the beginning of the school year, how would you have responded to this statement [referring to the statement associated with that particular item]?" Use of this approach guarded against response-shift bias which occurs between pre and posttests when individuals' internal scale of measurement changes as a result of an experience (Pratt, et al., 2000; Sibthorp, et al.). For example, a youth participant might rate themselves high on a pretest skills inventory as a result of inaccurate perceptions of the difficulty of tasks they will be required to complete. After completing the tasks, even though the individual gained a greater degree of competence from their experience, they might rate themselves lower on the posttest than the pretest due to a more accurate perception of task difficulty.

After completing the international field workshop (T3), participants completed all items from the T2 questionnaire in order to provide information regarding the unique impact of this program component. In order to follow-up with both groups a final round of data collection occurred during the fall of 2008 (T4). T4 data collection was planned

to occur after all groups had completed their post-trip service projects. Time between post-travel and follow-up data collection periods ranged from 3 to 7 months. Due to logistical difficulties associated with collecting data from the comparison group during the summer, data were only gathered from the comparisons at T1, T2, and T4. Table 4.1 contains a complete breakdown of the responses collected at each of four data collection periods. At T4, in contrast to paper and pencil questionnaires used at all other collection periods, respondents were invited through email to complete an online survey. Reminder emails were sent to non-respondents approximately every 10 days. After three reminder emails had been sent, hard copies of the questionnaire with pre-paid return envelopes were mailed to non-respondents. Additionally, the PI visited the case study group during this period and hand delivered questionnaires to a number of participant and comparison group students.

Table 4.1

Questionnaire Response Overview

Group	T1	T2	T3	T4
Participants	106	106	108	75
Teachers	7	7	12	9
Parents	59	59	26	20
GEx Staff	---	---	3	---

While the number of participant questionnaires across the first three data collection occasions remained stable, some attrition did occur at T4. More specifically, the participant group experienced a 31% decline in response rate. An attrition analysis was conducted in order to identify potential differences between those individuals with and without complete data. This involved one one-way ANOVA's to test for differences

between these groups on applicable study variables and demographics. These tests revealed no significant differences between those with and without complete data. The assumption that the data are missing at random was supported by these findings. This finding, along with the low rate of missing data (< 5%) for the data from those individuals who completed at least a portion of the survey at each time wave, provided justification for imputing some of the missing data. This was conducted using the LISREL 8.8 multiple imputation procedure to address missing values at each time wave for individuals who completed at least some portion of the questionnaire. Data were not imputed if no response was collected from an individual at a particular time wave.

Teacher measures. As noted, data related to a variety of implementation integrity domains was gathered from teachers. Items developed by the researchers specifically for this study were developed to assess key implementation constructs. Table 4.2 contains a complete description of all teacher items.

Table 4.2

Teacher Report Domains and Items

Domain	Item	α
Preparatory Program Adherence (PAD)	Our group was able to cover all of the curricula.	---
Preparatory Program Quality of Delivery (PQD)	The lesson materials provided by GEx were easy to understand.	.81
	The lesson materials provided by GEx were easy to implement.	
	I feel that the Preparatory Program were a success.	
	The content of the Preparatory Program benefited my students	
Teacher Efficacy (TE)	I was confident in my ability to implement the Preparatory Program.	---
Admin. Support (AS)	My school's administration is supportive of Global Explorers.	---
Parental Support (PS)	My students' parents are supportive of Global Explorers.	---

GEx staff measures. GEx staff members were asked to complete a short questionnaire after each day of the international workshop. Mean scores for each item were calculated across all reported days. One of the groups had two GEx staff members and their responses were averaged to create overall implementation scores for that group. Items from this questionnaire were adapted version of the same items answered by participating teachers after the curriculum workshops. Table 4.3 contains a complete description of all staff items.

Table 4.3

Staff Report Domains and Items

Domain	Item	α
Adherence (WAD)	Our group was able to complete all the planned activities for today. Our group met all of the goals outlined in the schedule for today.	.72
Quality of Delivery (WQD)	Today's schedule, lessons and activities were clear and understandable. Today's schedule, lessons and activities were easy to implement. I feel that today was a success. Today's activities and lessons benefited the students	.74
Staff Efficacy (SE)	How confident were you in your ability to implement today's schedule?	---

Parent measures. Only open ended items from the parent questionnaires were used in this study. These items dealt with issues related to program satisfaction and parental assessments of program outcomes.

Participant measures. Due to the inclusion of an ecological attitude scale with behavioral and affective components, strong psychometric properties, and age appropriateness, three subscales from the Children's Environmental Attitude and

Knowledge Scale (CHEAKS, Leeming & Dwyer, 1995) were chosen for this study. The CHEAKS subscales, each containing 12 items, measure self-reported levels of environmental affect, verbal commitment, and actual commitment. For the purposes of this study's operationalization of TPB constructs, the affect items were used to measure attitude (EA), the verbal commitment items measured behavior intentions (EBI), and the actual commitment items measured behavior (EB). The attitude subscale contains such statements as "I get angry about the damage pollution does to the environment" and "I am frightened to think people don't care about the environment". Statements like "I would not be willing to save energy by using less air conditioning" and "To save water, I would be willing to turn off the water while I was my hands" are examples from the behavioral intention subscale. Items from the environmental behavior subscale included statements such as "I have asked my family to recycle some of the things that we use" and "I do not let a water faucet run when it is not necessary."

Previous work employing the attitude subscale suggests acceptable levels of reliability (Leeming & Dwyer, 1995). Data collected from a sample of 4^{th} to 7^{th} grade students returned a Cronbach's alpha coefficient of .89. Two administrations, over an eight month period, of the attitude subscale produced a correlation coefficient of .70, suggesting acceptable levels of test-retest reliability. Weak correlations between the attitude and knowledge subscales across both administrations (r = .125 to r = .127) lend support to the convergent and discriminate validity of these subscales. The authors also established contrasted-group validity for the scale by having teachers identify high and low environmentally conscious students and comparisons of these groups' scores

revealed significant and expected differences. More recent research involving Irish adolescents (N = 388) supports Leeming and Dwyer's findings regarding the reliability and validity of the CHEAKS (Walsh-Daneshmandi & MacLachlan, 2006).

The American Camping Association teamwork scale was used to measure leadership (LD). The scale consists of eight items with 5-point Likert response formats and includes statements such as "I can be a good group leader" and "I can place group goals above the things that I want." The scale has been shown to have sound psychometric properties including high reliability (r > .87) and strong internal consistency (r > .80) (American Camping Association, 2007). To measure participants' level of ethnocentrism (EC) the 15 item generalized ethnocentrism (GENE) scale (Neuliep & McCroskey, 1997). The GENE scale uses a 5-point Likert response formats and contains statements such as "other cultures should try to be more like my culture" and "I respect the values and customs of other cultures". Previous research using this scale has reported Cronbach's alphas ranging from .82 to .90 as well as evidence of the scale's concurrent and construct validity (Neuliep, 2002). To assess participant responsiveness (PR) the following three statements were employed using a 5-point Likert response format: "I like the Global Explorers program", "I would tell other kids to sign up for Global Explorers programs", and "I would sign up again for Global Explorers programs". To account for dosage levels during the preparatory program teachers were asked to record participants' attendance. Total number of travel days was used to measure international workshop dosage levels. All items employed in this study were assessed using a 5-point Likert response format (1 = very untrue to 5 = very true)

and all measures produced adequate levels of internal consistency across all waves of data collection (Table 4.4).

