The Influence of School Culture on Environmental Education Integration: A Case Study of an Urban Private School System

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As a discipline, environmental education (EE) has been criticized for lacking empirical evidence on the behavioral outcomes of its programs. While the behavioral outcomes of EE activities are often associated with the youth learner, teachers are one target audience of EE training programs who have received increasing attention with regards to behavior change. Previous research has identified numerous barriers to teaching EE in the classroom. Barriers include a lack of natural spaces to conduct EE activities, little administrative support, limited time, and lack of teacher comfort and confidence with science. The purpose of this qualitative case study was to understand how Trinity School's culture has influenced EE integration. A number of domains emerged from the data regarding characteristics of the school which have influenced EE integration, including: administration, freedom in curriculum and exploration, and collaboration among teachers. A series of domains also emerged regarding barriers to teaching EE, including: comfort, lack of time, lack of interest among teachers, politics, and dangers and safety concerns.

Keywords: environmental education; curriculum integration; teacher efficacy; school culture

Introduction/Theoretical Framework

Environmental education (EE) seeks to move participants from awareness to pro–environmental action (Brewer, 2001; Hudson, 2001; Jacobson, 1999). However, as a discipline, EE has been criticized for lacking empirical evidence on the behavioral outcomes of its programs (Dierking, Burtnyk, Buchner, & Falk, 2002; Leeming, Dwyer, Porter, & Cobern, 1993; Swanagan, 2000). While the behavioral outcomes of EE activities are often associated with the youth learner, teachers are one target audience of EE training programs who have received increasing attention with regards to behavior change. Most notably, the intended behavior change of EE trainings aimed at teachers has been the adoption of EE curricula in the classroom.

As outlined in the National Research Agenda for Agricultural Education (Doerfert, 2011), Research Priority Areas 4 and 5 focus on efficient and effective programs that offer meaningful, engaged learning in all environments. Specifically, the discipline is called to examine the impact of various environments on learning outcomes and define the characteristics of effective programs and teachers. Environmental education curriculum resources encourage experiential learning in an array of indoor and outdoor environments and complement existing agricultural education curricula. A well–prepared student must have hands–on learning opportunities in EE in order to understand the impacts (positive and negative) that agriculture has on the environment and how they can play a role in educating others about the importance of being

good stewards of the land. This study contributes to the National Research Agenda by helping to define the characteristics of one particularly effective program and its teachers.

Many university pre–service teacher education programs work to build an awareness of the EE curricula available to new teachers (such as Project Learning Tree, Project WILD, and Project WET) in hopes of enhancing their confidence to integrate EE activities in their classroom teaching. In fact, pre–service teachers who have received EE preparation are more confident in their ability to implement EE in the classroom (Lane, Wilke, Champeau, & Sivek, 1995). However, increasing knowledge of EE curricula does not necessarily guarantee the use of such curricula in the classroom (Schultz, 2002). Eleven barriers to teaching EE in the classroom were identified in a review of the literature from the past 20 years. These included lacking: (a) relevant EE materials that can be easily linked to the curriculum, (b) natural spaces to conduct EE activities, (c) administrative support, (d) time, (e) teacher comfort and confidence with science, and additional issues such as (f) safety and liability, (g) funding for equipment and other supplies, (h) class size, (i) student interest in EE, (j) integration of "taboo" environmental issues, and (k) integration of EE into the school culture. The influence of school culture was a barrier which surfaced only within the past five years and prompted this study.

The researchers postulate that a twelfth barrier should be considered when implementing and teaching EE curricula – that of teacher self–efficacy. Bandura (1977) purports that self–efficacy refers to personal beliefs about one's capabilities to perform actions, such as teaching, at specific levels. Self–efficacy is important because efficacious teachers are more willing to try new things (Smylie, 1988), and prone to less stress (Parkay, Greenwood, Olejnik, & Proller, 1988; Tschannen–Moran, Woolfolk–Hoy, & Hoy, 1998). Teachers with a high sense of self–efficacy face threatening (new and/or unfamiliar curriculum) situations with assurance that they can exercise control and have the power to overcome obstacles (Bandura, 1994). In addition, "teachers with a high level of efficacy believed that they could control, or at least

strongly influence, student achievement and motivation" (Tschannen–Moran et al., 1998, p. 2).