Table 4.4

Reliability Coefficients for All Study III Measures

	Alpha Coefficients			
Scale	T1	T2	T3	T4
Environmental Knowledge	.78	.83	.77	.78
Environmental Attitude	.85	.85	.84	.84
Environmental Behavior	.75	.71	.65	.70
Leadership	.88	.82	.89	.93
Ethnocentrism	.70	.79	.74	.73
Participant Responsiveness	---	.73	.87	.68

Analysis. Correlation analyses were conducted to test the study's hypotheses. Separate matrices, that included implementation, external factor, and outcome variables, were conducted for each portion of the program and for each hypothesis.

Program Monitoring Plan (Qualitative)

Working with GEx administrators, one of the participating groups was invited to serve as a case study for the qualitative portion of the evaluation. This group was selected for a number of reasons including size (N = 46), teacher supportiveness, and the fact they were traveling to Peru, which allowed GEx administrators to obtain interview and observation data pertaining to their most popular travel destination. Qualitative data collection involved focus groups and dyadic interviews (Table 2.3) as well as responses to a variety of open ended items on the T2, T3, and T4 questionnaires.

These open ended items were gathered from all evaluation participants, not just the case study group. Focus groups and dyadic interviews were conducted with youth

participants and their parents during three site visits conducted by the principle investigator (PI). The first two site visits, one during the middle and one towards the end, occurred during the preparatory portion of the program and a post-travel visit took place during the fall. Each site visit lasted approximately three days and allowed for multiple student focus groups (i.e., four to six participants) and one large parent focus group (i.e., 8 to 12 parents). Additional parent focus groups were not possible due to logistical constraints. These focus groups allowed participants to share thoughts about their experiences in the program and to respond to a variety of questions designed to facilitate discussion regarding the study's research questions (Appendix B). The PI also observed various activities associated with the program (e.g., after school meetings).

The PI also traveled with the group to the international field workshop in Peru. During this two week experience the PI conducted program observations and interviews. The first week was spent at several guest lodges in the Peruvian Amazon basin and the second week took place in central Peru hiking the Inca Trail to Machu Picchu. The entire group participated in the Amazon portion of the trip with approximately half of the group staying for the Inca Trail portion. Interviews and focus groups were conducted with all participants, including teachers and GEx staff members, regarding a variety of issues including but not limited to those directly pertaining to this study. The PI also conducted participant observations each day of the workshop and took field notes regarding all aspects of the program. These notes were transcribed and incorporated into the analysis. The third site visit occurred during the fall of 2008. This visit allowed the

PI to interview the same groups of individuals regarding their overall assessment of the program as well as their perceptions of the long term impact of their experiences.

Analysis procedures. All interviews were recorded and transcribed. During the transcription process actual names were replaced with pseudonyms. Field notes taken by the PI were also be transcribed. The analysis process was guided by grounded theory methodology as outlined by Strauss and Corbin (1998a) and the study's research questions. The nature of qualitative inquiry also enabled the researchers to remain open to potential insights that might emerge outside of the scope of the study's original focus. Through these processes, the researchers allowed the data to speak for itself as opposed to forcing findings to conform to a predetermined theoretical framework (Strauss & Corbin, 1998a).

The analysis process began with readings of pertinent portions of the transcripts in order to identify repeated words, phrases and themes. This open coding process enabled the development of themes that were grounded in the data themselves (Strauss & Corbin, 1998b). The number of categories was determined by the nature of the data and was not constrained. That being said, commonalities between categories allowed for the development of more abstract categories under which related sub-categories were grouped; this process is referred to as axial coding (Strauss and Corbin). This process also involved identifying relationships between categories. Axial coding occurred concurrently with open coding. Once fairly developed categories emerged, the researchers moved to selective coding, whereby a core category was identified and the focus of the analysis shifted to connecting other categories to this core category in order

to begin the development of a grounded theory (Strauss and Corbin). Additionally, categories that appeared to be unrelated to the core categories were trimmed from the analysis. Data collection and analysis continued until the data under analysis promoted no additional category development; this is referred to as theoretical saturation (Strauss and Corbin).

Memo writing, an essential aspect of qualitative research, occurred throughout the data collection and analysis processes. Memoing is essentially note taking that occurs during the coding process. Strauss and Corbin (1998a) identify three types of memos: (1) code notes, (2) theory notes and (3) operational notes. Code notes refer to memos regarding any aspects of the coding process. For example, memos about why certain quotes were assigned to a particular code or the reason behind a given code name. Theory notes deal with issues regarding conceptual relationships, whereas operational notes deal with logistical aspects of the study. The final step of the analysis process involved the integration of themes and relationships between these themes into a coherent response to the study's research questions. Throughout the analysis process, codes, analyses and the emerging theory were reviewed by co-PI's as well as the participants themselves to insure that all analyses remained true to the raw data and lived experience of the respondents (Strauss & Corbin, 1998a). Creswell (2007) suggests researchers employ at least two validation strategies to ensure the quality of their work; this study employed four: extensive time spent in the field with the subjects; the use of multiple forms of data (e.g., interviews with parents; teachers; GEx staff and youth; field notes; and open ended survey questions), member checking; and peer review.

Researcher's relation to the data. As noted, the PI spent a significant amount of time with members of the case study group, during which time efforts were made to be a passive observer of the program as opposed to an active participant. The focus was on building rapport with all participants in order to develop relationships that would foster the open sharing of information. The PI has had experience as a director of programs for youth and taking on the role of observer represented a new experience and one that required conscious effort not to take a more participatory place in the program. This being said, it must be acknowledged that the PI's presence in the field invariably impacted the youths' experience. For example, without the interviews and focus groups many of the youth would not have had a comparable opportunity to discuss and debrief their experiences.

Integration of Qualitative and Quantitative Analyses

Mixed-methods designs involve both the collection of different types of data as well as an integrated analysis of this information. Unfortunately, the analysis portion of this process is often neglected in most mixed-method research (Caracelli & Greene, 1993). Therefore, the analysis of qualitative and quantitative data in this study occurred jointly and informed each other. As noted previously, emphasis in this study was given to the quantitative findings with the qualitative data serving a supporting role.

Findings

Quantitative Findings

Descriptive statistics and gender differences. A full presentation of the descriptive statistics of all participant variables is provided in Table 4.5. Due to logistical

difficulties teachers were not able to fully collect attendance data during the preparatory program; therefore, dosage data will not be incorporated into the analysis related to this component of the program. Gender differences on the study variables analyzed using one-way ANOVA's. Participating boys reported higher levels of EK at T1 ($F(1, 101) = 10.49$, $p = .002$) and at T4 ($F(1, 74) = 6.69$, $p = .01$). Participating girls reported higher levels of participant responsiveness (PR) at T2 ($F(1, 101) = 5.54$, $p = .02$) and EB at T3 ($F(1, 105) = 4.01$, $p = .048$. Descriptive statistics for all preparatory program and international workshop implementation items at the group level are presented in Table 4.6.

Table 4.5

Participant Descriptive Statistics

	T1		T2		T3		T4	
Measure	*M*	*SD*	*M*	*SD*	*M*	*SD*	*M*	*SD*
Environmental Knowledge	2.25	0.92	3.90	0.81	4.19	0.77	4.42	0.68
Environmental Attitudes	3.21	0.80	3.77	0.69	3.97	0.64	3.94	0.65
Pro-Environmental Behavior	2.90	0.80	3.31	0.68	3.49	0.64	3.64	0.65
Leadership	3.30	1.02	4.17	0.67	4.37	0.65	4.41	0.77
Ethnocentrism	13.90	11.08	10.22	9.83	7.87	8.27	7.75	8.38
Participant Responsiveness	---	---	4.40	0.65	4.68	0.61	4.74	0.47

Table 4.6

Implementation Descriptive Statistics

	Preparatory Program (n = 7)		International Workshop (n = 3)	
Implementation Measures	*M*	*SD*	*M*	*SD*
Adherence (AD)	2.83	1.17	4.39	.43
Quality of Delivery (QD)	4.55	.43	4.53	.15
Dosage (DOS)	---	---	11.58	2.63
External Factor Items	*M*	*SD*	*M*	*SD*
Teacher Efficacy (TE)	4.50	.45	---	---
Staff Efficacy (SE)	---	---	4.49	.15
Administrative Support (AS)	4.50	.84	---	---
Parental Support (PS)	4.83	.41	---	---

Hypothesis 1. Correlation coefficients were calculated to test the first hypothesis, that implementation integrity domain (e.g., adherence, participant responsiveness, etc.) scores would be positively related to observed program outcomes. Correlation matrices were produced for all outcome change scores and implementation measures for the preparatory program and international workshop. Change scores were created for each program component by subtracting the pre-program component measure score with the post-program component score (e.g., preparatory program change score = T2 – T1). These findings partially support the study's first hypothesis. The findings suggest that of all the areas of implementation integrity incorporated in the analysis, only PR produced significant relationships with the program's outcomes. Table 4.7 contains information on all correlations that were significant at the .05 level.

Table 4.7

Outcome & Implementation Correlation Coefficients

	Preparatory Program		International. Workshop	
	PR		PR	
	r	r^2	*r*	r^2
Environmental Knowledge	.23**	.05	---	---
Environmental Attitudes	.18*	.03	---	---
Pro-Environmental Behavior	---	---	.24**	.06
Leadership	---	---	.21*	.04

* $p < .05$; ** $p < .01$

Hypothesis 2. Results from a second set of matrices partially support the study's second hypothesis, that factors external to the program (e.g., teacher self-efficacy, administrative support, etc.) would impact implementation integrity. These matrices include the implementation domains of participant responsiveness, adherence, and quality of delivery for the preparatory program and international workshop as well as the following external factors: administrative support, parental support, teacher efficacy, staff efficacy, and whether or not a parent is traveling with their child. Table 4.8 contains information on all significant correlations.

Results indicate that during the preparatory program teacher efficacy and support from school administrators and parents is related to both adherence and quality delivery. It is interesting to note, that administrative support and teacher efficacy are negatively related to program adherence. This may indicate that the more confident teachers, especially those who already have the backing of their administration, feel less compelled to strictly adhere to the outlined curriculum. During the international workshop, the presence of traveling parents and staff efficacy were both positively

related to adherence and quality of delivery. The only external factor significantly correlated to participant responsiveness was teacher efficacy.

Table 4.8

External Factors & Implementation Correlation Coefficients

	Preparatory Program						Int. Workshop			
	Administrative Support		Parental Support		Teacher Efficacy		Traveling Parents		Staff Efficacy	
	r	r^2	*r*	r^2	*r*	r^2	*r*	r^2	*r*	r^2
Participant Responsiveness	---	---	---	---	.18*	.03	---	---	---	---
Adherence	-.20*	.04	.54**	.29	-.34**	.16	.56**	.31	.40**	.16
Quality of Delivery	---	---	.28**	.08	---	---	.48**	.23	.71**	.50

* $p < .05$; ** $p < .01$

Qualitative Findings

The focus of the qualitative research questions was to ascertain teachers', parents', and youth participants' perspectives issues related to program implementation. Applicable codes from the full evaluation qualitative analysis were selected and organized into appropriate implementation categories: adherence; quality of delivery; participant responsiveness; and external factors (e.g., parental support). The codes related to program implementation are reviewed first, followed by data related to the influence of pre-trip preparation on the travel experience.

Adherence. The data suggest that teachers struggled to cover the recommended curriculum in addition to preparing for the logistics/paperwork/etc. associated with traveling. For example, one teacher expressed a sense of too much to do in too little time:

> It was a lot of material. We had less than 20 students and felt rushed at times, even though we met weekly for one and half hours for 27 weeks. We usually needed about twice as much time as the book recommended.

Another stated, "there is a great deal of information that we just don't have time to cover and wish we did!" Students too appeared aware of the large amount of material the teachers were trying to cover and felt that more time was needed so that meetings could involve more group activities in addition to getting necessary paperwork and logistical details covered:

> The meetings are an hour and half. We do a little bit but most of the time it's talking about the trip and stuff and getting ready, preparations for the trip, you know talking about getting your paper work in, turning in the homework and stuff for like that. I would not mind going for two hours or more and do some more activities.

In attempts to address the "too much information to cover" concern, teachers made a number of recommendations. One teacher suggested that GEx offer different versions of the curriculum to meet the time resources of various groups. A number of teachers expressed the desire to incorporate the preparatory program into the regular school day in order to increase the amount of time available for the curriculum.

An additional factor that seems to have negatively influenced program adherence, at least for the case study group, was the large size of the group. Almost 80 individuals traveled with the case study group whereas most GEx groups do not exceed 25 participants. While evaluating the overall experience one of the case study teachers

made the following comment: "Purely from a logistical standpoint, taking 77 travelers…is a bit much. Yes we want the numbers, but not all at once and that was our fault." The size appears to have increased the time and complexity of many aspects of the experience.

From parent's comments and the PI's observations, group size also caused some components, such as opportunities for debriefing during the international workshop, to be neglected or severely limited. As mentioned, debriefing opportunities appeared to be one of the first activities that were left out when logistics became difficult, an assumption supported by this teacher's comment: "In the past, round table discussion have been very beneficial. Didn't have as many this year, possibly due to logistical challenges." Parents who traveled with the case study group also noticed and commented about the lack of debriefing as is evidenced by this parent's response to an open ended "suggestions for future program improvements" item on the post-travel questionnaire: "Times for open debriefing, scheduled and intentional. Personal journaling is great but providing a chance and the prompting for the students to discuss experiences might be helpful." Although students did not comment on the lack of debriefing, the PI did note in one of his post-trip memos that the evaluation focus groups filled this void for many of the students: "In retrospect, I think my focus groups were the only chance many of the students had to experience structured processing. They enjoyed them because they were not getting enough opportunities for discussion within the program."

Quality of delivery. In spite of difficulties related to program adherence, the quality of the program as a whole was viewed very positively by those involved.

Teachers valued the level of support and organization provided by GEx. The high degree of organization was recognized by parents, youth and the principal. The following provide an overview of comments related to the program's quality of delivery:

- The GEx program made my experience amazing because they had everything planned perfectly and the trip overall will remain with me the rest of my life [youth participant].
- Things seemed to go off without a hitch which I believe is due to impeccable planning on the part of Global Explorers [parent].

Thus, appears that well-planned nature of the program is what allows the teachers to garner so much support from parents and administrators, a point that will be revisited later in the article.

Participant responsiveness. Based upon parents and participants' comments, participation in the program was viewed very positively:

- I will always remember this experience as one of the greatest things in my life [youth].
- This is the best thing I've ever done. I hope someday more and more students get the opportunity to do this [youth].

It appears that the unique nature of the program, the fact that it was a "once in a lifetime" experience was an important aspect of the experience:

- GEx provided me with an experience of a lifetime. I would trade nothing for such a trip [youth].
- But this is like once in a life time trip to get to go like deep in the middle

> of the Amazon and be able to learn about all kinds of different things like insects, plants down there. It's really awesome [youth].