In the simplest sense, schools are learning organizations. As such, organizational change theory, with an emphasis on culture, has been discussed in relation to the adoption of EE curricula, but has not been the focal point of many studies. However, much research exists on the link between school–wide change and school culture from a leadership standpoint (Stolp & Smith, 2001). Deal and Peterson (1998) advocated that unless change is meaningfully linked with a school's culture, reform is likely to fail. Within the EE discipline, some authors refer to the adoption of EE as involving the integration of EE curricula and existing course content with an emphasis on school–wide/organization–wide change (Van Petegem, Blieck, Imbrecht, & Van Hout, 2005). Some stress the need to reform the school culture into a collaborative, partnership–oriented atmosphere as a way to successfully implement EE at the interdisciplinary level (Fullan, 1994). Dyment (2005) suggested that the changing school climate has made it difficult for teachers to engage in innovative teaching practices like those often found in EE curricula. Some of the teachers she interviewed felt that teaching outdoors was another "educational reform/fad" and did not want to spend the time learning how to implement this practice if it was also going to pass. Other studies reported barriers reflecting a hesitant culture in support of EE integration in pre–service teacher preparation programs. In fact, culture was often the most difficult constraint (Heimlich et al., 2004; Van Petegem et al., 2005). As most teacher preparation programs are housed in university academic departments, cultural barriers were often politically related (Heimlich et al., 2004; Powers, 2004). Others emphasize that for adoption of EE within schools to stick, *re–culturing* is needed (Van Petegem et al., 2005). This "re–culturing" may be necessary as teachers have been found to revert back to teaching the same way they were originally taught when faced with difficult teaching situations (Yilmaz–Tuzun, 2008). None the less, as additional EE curricula are published and marketed to formal and nonformal educators,

adopting such curricula will involve individual and organizational change. A need exists to understand the influence of a school's unique culture on EE integration.

Schools may also be viewed as communities. According to Community–based Social Marketing Theory, behavior change is most effectively achieved through initiatives delivered at the community–level which focus on removing barriers while simultaneously enhancing the activity's benefits (McKenzie–Mohr & Smith, 1999). There are six components of Community–based Social Marketing that must be addressed when attempting to generate behavior change within an organization. These include norms, incentives, commitment, communication, prompts, and the removal of external barriers. According to Community–based Social Marketing, when a school commits to implementing EE, uses prompts, communication, and incentives to remind teachers of their commitment, removes external barriers, and makes teaching EE a norm among teachers, EE integration is more likely to "stick" and become part of the school culture.

Community–based Social Marketing theory integrates elements of the aforementioned self–efficacy theory (Bandura, 1977), as well as components of the theory of planned behavior (Ajzen, 1985) and social cognitive theory (Bandura, 2002). Self–efficacy is influenced by the availability of resources used to perform a behavior, an individual's perception of their ability to perform the behavior successfully, and that successful performance will result in a positive outcome (Haldeman & Turner, 2009). The theory of planned behavior refers to this as perceived behavioral control (Ajzen, 1985). According to social cognitive theory, an individual must believe the positive outcomes of performing a behavior outweigh the costs and that they have the skills and confidence to successfully perform the behavior. Community–based Social Marketing theory integrates these elements within a broader community context, where resource availability, ability to perform a behavior, and resulting positive outcomes are influenced by norms and referred to as *commitment*, *removal of external barriers*, and *incentives*, respectively (McKenzie–Mohr &

Smith, 1999). In a review of literature examining studies using social marketing theory as the chosen theoretical guide, social marketing theory was an effective framework for understanding organizational behavior change interventions (Stead, Gordon, Angus, & McDermott, 2007). Others suggest that Community–based Social Marketing theory may be used within school systems to enhance literacy and academic achievement (Monroe, 2003). The theory's integrated nature and relevance to school–wide change made it applicable to understanding the influence of school culture on EE integration.

The six components of Community–based Social Marketing theory are applicable for reducing the aforementioned barriers to EE implementation in schools. They also provide a structure to consider with regards to influencing the cultural barriers of EE implementation through pre–service and in–service teacher trainings. According to Community–based Social Marketing theory, individuals are more likely to engage in behaviors that other people, particularly those they respect, are already engaged in. This concept of norms has been highlighted by others with regards to the use of mentor teachers and team–teaching practices when successful school–based EE integration was the goal (Benetti & Marcelo de Carvalho, 2002; Hanna, 1992; Van Petegem et al., 2005). Burke (2002) suggested that culture is closely related to organizational norms. However, when EE integration is the norm in a school, resistance may still exist. Using Community–based Social Marketing as a framework, what are the characteristics of a school's culture which promote and hinder EE integration?