Teachers also appear to have sincerely enjoyed the experience, even with all of the extra work it entailed. In fact, one teacher credited the program for helping maintain their desire to continue teaching:

> I have to say as an educator, I mean there was a time you know you have that burn out 3-5 years where if I hadn't of found this program, I don't know that I would have stayed in education cause it gave me that, that opportunity to make a difference with kids.

Teachers saw the experience as a way to connect with youth on a different level than regular classroom interactions provided. The following conversation with the case study principal highlights this perceived benefit for the teachers themselves:

> PRINCIPAL: I also think it helps all of us educators who are involved see our kids in a different light.
>
> PI: So what added perspectives do you get from the kids?
>
> PRINCIPAL: Well you get a chance to see the kids in an unpressured situation and for example…when we went to [the preparatory program retreat] I spent two nights with those kids, we slept in the same cabin and they saw me very differently and I saw them very differently, I saw them as kids who were trying to learn how to fit in into this world, trying to find their niche, find their way to experience new things. I think sometimes in the classrooms we don't see that. We get so locked into the quiz on Wednesday, we don't see that these kids are

> really trying to grow; they are trying to be adults. And if they don't connect with my subject area, sometimes I can get perhaps, and unrealistic negative view point of the fact that they don't care which I think this allows me and hopefully out teachers, to see that that's not true. They do care; they may not care about math as much as I do.

In addition, many strong positive statements regarding the program, there were some aspects of the experience that produced dissatisfaction. For example, many of the students, although they may have recognized the importance of the preparatory activities, still felt the meetings were boring: "Yeah I also don't like the parts of the meetings, they just talk about traveling forms and immunizations and things like that. I know it has to be done but I still, I don't, I kind of get bored there." Others just felt that portions of the preparatory experience just were not worthwhile: "I think some of the aspects of your preparation were pointless, I can't really pin point something right now, but some of the stuff we did was more of a time consuming thing than anything we actually learned." Another group of students felt disappointed due to unmet expectations associated with the travel portion of the trips. For these students the Amazon was not what they had expected:

- I was thinking the trees were going to be a lot cooler. There were some cool ones out there but I don't know if it was like, how high we were, we were just seeing like the tops of them and not seeing like the cool parts.
- The main forest is definitely not how I pictured it….I really thought that there would be an animal like every ten feet, like some giant mammals.

As mentioned, while the majority of the comments from participants about the program were positive, it remains important to also recognize those instances that negatively impacted the experience.

External factors. In addition to understanding the influence of program implementation on outcomes, it is also beneficial to understand factors that impact implementation itself. The implementation literature suggests that various features and processes external to the program impact implementation. Support of parents and administrators for the program are two such factors. As mentioned earlier, the high quality of delivery, in terms of the well-planned nature of the program, appears to be one reason that the case study group was able to garner external support for the program. In discussing the reasons for backing a GEx program at his school the case study principal made the following comment:

> All of that [organization, preparatory activities, etc.] just builds a very high level of confidence among the adults who are going that wow this is not just some teachers throwing this together and book an airline flight. This is well done and there is a connection every month.

Although the thought of sending their child to a foreign country was scary for some parents, the program's high degree of organization and involvement calmed many parent's fears as is evidenced by this students' description of his parents' decision to allow him to participate:

> I told my parents [about the GEx program] and I started begging them because I've always wanted to go somewhere, do something like as cool as that. Cause

> we had a meeting like about it. And so, they weren't like so sure, it's pretty pricey and stuff but when they went to the meeting they saw like how involved it is, and like you go help out the school there and do a whole bunch more things than they thought, they thought you just went there and like stayed there and like did stuff. But there was a lot more than they expected so they liked it.

The case study teachers saw parental involvement as a key aspect of running a successful program, without which it would be difficult to manage all aspects of the implementation thereof. As one of the teachers expressed, "I can't imagine doing it without the parents."

Discussion

Quantitative Discussion

It appears from the quantitative findings that of the measured implementation domains, PR was the most influential in terms of having an impact on program outcomes. Findings indicate that as PR increased so did growth on the measured outcomes. Post-hoc analyses indicate that PR continues to be significantly correlated with program outcomes post-participation. A correlation matrix (Table 4.9) was constructed using follow-up outcome change scores (i.e., T4 outcomes – T3 outcomes) and follow-up PR. These findings indicate that PR's link to outcomes becomes even broader after the program based upon the fact PR was only significant correlated with two outcomes during both the preparatory program and international workshop but follow-up PR is linked to all five outcomes. It may be that the lasting positive

perceptions of the program facilitate the continued growth and or maintenance of outcomes derived from participation.

Table 4.9

Follow-up Outcome & Participant Responsiveness Correlation Coefficients

	Participant Responsiveness	
	r	r^2
Environmental Knowledge	.26*	.07
Environmental Attitudes	.26*	.07
Pro-Environmental Behavior	.33*	.11
Leadership	.23*	.05
Ethnocentrism	-.30*	.11

* $p < .05$

It is interesting to note that none of the other measures of implementation (e.g., adherence, quality of delivery, etc.) were correlated with the outcomes. The lack of significant findings may be due to the self-report nature of the data. Previous implementation research suggests that self-report data is less reliable than observational data (Dusenbury, et al., 2003). Self-report measures were used in this study due to logistical constrains that made the collection of observational data unfeasible.

Despite this limitation the findings regarding the relationship between implementation domains and external factors presents some interesting insights. As mentioned earlier, the finding that teachers who felt they had strong administrative support and were more confident about their ability to implement the program also reported lower levels of program adherence. High levels of staff efficacy were actually

positively related to adherence and quality of delivery, thus suggesting that staff efficacy and teacher efficacy interacted with implementation in very different ways. These findings also suggest the importance of parental buy-in and support for the program in that this factor was positively correlated with adherence and quality delivery in both components of the program.

Qualitative Discussion

The qualitative data suggest that the program was well implemented. Although some difficulties existed regarding program adherence, such as not being able to cover the entire curriculum and the size of the case study group, teachers, parents, and youth perceived the program to be well delivered and enjoyable. Additionally, the organized nature of the program facilitated support from administrators and parents. The teachers in turn perceived this support as a key component of the successful implementation of the experience.

Synthesis of Findings

The quantitative and qualitative findings appear to corroborate one another. For example, the qualitative data indicate that adhering to the preparatory program as outlined by GEx was difficult which matches the low adherence scores exhibited in the quantitative data for this portion of the program. The qualitative data also provide some potential insights into the interrelationship between implementation variables, such as the facilitating role of quality of delivery in terms of external support for the program. The interplay between the quantitative and qualitative findings provide a much richer perspective from which to draw both theoretical and programmatic implications.

Theoretical Implications

The quantitative findings suggest the importance of PR in terms of impacting program outcomes. While the lack of impact from other implementation domains may be due to the self-report nature of the data and the absence of dosage data from the analysis, this finding does raise a question regarding the relative importance of each domain. The further development of implementation theory in this regards would provide practitioners with a more prioritized perspective when attempting to improve the implementation of their own programs. Additional research should also consider the synergistic effect of the implementation domains rather than just focusing on individual level contributions.

Programmatic Implications

The qualitative data provide some potential insights into areas where improvement could be made to increase participant satisfaction, a construct the quantitative data identified as key to program success. Two such areas are the preparatory meetings and the lack of debriefing during the international workshop. Participants often mentioned they found aspects of the preparatory meetings boring. A number of comments were made by youth pertaining to how these meetings could have been improved:

- Maybe we could like, like after our homework, like this meeting tomorrow maybe they could have assigned someone to do a section and teach part of it, like help explain part of it at the meeting instead of just

like turn on your homework and then that's done, like, we don't do anything with the homework.