Purpose/Objectives

Although much research exists regarding barriers to teaching EE within schools and on the link between school–wide change and school culture, there has been little examination of how culture may influence EE integration specifically. Trinity School is an urban, private school in Atlanta, Georgia serving children age three through sixth grade and has been recognized as an organization dedicated to EE. The purpose of this study was to understand how

Trinity's culture has influenced EE integration. The objectives of this qualitative case study were to describe:

1. Characteristics of Trinity which influence or hinder EE integration.
2. Resources provided by Trinity which influence EE integration.
3. Incentives for integrating and teaching EE at Trinity.
4. Barriers to integrating EE at Trinity.
5. Administrations' perspective on EE integration at Trinity.

Methods

In order to understand how the teachers and administration at Trinity have successfully integrated EE into their curriculum, a qualitative study was conducted. Culture is defined as the "way we do things around here and concerns deeply held beliefs, attitudes, and values" (Burke, 2002, p. 13). Qualitative research methods were used for this study because they allowed the researcher to build trust with the teachers and administration at Trinity, ask probing questions, and form relationships leading to a deeper understanding of individual beliefs, attitudes, and values regarding EE and its relevance across the elementary curriculum (Hatch, 2002). In addition, given the exploratory nature of this study, the researchers intended to examine the themes which emerged from the qualitative data to develop a quantitative instrument for broader use with a larger sample.

Phenomenology was used in designing and conducting this study, adhering to the procedures for conducting phenomenological investigations outlined by Moustakas (1994). Phenomenology is concerned with the essence of a phenomenon through the lived experience of participants (Crotty, 2003). The phenomenon of interest in this study was how teachers at Trinity perceived the school's culture to influence EE integration.

Trinity School was selected as the research site for this study because of the school's dedication to integrating EE into the curriculum and its potential to serve as a model to other schools. At Trinity, EE is the norm. The school

has a number of programs and activities dedicated to EE. In addition to its focus on teaching EE, the school believes in actively participating in environmental stewardship and undertakes projects that develop appropriate sustainable practices as an institution.

Participants were purposefully selected by Trinity's administration based on their current level of EE integration. After being explained the purpose of this study, administration was asked to identify teachers who they believed (a) would be valuable to talk with concerning their experiences (both positive and negative) with EE integration at Trinity and (b) had been teaching at Trinity long enough to have knowledge of the school's culture. Six teachers were chosen; three who have consistently integrated EE (supports EE integration) into their classrooms and three who were identified as being resistant to EE (opposes EE integration). In addition to the teachers, one administrator, identified by a senior administrator, was interviewed who has been a key player in the adoption of EE throughout the school. School leaders can play a key role in changing school culture (Deal & Peterson, 1998) and the researchers wanted to better understand this potential influence at Trinity.

The purpose of interviewing these two types of teachers was to determine if teachers who facilitated less EE programs did so because they had not found ways to overcome the barriers to teaching EE or for other reasons. The researchers wanted to know if personal views about the environment might have influenced what the teachers chose to teach in their classrooms. The researchers also wanted to know how the school culture potentially influenced the frequency with which the teachers were implementing EE activities in their classrooms. Qualitative research methods were deemed most appropriate to accomplish this.

After the participants were identified by administration, they were contacted through email to explain the purpose of the study and to ask for their voluntary participation. They were not informed specifically why administration identified them to participate (i.e., so as to prevent feelings of being targeted for not conforming to school norms), but rather that

administration believed their experiences would be valuable to share in this study.

Description of the Participants

Seven people were interviewed for this study, including six teachers and one administrator. Participants are described below in the order that they were interviewed and pseudonyms are used to protect participant identities. Each participant is identified as either supporting EE integration or opposed to EE integration in their classroom curriculum.

Mary (supports EE integration) has been a fifth grade teacher at Trinity for 15 years and has seen many changes in the curriculum and administration. As a fifth grade teacher, Mary teaches social studies and language arts, but her students go outside of the classroom every day. In fifth grade, the students go on two overnight EE field trips. Mary loves these trips and they are a highlight of the year for her.

Cheryl (supports EE integration) has been at Trinity for four years. She is a lead science teacher and is responsible for teaching all fifth grade science, as well as the third grade science laboratory. Cheryl is also head of the River Kids program, in which all fifth graders at the school participate. Before coming to Trinity, Cheryl worked at a public school and was a non–formal educator at a large zoo. In addition to her teaching duties, Cheryl is on the Enviroscape Task Force Committee and teaches Faculty Forums (continuing education) on the Enviroscape.

Lacy (opposes EE integration) is a first grade teacher and has been at the school for eight years. Before coming to Trinity, Lacy worked as a public school teacher for nine years. In addition to the science lessons conducted in her classroom, her students attend a science laboratory every six days. Lacy and her class spend a lot of time outside exploring and playing, but there are very few environmental lessons that are intentionally taught outside.

Hannah (opposes EE integration) is the lead science teacher for the early learning department (3 years old through first grade) at Trinity and has been there for four years. She does not have a teaching background and this is her first teaching job. Hannah's background is in biology and psychology and she worked in the medical field prior to coming to Trinity. She has experience leading backpacking trips and loves the outdoors. She is happy to help teachers who are having a difficult time identifying ways to take their students outside, but was identified as someone resistant to integrating EE.

Ashley (opposes EE integration) is a fourth grade teacher at Trinity and has been teaching there for four years. She started teaching fourth grade in Virginia at a public school and then moved to Washington D.C. to work at an independent international school. She is responsible for teaching all subject areas, including science. Ashley takes her students out for various activities in all subjects, but feels that the students get easily distracted outside. She has an assistant teacher for half of the day and feels more comfortable doing outside activities with the assistant present.

Dr. Amy is the Associate Head at Trinity and has been there for three years. She has a background in elementary and special education and is certified to teach pre–Kindergarten through 12th grade in a variety of subjects. She has a Ph.D. in Education, Leadership, and Policy Studies and has worked in both public and private school settings across the country. Her experiences range from inner–city to rural communities. In addition to her daily administrative duties, she serves on the faculty/staff Enviroscape Leadership team. She describes herself as an avid environmentalist and says she loves all things outdoors.

Missy (supports EE integration) has been at Trinity for 17 years. Among her other responsibilities during her tenure, she worked as EE Coordinator for two years and is currently a first grade teacher. Missy helped form partnerships between the school and various members of the community who work in the environmental field. She also started some of the EE activities at the school like composting and gardening. Her classroom is filled with natural objects (such as baskets of acorns and pinecones) and she has a class guinea pig which the students study during the year.

Data Collection and Analysis

Each of the teachers and the administrator participated in semi–structured interviews lasting between 20 and 45 minutes. The

questions for the interview guide were written following a comprehensive review of the literature regarding barriers to teaching EE in the classroom. Participant responses were transcribed verbatim and then analyzed using domain analysis (Spradley, 1980). Each interview was analyzed separately and domains which emerged were extracted from the transcription. Overarching domains were then merged and common domains were identified across all participants.

A number of strategies were employed to insure credibility (validity) and dependability (reliability) of the study. One way the researcher ensured credibility was through peer review. The researcher's peers, fellow graduate students, looked at the data and analysis results and determined if the researcher's interpretation was accurate. The reviewers helped decide if there was a problem in the interpretation or if additional data needed to be collected. Member–checks were also conducted with the participants. After the interviews were transcribed, the transcripts were sent back to the participants for review. The participants had the opportunity to clear up any miscommunications at that time. Lastly, reflexivity (self–reflection to recognize one's own biases) was employed to strengthen credibility (Ary, Jacobs, & Razavieh, 2002). Researcher subjectivity statements and bracketing were used to document the potential for bias in the data collection process. Bracketing was used to account for the researcher's previous experiences with EE (Ashworth, 1999).

Once a trusting relationship was established with participants through the interview and member–check process, field observations were conducted. Each of the teachers allowed the researcher to visit their classroom and observe aspects of their teaching, including room set–up and student engagement in experiential learning–based activities related to the environment. In addition, journaling was used to document the researcher's feelings immediately following the participant interviews and classroom observations. These notes were used to aid in domain interpretation and document the potential for researcher bias.

The researcher strengthened the dependability of the study by using an audit trail.

Notes on the participants, site selection, and methods of data collection, tape recordings, and field notes were reviewed by the researcher's graduate committee. This helped to determine if the study could be replicated. In addition, the researcher used the code–recode strategy. All of the data was analyzed and coded and then left for a period of time. It was then revisited and recoded for comparison (Ary et al., 2002).

Results

Domains are presented below by research objective and in order of the frequency of their occurrence in the raw data. Although all domains are presented, due to space limitations, only selected domains are supported by evidence from the interviews.

Characteristics Influencing the Integration of EE

Eight domains emerged from the data regarding characteristics of the school which have influenced or hindered EE integration, including: support, administration, teachers, parents, freedom in curriculum and exploration, collaboration among teachers, a research–based mentality, and an integrated curriculum.