- The meetings are an hour and half. We do a little bit but most of the time its talking about the trip and stuff and getting ready, preparations for the trip, you know talking about getting your paper work in, turning in the homework and stuff for like that. I would not mind going for two hours or more and do some more activities.
- I don't think that they involve us enough. They do a lot of the work, which is really good and they do paperwork and stuff but I don't think we're doing enough of it.

From these comments it appears that some individuals desired an increased role in the meetings as opposed to merely being passive participants and that there was a desire for more activities beyond just paperwork and logistics. The other area for improvement, lack of debriefing, was focused on more by the adults but would directly impact the youth. The PI noted that during the trip the participants were faced with a variety of difficult issues related to poverty, cultural differences, etc. that may prove difficult for adolescents to process without opportunities for structured debriefing opportunities:

> It would be nice if these "tough" issues were addressed more directly in the programming. I think the kids would really benefit from opportunities to discuss these issues in a structured group setting in addition to just thinking about it on their own…as the program currently stands I think many kids do not think about these issues and those that do feel a little overwhelmed figuring it out on their

> own. It may also seem so daunting that kids just give up. Louv (2008) notes this problem in his book when talking about rainforest curriculum overwhelming some kids because it makes them feel that the problems are too big for them to help with. It is good for kids to face these issues but then they needed some scaffolding and guidance to know how to process them and also be shown some avenues to deal with them.

Accordingly, increases in PR may be obtained by making programming adjustments that facilitated greater youth involvement in the implementation of the preparatory program and increased opportunities for structured debriefing during the international workshop.

Limitations

There are several limitations to this study. As mentioned already, the use of self-report data to measure both outcomes and implementation has inherent problems such as self-report bias. Additionally the study's sample size precluded the use of more sophisticated statistical analyses. The authors had originally planned to analyze the data using hierarchical linear modeling due to better account for the nested structure of the data (i.e., repeated measures nested within individuals and individuals nested within groups) but the small number of groups did not make this possible. The lack of data regarding program dosage also limited the explanatory power of the findings. If dosage data had been available the internal validity of the findings would have been strengthened in that a stronger argument for linking the program to the outcomes could have been made.

Conclusion

The incorporation of implementation findings can greatly improve the explanatory power of program evaluation findings. This purpose of this study was to use findings from an evaluation of an environmental education and international immersion program for middle and high school students to address the lack of youth program implementation findings. The results indicate that of the measured implementation domains, participant responsiveness was the only one significantly linked to program outcomes. As mentioned previously, the lack of significant correlations involving other implementation domains such as adherence may be due to the study's use of self-report data. Additionally, the authors themselves learned that the collection of implementation data, though desirable and worthwhile, can be very difficult when working with multiple groups and implementers spread across the United States. Despite these difficulties the findings from this study offer practitioners and researchers a number of important insights that have been highlighted in the previous section. Although this type of research comes with its own set of logistical difficulties the benefit of quality implementation data outweighs the cost of their attainment.

CHAPTER V

CONCLUSIONS

The purpose of this study was to understand the processes and outcomes associated with an environmental education/international immersion program (GEx). Findings from both quantitative and qualitative data collected from teacher, parent, and youth participants provide valuable insights towards this end that have applicability for both researchers and practitioners from a variety youth related fields. The first study investigated the relationships between experience types (i.e., indirect vs. direct) and learning outcomes (i.e., knowledge vs. attitudes). Findings suggest that experience type plays a significant role in the type of learning outcomes participants realize as well as how these outcomes influence behavior. Environmental knowledge (EK), within a theory of planned behavior framework, was significantly related to environmental behavior (EB) only during the international workshop. An interpretation of this finding, drawing upon insights gained from the qualitative data, is that the international workshop provided participants opportunities to apply their EK in a direct and hands-on manner. These experiences appear to have catalyzed theretofore inert EK into something that had some degree of influence on EB. The qualitative data also suggest that participants' perceived freedom assessments of various experiences moderated the degree to which they felt an experience was direct or not.

The second study represented a unique application of a social development model (SDM) in order to understand the relationship between within program

socialization processes and program outcomes. SDM's fit the data well from both the preparatory program and the international workshop and the model predicted a significant portion of the variance in EB after controlling for baseline levels of this outcome variable. The preparatory program SDM produced the stronger fit and predictive efficacy of the two models. This finding may be due to the fact that more intentional youth/adult interactions occurred during this portion of the program in comparison to the international workshop, a conclusion drawn from the PI's field notes. Additionally, the analysis of the study's qualitative data produced a proposed model of shared activities and bonding that suggests that within program bonding was partly determined by the degree to which youth participants perceived their involvement with adults to be horizontal. In other words, youth valued experiences where adults participated with them as equals rather than as disciplinarians or administrators.

The final study provided insights regarding the degree to which the program was implemented as originally planned and how the domains of implementation integrity influenced program outcomes. The findings suggest that of the measured implementation domains, only participant responsiveness (PR) was significantly related to program outcomes. Additionally, the strength of this relationship became stronger as the program progressed thus suggesting the importance of PR both during and after program participation. The qualitative data suggest that most participants positively perceived the program and felt it was well organized. Comments also indicate that the high perceived level of program organization facilitated administrative and parental support for the program, which was a key component of success in the minds of the teachers. The

qualitative data also provided insights regarding areas of improvement as recommended by participants. For example, many felt the size of the case study group hindered program adherence by increasing the difficulty of implementing certain program components such as opportunities for within program youth debriefings. Some youth participants also expressed a desire for increased opportunities for engagement and leadership.

Researcher Reflexivity

The mixed-methods evaluation undertaken in this study placed the evaluator(s) into an active role within the study context. This required them to consciously navigate a variety of issues such as evaluation ethics and relationships with the service provider and program participants. Additionally, efforts needed to be made to recognize and account for the impact of these issues on the overall quality and interpretation of the data The following paragraphs will address how these processes occurred for this particular study.

The evaluation was instigated and partially funded by GEx based upon their desire to better understand the operations and impacts of their programs. After finalizing a contract, the PI flew to Ft. Collins, CO to meet with the agency's directors. This initial meeting laid the groundwork for the next two years of this collaborative evaluation effort. In addition to developing an evaluation strategy, the PI and GEx administrators openly discussed ethical issues related to the collection, interpretation, and dissemination of the data. The PI received assurances from GEx that they were willing to accept and act upon both positive and negative findings and that the PI would be free to publish

findings from the evaluation in scholarly and practitioner related journals and other outlets.

The evaluation could not have been successfully completed without initially establishing an open an honest relationship with GEx and other key individuals associated with the case study group. Special efforts were made to schedule adequate time with the case study group before the international workshop so that the PI could interact with case study members, thus hopefully making his presence during the international workshop as non-intrusive as possible. This goal was accomplished through the two, pre-travel, site visits which afforded the PI amble opportunities to interact with teachers, parents, and student participants. Additionally, the PI engaged in frequent telephone and email communications with both GEx and the case study program leaders to ensure that the evaluation would interfere minimally with workshop programming. When the time for the international workshop arrived the majority of the case study members had already met the PI, had received information about the logistics of the evaluation and had opportunities to have their questions addressed.