Support from colleagues was one characteristic of Trinity School mentioned most often. The school has a number of *cheerleaders* who help to spread the word about the importance of EE and to help teachers establish lesson plans they can use with their classes. These *cheerleaders* do everything from speaking individually with teachers about specific lessons, to going outside with classes, to sending out a monthly newsletter called the *Enviroscoop* that gives teachers ideas about lessons that can be implemented during the season or month.

The ideas from school *cheerleaders* have helped teachers recognize easy ways to integrate EE in the classroom. This kind of support comes from peers who understand the challenges of a busy school day and who can make realistic suggestions. Meeting with other teachers in a type of "support group" environment gives teachers who are unsure about teaching EE strategies lesson plans they can use with the topics they are currently teaching their students. It also provides teachers

with an outlet to vent, without the presence of administrators, difficulties they may have experienced when teaching EE–subject matter.

Five of the teachers interviewed mentioned the freedom within the curriculum that allows for exploration and creativity. This freedom allows teachers to take their students outside and to try new things. It also gives them flexibility in their school day to pursue the interests of their students. Although they are required to meet certain standards, they are encouraged to help nurture those interests. Lacy summed up the feeling of freedom at the school well:

> I think as a school we really try to teach based on the interest of the kids. It is like we teach our curriculum but we really try to tie things into their interests. Down here now it is very much a let them be kids, let them explore, that's how kids learn. So yeah, I think there is definitely more of a push for that because that is part of what kids enjoy doing. However, one of the great things about this school is that they really give us the liberty to teach the way we think our kids need.

Resources Provided That Influence EE Integration

Three domains emerged from the interviews regarding resources which Trinity provides to teachers for conducting EE activities, including: the Enviroscape, equipment, and professional development opportunities.

Every teacher interviewed mentioned the Enviroscape (the physical spaces and property) at the school as a resource that has helped influence EE integration. There are garden plots available for each grade level, as well as many outdoor areas designed for teaching and learning, such as an amphitheater and council rings with stumps for students to sit on. Hannah described the Enviroscape as:

> …any learning area that's not necessarily within four walls. So that could be Discovery Woods, Discovery Playground, looking at our different aquariums, kind of as a teaching tool. Using the amphitheater, the outdoor space there, using our gardening

plots…it's the philosophy of incorporating the environment into our curriculum.

Spaces that provide shade and seats were helpful to the teachers who were more hesitant to take students outside. The intentional uses of the space at Trinity seemed to leave little room for excuses not to take students outdoors.

Incentives for Integrating EE

A single dominant domain was identified as an incentive for teaching EE: the importance of teaching about the environment.

Although teachers are not being rewarded monetarily for teaching EE, there are personal incentives to getting students out of the traditional classroom. Four of the six teachers interviewed discussed how integrating EE is beneficial for both the students and teachers. Each of the teachers had different reasons for believing that EE is important. Cheryl felt that integrating EE is important for both students and teachers:

> I think that an appreciation for our resources is so important not only for our students, to raise them to be aware that we need to take care of what we've got, but also for the teachers who were not raised in this environmentally aware time. And then I think it's for your state of mind. For my personal state of mind, for my students state of mind, for my colleagues state of mind, I think if you get outside it changes you, I know what it does for me, even if it's hot and sweaty and yucky, it just kind of centers me.

Even the teachers who were identified as being resistant to teaching EE felt that it is important for students to be environmentally aware. Mary discussed how some students have taken on the environment as their cause:

> I just think it's become such an important aspect of everyday life. I think with all the articles and all of the news reports and things about our environment its come to the forefront so much that I think kids are quite aware of it and they know it's important. Some of them have really almost taken it on

as a cause. They're quite passionate about it…it's important to keep that as a reminder, and talk to the kids…

This awareness is important to students who consider the environment their cause and to the teachers who teach them. As with any appropriately implemented EE intervention, this moves learners from awareness to pro–environmental action (Hudson, 2001; Jacobson, 1999).

Barriers to Integrating EE

Six domains emerged from the interviews regarding barriers to teaching EE, including: comfort, lack of time, lack of interest among teachers, politics, dangers and safety concerns, and students being distracted.

The barrier mentioned most often to integrating EE was comfort with the subject and with taking students outside. In her interview, Lacy, a teacher who was identified as being resistant to teaching EE, said that for her, not knowing what to teach was the biggest barrier:

> I would say not knowing myself what it is I would teach and what is important. How would I teach it? What's appropriate for a first grader?

For some teachers, simply being outside is out of their comfort zone. Missy discussed some of the things teachers are uncomfortable with:

> They don't like to be outside and they're not comfortable digging in the dirt and they're concerned about wasps and bees and so on.