These preparatory efforts paid off during the international workshop. The PI was able to move with ease among the various workshop groups and programs without eliciting undue attention. Plus, teachers, parents and students knew of the PI's purpose and therefore were open to sharing and discussing their experiences in both semi-structured focus groups and interviews as well as unstructured interactions that naturally occurred throughout the workshop. The PI's extensive efforts to build trusting relationships with GEx administrators and participants appear to have facilitated the

collection of rich data. It is unlikely that the case study members would have been as open to share information with an evaluator who was seen as an unknown and entirely external member of the group.

While the development of quality relationships between the PI and the study participants has a variety of benefits, the potentially harmful impact on the data of such interactions should be acknowledged. While no researcher can rightfully claim complete objectivity, it can be difficult for an evaluator to retain an acceptable level of objectivity as they become immersed in a study's context. As relationships form and experiences occur an evaluator may feel pressure to collect and interpret data in such a way as to best serve the interests of those who they are observing. This pressure can be compounded when the evaluation itself receives funding from the agency under observation.

To guard against such bias an evaluator must maintain a balance between embeddedness and separation with the context under study. In this study the PI continuously worked to ensure such a balance in his work. For example, the PI avoided interjecting his opinions and interpretations into both formal and informal interactions during the observation periods. The PI saw his role, during the site visits and workshop, as being a repository of rich data related to the participants' experiences. The interpretation of the data was shared with participants at appropriate times and in ways that would not impact the experience at hand. For example, a summary of observations and interpretations was shared with GEx staff members at the conclusion of the workshop.

While the authors acknowledge that the PI's presence and involvement in the case study's experience had some degree of impact, efforts were made to limit this effect. For the PI this involved such steps as developing an open and honest relationship with the GEx administrators before the evaluation commenced and taking on the role, within the case study group, as a collector rather than interpreter of information. These and other intentional labors promoted the collection of rich data that was as hopefully as uninfluenced by the occurrence of the evaluation and presence of the PI as possible.

Future Research Agenda

The results from this dissertation suggest several avenues for future research. The findings from Chapter II suggest that direct experiences have a unique impact on cognitive learning not highlighted by previous research. In terms of the relationship between experience type and learning outcomes future research should consider the interactive effect between knowledge and attitudes within indirect and direct contexts. Future research is also needed to test the direct experience continuum proposed in the Chapter II's qualitative findings. Questions need to be addressed regarding what qualities make an experience direct versus indirect. Future research should also explore the moderating role of different natural settings. Previous research suggests that there may be biological reasons why certain natural environments are more appealing to humans (Kellert, 1993), and therefore certain settings may be more powerful contexts than others for conducting direct program experiences.

Chapter III's findings suggest a number of modifications that could be made to the SDM. For instance, the involvement variable may need to be re-conceptualized to

better account for participants' perceptions of the qualitative nature of the involvement. Involvement that is perceived to be more equal and engaged may be more likely to produce bonding than more forced, unequal involvement. The proposed qualitative model, *the shared experience and bonding framework* (figure 3.7), also deserves further refinement and eventual empirical testing. Finally, the role that parents play in youth programs deserves further attention. The qualitative findings suggest that parental involvement, when structured correctly, can provide powerful opportunities for shared experiences and bonding between youth and their parents.

Finally, Chapter IV's findings suggest the need for the collection of higher quality data (e.g., other than self-report). However, collecting other types of data can be logistically difficult, but more unbiased appraisals of program implementation collected by external observers would likely produce more valid and efficacious data. Regardless of the mode of data collection, researchers should consider investigating the synergistic relationship between implementation domains. Are some domains more important than others? Do some domains only become important when activated by others? These and other questions deserve further consideration.

Final Thoughts

In sum, the findings provide a holistic perspective of the processes and outcomes of Global Explorers programs. Rather than merely presenting an overview of program impacts, the study offers insights into the processes (e.g., socialization) and characteristics (e.g., experience types) that produced observed outcomes. The findings hold import for both researchers and practitioners and can inform the further

development of the theoretical frameworks employed in this study. It should also be noted that any attempt to understand the impacts and processes of any program is complex. No one study could account for all the outcomes and mechanics associated with a program. Accordingly, this study offers a few additional pieces, not the whole solution, to the overall puzzle of identifying and promoting best youth program practices.

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APPENDIX A

YOUTH QUESTIONNAIRES

Global Explorers Participant Questionnaire #1
Post Curriculum Meetings

Name: _____ School: _____

Thank you so much for your willingness to help with this evaluation! Your insights are greatly appreciated and will assist Global Explorers in continuing to offer high quality programs.

Instructions: Please use the following scale to respond to each statement. Circle the number that best describes how true each statement is for you. Only circle one number.

1	2	3	4	5
Very Untrue	**1**	**2**	**3**	**Very True**

Example:

	I like learning about other cultures.	**1 2 3 4 5**

Section 1a: Your Global Explorers Experience
The statements in this section are about different aspects of your Global Explorers experience.

1	I like the Global Explorers program.	**1 2 3 4 5**
2	I would tell other kids to sign up for Global Explorers programs.	**1 2 3 4 5**
3	I would sign up again for Global Explorers programs.	**1 2 3 4 5**
4	I like my Global Explorers teacher(s).	**1 2 3 4 5**
5	I look forward to Global Explorers activities.	**1 2 3 4 5**
6	My Global Explorer teacher praises or compliments me when I work hard.	**1 2 3 4 5**
7	My Global Explorer teacher notices when I am doing a good job and lets me know about it.	**1 2 3 4 5**
8	I feel good about my Global Explorers work.	**1 2 3 4 5**
9	I have difficulty following directions during Global Explorers meetings.	**1 2 3 4 5**
10	I often fail to finish work assigned to me during Global Explorers meetings.	**1 2 3 4 5**
11	I have trouble concentrating or paying attention during Global Explorers meetings.	**1 2 3 4 5**
12	My teacher gives me help learning the Global Explorers material when I need it.	**1 2 3 4 5**
13	All students in my group get involved during Global Explorers meetings.	**1 2 3 4 5**
14	All students during Global Explorers meetings get a chance to talk and share their ideas.	**1 2 3 4 5**
15	Other students in my Global Explorers group encourage me to do my best work.	**1 2 3 4 5**
16	I have lots of chances to participate in Global Explorer activities.	**1 2 3 4 5**

Section 1b: Beliefs and Attitudes
The statements in this section are about different aspects of your Global Explorers experience.

	1 2 3 4 5	
	Very Untrue 4 5 6 Very True	
1	I believe leaders should focus on serving those around them.	**1 2 3 4 5**
2	I believe that learning about science can help us reduce our impact on the environment.	**1 2 3 4 5**
3	I believe the health of the environment impacts life everywhere, regardless of national boundaries.	**1 2 3 4 5**
4	I think participating in service is important.	**1 2 3 4 5**
5	I think it is important to give back to my community.	**1 2 3 4 5**
6	I understand that culture is complex and this may lead to misunderstandings between people of different cultures.	**1 2 3 4 5**

Section 2-5: Reflective Statements

IMPORTANT INSTRUCTIONS: The following items ask you to respond regarding both your *current* and *past* attitudes, knowledge, behavior towards a variety of topics. Each of these items has two parts. The first part is about your current attitudes, knowledge and behavior. The second part asks you about your attitudes, knowledge and behavior at the beginning of the school year.

Example: The first statement asks about your current level of knowledge about Peru. The second part asks you your level of knowledge about Peru at the beginning of the school year. For example, if I felt like I know a lot about Peru's culture now but that I did not know when the school year started, I would circle a higher number for the first statement and a lower one of the second.