Taking students outside can be a huge challenge for teachers who do not enjoy spending time outside. They may be nervous, uncomfortable, and worried about what could happen to their students while outside. Cheryl discussed some of the barriers she has seen to integrating EE among the teachers at Trinity:

> I think that it's not in a teacher's comfort zone. I think that is the biggest obstacle here. That it's just too much trouble, it's something new, they will be hot and smelly when they come in. Um, they, there are too

many bugs. How am I supposed to teach math when I am out there? And so that argument has kind of gone away but it's more like, well, they're too distracted out there. If a kid gets scratched it will take their focus away, if there are too many other people out there they will be distracted. It's just, I think it comes down to a teacher's comfort zone and it seems like more trouble than it's worth.

A lack of interest among teachers was also identified as a barrier to teaching EE. Lacy discussed her lack of interest in EE:

> Honestly I think, and I don't know if this is accurate or not, but I really think there are some people who are very interested in that and there are those who aren't. And it is not that I don't care about the environment, because I really do, it is just not a passion of mine. It is not something I want to read about and that I want to do, you know I am not interested in having a garden. So we take the kids in the woods because we know that's where we know they like to be and we go on hikes but it's something I do because I know the kids like it, not because I like it.

Although Lacy recognizes the importance of taking the students outside, she finds it difficult to do a lot of teaching about the environment. In her class, they spend time playing outdoors and walking on the trails but very little instruction goes on out of the classroom.

Cheryl also discussed a lack of teacher interest in EE as a barrier:

> It goes back to what they're interested in…it's kind of my thing not their thing but they were asked to attend. I did one of those Faculty Forums on River Kids and they were asked to attend and they didn't come…they were strongly encouraged to come and they didn't. They should have, they should show more interest in it.

It was very obvious during Cheryl's interview how disappointed she was in the lack of teacher interest in her program idea. Although she is responsible for teaching fifth

grade science, she felt the other, non–science teachers should have an understanding of what their students were doing during science time. The lack of teacher enthusiasm and participation in her program was obviously frustrating for her. If teaching EE was more of a school–wide norm, perhaps fifth grade non–science teachers may be more interested in attending such programs.

Politics was another barrier mentioned by teachers in this study. Missy felt that politics was the biggest barrier to teaching EE:

I think the biggest thing, and I get this as far as administration and from other people, is the political, the political part of that. Some people thinking that there's not global warming…I find that surprising. It seems pretty obvious to me that everybody would be for recycling…but a lot of people really think that it is more radical, and of course if you go to other countries or other parts of the country it's just, it's like brushing your teeth.

Politics is a barrier that has hindered EE integration in other studies. Teachers are often nervous to teach potentially controversial subjects, such as global warming, ozone depletion, and population growth that could be considered taboo and may fear resistance from parents or administration if such topics are discussed in class (Kim & Fortner, 2006). Some authors argue that political barriers to EE integration are more deeply rooted in the school's culture (Heimlich et al., 2004; Powers, 2004; Van Petegem et al., 2005).

Administration's Perspective on Integrating EE
Seven domains emerged from the interview regarding administration's perspective on integrating EE, including: the decision to make EE important, support through trainings, the permission to go outside and be creative, collaboration, Enviroscape/resources, integration with existing curriculum, and incentives. According to Dr. Amy, Associate Head of Trinity School, the most important aspect of EE integration at the school has been the decision to make it important and she specifically discussed ways the school has made EE important:

As a school and community we say this is important, we value it, we are going to put some dollars behind it, and we want you to do it. So I think that, certainly starting at the very top, and being clear about this within the community, that this is important, doesn't hurt. It really kind of sets a focus and an expectation and when we interview potential new faculty members that's always part of the interview process, is how comfortable are you with EE? Are you OK taking kids outside? From the very beginning of school we say to teachers, this is what we expect, we expect you to be outside with kids. We don't expect you to be in four walls of a classroom, close the door and not go outside.

Conclusions/Recommendations/Implications

Characteristics Influencing the Integration of EE
The teachers at Trinity identified a number of characteristics that have influenced EE integration. The domains relevant to the characteristics of the school that allowed for EE integration were support from teachers, parents, and administration, freedom in the curriculum for exploration, collaboration among the teachers, a research–based mentality, and an integrated curriculum. Past research identifies a lack of administrative support as a barrier to teaching EE. Dyment's (2005) study found that, "schools appear to be placing increased emphasis on literacy and numeracy, with a view to 'teaching to tests'… leaving little room for outdoor teaching" (p. 38). At Trinity, there was emphasis placed on outdoor teaching and learning. Support from the administration, as well as other teachers and parents, was a characteristic that influenced integration. Hannah (1992) suggested that any curriculum barrier can be overcome with student, teacher, and parent support. According to Community–based Social Marketing theory, norms are important when creating behavior change within an organization. The teacher–to–teacher and administrative support systems within Trinity can be seen as contributing to a norm. If supporting EE comes from all sides, teaching EE becomes part of the culture and an expectation.

Having a place to discuss activities and lessons influences the integration of EE. A study by Benetti and Marcelo de Carvalho (2002) found that some teachers felt there was a lack of places for teachers to communicate ideas with one another. At Trinity, collaboration among the teachers is common. It is standard practice for teachers to meet and discuss lesson plans and units. These meetings are a form of communication, another aspect of Community–based Social Marketing, which have become a norm within the school. These meetings give teachers an opportunity to share as well as a space to vent frustrations and concerns. This type of interpersonal interaction among teachers can play a key role in persuasive efforts in favor of positive behavior change (Haldeman & Turner, 2009) and likely contributed to the pro–EE culture at Trinity School.

Freedom within the curriculum was another characteristic identified by teachers as a variable that helped support EE integration. Having flexibility and choice may be motivation for some teachers to teach EE activities. Flexibility has been found to be a key component influencing adult adoption of new behaviors (Merriam, Caffarella, & Baumgartner, 2007).

Resources Provided That Influence EE Integration

A review of the literature identified a lack of resources as a barrier to integrating EE. This lack of resources was identified as a lack of relevant materials (Benetti & Marcelo de Carvalho, 2002; Dyment, 2005; Hannah, 1992; Kim & Fortner, 2006; McKeown–Ice, 2000; Powers, 2004; Rickinson et al., 2004; Van Petegem et al., 2005;) as well as a lack of available and usable outdoor spaces (Dyment, 2005; Ernst, 2007; Hannah, 1992; Kim & Fortner, 2006; Simmons, 1998). The domains relevant to the resources available at the school were the Enviroscape, monetary resources, and equipment available to the teachers. The types of activities and lessons conducted by the teachers at Trinity were a reflection of the spaces and resources available to them. The teachers acknowledged these resources and gave examples of how the equipment and spaces available to them have influenced their integration of EE. Within a community–based

social marketing context, resource availability has been a significant influencing factor on community–wide behavior change (Haldeman & Turner, 2009). Viewing Trinity School as a community, it is not surprising that equipment and space resources influenced EE integration at the school–wide level.

The Enviroscape was the most frequently cited resource by the teachers. This space was purposefully constructed to create usable outdoor spaces for hiking, exploring, and teaching. For many teachers, taking students outside means going off campus, so issues of transportation, funding, and safety arise (Simmons, 1998). This is a way Trinity has addressed an external barrier that may prevent teachers from integrating EE. According to Community–based Social Marketing theory, removing external barriers enhances the likelihood of permanent behavior change (McKenzie–Mohr &Smith, 1999).

Incentives for Integrating EE

The incentives for teaching EE at Trinity were personal to each of the teachers. Shuman and Ham (1997) found that "the stronger the teachers' commitment to teach EE, the greater the probability that they will overcome existing barriers and actually carry out the behavior" (p. 30). Teachers who were identified as strong proponents of EE in this study mentioned the benefits to teaching EE for themselves as well as their students. They were more likely to take their classes outside because they felt comfortable and believed it was beneficial. Teacher comfort and confidence with science was a barrier identified in previous research.

Although teachers were not rewarded financially for their teaching, they were recognized and appreciated by administration for their attempts to take students out of the traditional classroom. As self–efficacy theory would suggest, successful performance of a behavior which results in a positive outcome, such as public recognition by administration, helps the behavior become habitual (Haldeman & Turner, 2009). This recognition can be considered an incentive for teachers. When teachers are recognized by administration in front of other teachers, they may be more likely to continue their behavior. This may also act as

a prompt and an incentive for other teachers to find additional ways to integrate EE activities.

Barriers to Integrating EE

The domains significant to the barriers associated with integrating EE included lack of comfort with the subject, lack of time, lack of interest, politics, dangers and safety concerns, and the worry that students will be distracted outside. All of the barriers identified by the teachers at Trinity were also identified in the review of the literature.