	1	**2**	**3**	**4**	**5**	
	Very Untrue	**7**	**8**	**9**	**Very True**	
	I know a lot about the culture of Peru.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**

Section 2a: Environmental Knowledge

1	I can explain what the term ecology means.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
2	I can explain the ecological levels of organization.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
3	I can explain what a keystone species is.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
4	I can explain what conservation biology is.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
5	I can explain what biodiversity is.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**

Section 2b: Environmental Attitudes

	1 2 3 4 5 **Very Untrue 10 11 12 Very True**	
1	I am frightened to think people don't care about the environment.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
2	12.1.1 I get angry about the damage pollution does to the environment.	12.1.2 **1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
3	It makes me happy when people recycle used bottles, cans, and paper.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
4	I get angry when I think about companies testing products on animals.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
5	It makes me happy to see people trying to save energy.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
6	I am not worried about running out of water.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
7	I do not worry about environmental problems.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
8	I am not frightened about the effects of pollution on my family.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
9	I get upset when I think of the things people throw away that could be recycled.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
10	It makes me sad to see houses being built where animals used to live.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
11	It frightens me to think how much energy is wasted.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
12	It upsets me when I see people use too much water.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**

Section 2c: Environmental Intentions

		1 Very Untrue	2 13	3 14	4 15	5 Very True
1	I would be willing to stop buying some products to save animal's lives.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
2	I would not be willing to save energy by using less air conditioning.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
3	To save water, I would be willing to use less water when I bathe.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
4	I would not give $15 of my own money to help the environment.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
5	I would be willing to ride the bus to more places in order to reduce air pollution.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
6	I would not be willing to separate my family's trash for recycling.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
7	I would give $15 of my own money to help protect wild animals.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
8	To save energy, I would be willing to use dimmer light bulbs.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
9	To save water, I would be willing to turn off the water while I wash my hands.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
10	I would go from house to house to pass out environmental information.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
11	I would be willing to write letters asking people to help reduce pollution.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
12	I would be willing to go from house to house asking people to recycle.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**

Section 2d: Environmental Behaviors

	1		**2**		**3**		**4**		**5**	
	Very Untrue	**16**		**17**		**18**	**Very True**			
1	I have not written someone about a pollution problem.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
2	I have talked with my parents about how to help with environmental problems.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
3	I turn off the water in the sink while I brush my teeth to conserve water.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
4	To save energy, I turn off lights at home when they are not in use.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
5	I have asked my parents not to buy products made from animal fur.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
6	I have asked my family to recycle some of the things we use.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
7	I have asked others what I can do to help reduce pollution.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
8	I often read stories that are mostly about the environment.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
9	I do not let a water faucet run when it is not necessary.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
10	I leave the refrigerator door open while I decide what to get out.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
11	I have put up a bird house near my home.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**
12	I do not separate things at home for recycling.						**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?						**1**	**2**	**3**	**4**	**5**

Section 2e: Control over Environmental Behaviors

	1		**2**		**3**		**4**	**5**	
	Very Untrue		**19**		**20**		**21**	**Very True**	
1	I have a lot of control over practicing pro-environmental behavior.							**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?							**1**	**2**	**3**	**4**	**5**
2	For me to practice pro-environmental behavior is easy.							**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?							**1**	**2**	**3**	**4**	**5**
3	If I wanted to I could easily practice pro-environmental behavior.							**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?							**1**	**2**	**3**	**4**	**5**
4	My parents are supportive of me practicing pro-environmental behavior.							**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?							**1**	**2**	**3**	**4**	**5**
5	My friends are supportive of me practicing pro-environmental behavior.							**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?							**1**	**2**	**3**	**4**	**5**

Section 3: Culture

The following statements are about different aspects of cultural sensitivity.

		1 Very Untrue	2 22	3 23	4 24	5 Very True
1	I can explain what ethnocentricity means.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
2	I know three different visible aspects of culture in the area I will be visiting.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
3	I know two different invisible aspects of culture in the area I will be visiting.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
4	Most other cultures are backward compared to my culture.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
5	My culture should be the role model for other cultures.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
6	Lifestyles in other cultures are just as valid as those in my culture.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
7	Other cultures should try to be more like my culture.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
8	People in my culture could learn a lot from people in other cultures.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
9	Most people from other cultures just don't know what is good for them.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
10	I respect the values and customs of other cultures.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
11	Other cultures are smart to look up to our culture.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
12	Most people would be happier if they lived like people in my culture.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**

		1	2	3	4	5
		Very Untrue	**25**	**26**	**27**	**Very True**
13	People in my culture have just about the best lifestyles of anywhere.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
14	Lifestyles in other cultures are not as valid as those in my culture.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
15	I do not cooperate with people who are different.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
16	I do not trust people who are different.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
17	I dislike interacting with people from different cultures.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**
18	I have little respect for the values and customs of other cultures.	**1**	**2**	**3**	**4**	**5**
	At the beginning of the school year, how would you have responded to this statement?	**1**	**2**	**3**	**4**	**5**

Section 4: Leadership
The following statements are about different aspects of leadership.

	1	**2**	**3**	**4**	**5**	
	Very Untrue	**28**	**29**	**30**	**Very True**	
1	I can describe what makes a good leader.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
2	I know my personal strengths and weaknesses as a leader.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
3	I can explain the three core capabilities of leadership.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
4	I can describe what it means to be a servant-leader.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
5	I can be a good group leader.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
6	I can help a group be successful.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
7	I can be happy even when my group has decided to do something that I don't want to do.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
8	I can appreciate opinions that are different from my own.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
9	I can place group goals above the things that I want.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
10	I can cooperate with others.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
11	I can be a team-player in a small group.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**
12	I can get along with other people in a small group.					**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?					**1 2 3 4 5**

Section 5: Service

The following statements are about different aspects of service.

1	2	3	4	5
Very Untrue	**31**	**32**	**33**	**Very True**

1	I can explain what "service learning" is.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
2	I know how to complete a community needs assessment.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
3	I can explain what the term "the common good" means.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
4	I personally play a role in making a difference in my community.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**
5	During the past 3 months I participated in a community service project.	**1 2 3 4 5**
	At the beginning of the school year, how would you have responded to this statement?	**1 2 3 4 5**

Section 6: Previous Outdoor Experience

Use the following scale to respond to these items

1	2	3	4	5
Never	**34**	**35**	**36**	**Very Often**

How often did you play in the following places before the age of 10?

1	In the woods	**1 2 3 4 5**
2	Around a pond or lake	**1 2 3 4 5**
3	In an overgrown field	**1 2 3 4 5**
4	In a farm field/pasture	**1 2 3 4 5**
5	Around a stream or creek	**1 2 3 4 5**
6	In an alley	**1 2 3 4 5**
7	In a street	**1 2 3 4 5**
8	In a friend's yard	**1 2 3 4 5**
9	In my yard	**1 2 3 4 5**
10	In a playground	**1 2 3 4 5**

Section 7: Background Information
Please circle the appropriate answers to the following questions

1	Have you ever participated in a Global Explorers program before?	Yes				No
2	Have you ever traveled to a foreign country before? (If you answered no to this question skip to #5)	Yes				No
3	If you answered yes to the last question, how many times have you traveled internationally and where?	1	2	3	4	More than 5
4	What International countries have you visited?					
5	Putting them all together, what were your grades like this year?	MOSTLY Es OR Fs	Very MOSTLY Ds	MOSTLY Cs	MOSTLY Bs	MOSTLY As
6	What is your grade point average this year?					
7	How involved are your parent(s) with your Global Explorers experience?	Not Involved	2	3	4	Very Involved
8	Are your parent(s) traveling with your Global Explorers group?	Yes				No
9	What is your gender (circle one)? Female Male					
10	How old are you?					
11	When is your birthday?					
12	Ethnicity (circle one): Hispanic; Black; White; Asian; Native American; Other					

Section 8: Additional Comments
Do you have any additional comments that you would like to share about your experience with Global Explorers so far?

Share your comments here:

Contact Information

Name: _____

Email: _____

Address:_____

_____

_____

Phone #: (____) _____

Thank you so much for completing this questionnaire.

Please make sure that you

APPENDIX B

FOCUS GROUP PROMPT QUESTIONS

Site Visit #1

Youth

-Why are you participating in Global Explorers (GEx)?

-What do you hope to gain from participating in GEx?

-What have you liked best/least about GEx so far?

-Is your teacher an important part of your GEx experience, and if so why?

-Does he/she contribute/detract from your experience, and if so why?

-Is there anything you would like to change about GEx?

> *The following questions will be directed towards the core areas of GEx curriculum: science, culture, leadership and service.*

-What have you learned from GEx so far (environment, culture, leadership, and service)?

-Has GEx changed your attitude towards: environment, culture, leadership, and service, and if so how?

-Has GEx caused you to change the way you behave in anyway, and if so how?

Teachers

-What made you decide to participate in GEx?

-What do you hope your students will gain from GEx?

-What have you liked best/least about GEx so far?

-Are there any changes you would like to suggest to GEx about their programs?

-Has GEx had any influence on your students so far, and if so in what ways?

Parents

-What made you decide to enroll your child in GEx?

-What do you hope your child will gain from GEx?

-What have you liked best/least about GEx so far?

-Are there any changes you would like to suggest to GEx about their programs?

-Has GEx had any influence on your child so far, and if so in what ways?

Site Visit #2

New Youth

-Why are you participating in Global Explorers (GEx)?

-What role do the teachers play in all of this?

All Youth

-Tell me about the retreat you had in March.

-What has happened over the last couple of months?

-What have you learned from GEx so far?

-What have you liked best/least about GEx so far?

-What are you most excited/most nervous about regarding your trip to Peru?

-Are there any suggestions for future improvement that you'd like to make?

-How does the group feel, close, strangers, adults and kids or all one group, etc.?

-Has GEx changed your attitude towards: environment, culture, leadership, and service, and if so how?

-Has GEx caused you to change the way you behave in anyway, and if so how?

-Some kids mentioned a lack of involvement/leadership in the meetings and activities, do you feel that way?

    -Have things changed over the course of the meetings?

    -How would you like to be more involved?

-What do you think you will learn by interacting with a different culture? What will they learn from you?

-What are some differences between life in America and Peru?

-Will it be hard living without technology? Would people's lives who are living in Peru be better with the technology we have?

-What long term effects do think this experience will have on you?

-Has the learning in GEx impacted learning in your other classes?

-What have you done to raise money for the trip?

-Do you think international travel is important, if so why?

-Do you think this trip my influence what type of career you'll want to purse?

Teachers

-How have things been going?

-What lessons have they learned over the years about being a group sponsor?

-Are there any particular kids (e.g., those who may be impacted more, less, differently, etc.) that I should pay attention to?

-Has GEx had any influence on your students so far, and if so in what ways?

-Discuss wanting to talk to past participants who were profoundly impacted by their participation in GEx (e.g., it impacted their career choices). I will need to get the parents to make initial contact with these individuals.

-What allows this trip to have such a profound impact on some if not many of the kids?

-One of you said last time that this is reflexive experience, what do you mean by that?

Field Workshop Prompt Questions

Youth Prompt Questions

-What are you learning (environment, culture, leadership, and service)?

-How do you feel about what you are learning?

-How is this experience affecting your attitude towards: environment, culture, leadership, and service, and if so how?

-Is this experience changing the way you will behave in anyway, and if so how?

-How do you feel about your level of involvement/engagement in this experience?

-Do you feel as if you were well prepared for this experience? Explain.

-Tell me about the workshop guides.

-What do you think about the group as whole?

-How well do you think the workshop activities are run?

-What does this experience mean for you?

-What is it about this experience that makes it meaningful, impactful (plug in an in vivo term here)?

Youth w/ Traveling Parents Prompt Questions

-What does this experience mean for your parent?

-Is your parent an important part of your GEx experience? How?
    -Does he/she contribute/detract from your experience? How?

-Does having your parent travel with the group change your experience in comparison to kids who are traveling without their parents? How?

-Do you think having your parent on the trip will influence the long term impact of this experience? How?

Inca Kids Prompt Questions

-Compare this experience with the Amazon, similarities, differences, likes, dislikes, etc.

-Repeat first round of questions as applicable.

Traveling Parents Prompt Questions

-What are you learning (environment, culture, leadership, and service)?

-How do you feel about what you are learning?

-How is this experience affecting your attitude towards: environment, culture, leadership, and service, and if so how?

-Is this experience changing the way you will behave in anyway, and if so how?

-How do you feel about your level of involvement/engagement in this experience?

-Do you feel as if you were well prepared for this experience? Explain.

-Tell me about the workshop guides.

-What do you think about the group as whole?

-How well do you think the workshop activities are run?

-What does this experience mean for your child?

-What does this experience mean to you?

-What is it about this experience that makes it meaningful, impactful (plug in an in vivo term here)?

-Has GEx had any influence on your child so far, and if so in what ways?

-Has GEx had any influence on you so far, and if so in what ways?

-Has this experience impacted your relationship with your child in anyways? How?

-Does your traveling with the group change your child's experience?

-Do you think your participation on this trip will influence the long term impact of the experience for your child? How?

Staff Prompt Questions

-How are things going?

-How do you feel about this group's level of preparedness?

-What makes this experience meaningful, impactful, etc.?

-What are the strengths and weaknesses of this program?

-What are your thoughts about traveling parents?

Follow-Up Visit Prompt Questions

Youth Prompt Questions

-What did this experience mean for you?

-Do you spend a lot of time thinking about your experience? (other reflection questions)

-What do you remember most about the experience?

-What role did others (e.g., parents, teachers, friends, etc.) play in your experience?

-How has it been sharing your experience with others?

-How was the transition home after your trip?

-What did you learn (environment, culture, leadership, and service)?

-Did this experience affect your attitude towards: environment, culture, leadership, and service, and if so how?

-Did this experience change the way you behave in anyway, and if so how?

-How did you feel about your level of involvement/engagement in this experience?

-Tell me about the fall service project? Why is that part of the experience?

-Would you do it again?

-Suggestions.

Parents Prompt Questions

-What does this do for your child?

-What does this experience do for you?

-How has it been for your child trying to share this experience with you and others?

-Do they talk about Global Explorers

-What is it about this experience that makes it meaningful, impactful (plug in an in vivo term here)?

-Has GEx had any influence on your child so far, and if so in what ways?

-Has GEx had any influence on you so far, and if so in what ways?

-Has this experience impacted your relationship with your child in anyways? How?

-Does your traveling with the group change your child's experience?

Teacher Prompt Questions

-After being home for a couple of months, what are thoughts about the experience?

-What lessons did you learn about being a group sponsor?

-Do you think this experience sticks with the kids, why or why not?

-Are there things that could be done to increase the longevity of the impact?

-Has GEx had any influence on your students so far, and if so in what ways?

-What will you do differently/same next year?

-Discuss wanting to talk to past participants who were profoundly impacted by their participation in GEx (e.g., it impacted their career choices). I will need to get the parents to make initial contact with these individuals.

-How did the service project go? Why is that a part of the experience?

-One of you said last time that this is reflexive experience, what do you mean by that?

VITA

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