The most often cited barrier to integrating EE was a lack of comfort being outside and with teaching about the environment. "If a teacher has a positive attitude toward teaching environmental issues (attitude), has enough knowledge on environmental issues (content knowledge), and knows how to teach the environmental issues (pedagogical knowledge), then he or she will teach the issues more often or more properly" (Kim & Fortner, 2006, p. 16). However, previous exposure to EE–related curricula, including experiences where curricula were implemented outdoors, can influence in–service teacher EE integration. Some authors suggest the lack of comfort and confidence with teaching science and engaging in outdoor learning experiences with students relates to the experiences of teachers during their own pre–service teacher education program (Heimlich et al., 2004; Mastrilli, 2005; McKeown–Ice, 2000; Moseley, Reinke, & Bookout, 2002; Powers, 2004). Pre–service teacher education programs should consider integrating EE–based curricula such as Project Learning Tree, Project WILD, and Project WET in relevant teaching methods courses. Teacher education students should also be encouraged to incorporate an outdoor–based lesson during their student teaching experience. Constructive feedback following the experience from a supervising teacher could increase the likelihood of additional, more successful outdoor learning experiences for the student teacher, and once placed as a full–time teacher. As suggested by the aforementioned studies, exposing a pre–service teacher to EE increases the likelihood of EE integration in their classroom as an in–service teacher.

Administration's Perspective on Integrating EE

The domains related to the administrator's view on EE integration included the decision to make EE important, providing help to teachers on how to teach EE through trainings, permission to go outside and be creative, collaboration, property and resources, integration with the curriculum, and incentives. In addition to making it important, the administration at the school supports the integration of EE. Administrative support was previously identified as a barrier to teaching EE (Van Petegem, et al., 2005). Trinity's administration follows a bottom–up approach to collaborative leadership where teachers are selected to be "change champions" (Burke, 2002) who work with administration to promote EE integration and constantly remind staff of EE's importance. These reminders may be viewed as prompts, a key variable influencing the likelihood of behavior change (McKenzie–Mohr & Smith, 1999). Trinity's efforts to integrate EE throughout the school day allows EE to become a component of existing courses, helping it become an engrained part of the school's culture (Heimlich et al., 2004).

Recommendations

Although the results of this study cannot be generalized to other schools, the findings can be transferred and used to inform other programs interested in EE integration. The researchers propose the following recommendations to increase the likelihood of EE integration: (a) make a conscious decision to make EE important by supporting the program with resources and time; (b) appoint teachers to certain jobs within the EE program. These point people act as *change champions* (Burke, 2002) and mentors to others in the school, creating a norm; (c) designate spaces at the school that can be used for EE. This could be a nearby park, the playground, or even a parking lot. Setting aside the space shows teachers it is important and there for them to use; (d) provide teacher trainings on how to write grants for supplies and how to use designated EE spaces. These trainings should include ideas on lessons and activities that correlate with school standards and can be conducted in designated spaces; (e)

create a resource room with equipment and materials for everyone in the school to use. The available equipment should be known to teachers and available for check out; (f) teachers who feel comfortable teaching EE should be partnered with teachers who feel more resistant or uncomfortable teaching outside. The more experienced teacher can act as a mentor to the less experienced teacher and (g) the administration should make an effort to acknowledge teachers in the school who are integrating EE activities. This could be done using a bulletin board that features an Environmental Educator of the Month and highlights specific activities they have used in their classroom.

These results also have implications for agricultural education. Trinity's efforts to integrate EE throughout the school day allowed EE to become a component of existing courses, helping it to become part of the school's culture. A method of integrating subject matter across disciplines was developed by researchers from the National Research Center for Career and Technical Education and involved mathematics instruction (Stone, Alfeld, Pearson, Lewis, & Jensen, 2006). This model was designed to help career and technical education teachers from various disciplines integrate a deeper level of mathematical instruction within their respective disciplines by "uncovering" the embedded

mathematics that were already in the curriculum. Teacher–to–teacher collaboration helped establish a school–wide norm in this study and allowed teachers to share resources and expertise. Numerous EE concepts are embedded in the agricultural education curriculum and additional research is needed to better understand how to more visibly link the two.

Agricultural education and EE have many philosophical and methodological similarities. Although this study examined the influence of culture on EE integration at the elementary level, more information is needed to understand the influence of culture on agricultural education and EE integration at the university and secondary school levels. Future studies should investigate the cultural barriers within agricultural education as a discipline to integrating EE and other progressive, science–based subjects. An understanding of culture may provide wisdom which results in EE being viewed as a complimentary, interrelated discipline to agricultural education and worthy of inclusion in pre–service teacher education programs. As a visible and integrated component of agricultural education at the university level, EE may be more likely to become part of the elementary and secondary school's culture. The potential for cohesion between the two disciplines is strong and warrants further investigation.

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