

A Quantitative Assessment of the Presence of Stereotypes of  
Environmental Educators Among Public School Principals

THESIS

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By

Connie Haugen

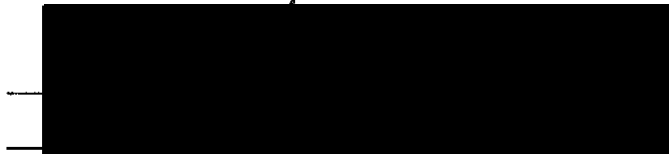
University of Minnesota Duluth

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Committee Signatures:

Dr. Bruce Munson, Ph. D. chair

Dr. Ken Gilbertson, Ph. D.



## Abstract

The purpose of this study was to establish a first step in identifying how public school principals, perceive environmental educators. This study drew heavily upon stereotype research in the field of social psychology. In attempt to determine if principals stereotype environmental educators, a self-administered online survey was conducted. It followed a very specific assessment format created by McCauley and Stitt (1978) in order to collect data that could be analyzed quantitatively by using the diagnostic ratio.

The results showed that 10 of the 15 traits represented in the survey were stereotypes. Those attributes were: progressive, science-minded, liberal, choosing species over economy, idealist, activist, tree-hugger, self-motivated, logical and choosing people over the environment. It is interesting to note that the attribute ‘people over the environment’ represented a negative correlation. Based on the implications of the traits represented, the results can be interpreted to show that there is a framework of ideas that principals had in their head when they thought about environmental educators. Knowing if principals have stereotypes about environmental educators could provide insight into why a particular school may, or may not, embrace environmental education.

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## Chapter One

### Introduction

The field of environmental education is relatively new in the world of professional occupations and research. Its forty year history is barely a beginning compared to most professional and academic fields. Like anything so young, there is much ambiguity surrounding it. Researchers dedicated to the field have put in many hours helping to define and mold it (Hungerford, 2005). School teachers who choose to adopt the goals of environmental education implement it into their classrooms and their lessons with the best intentions (Robertson & Krugly-Smolka, 1997). Some people choose to teach nothing but environmental education at facilities specifically designed for environmental education, like nature centers, residential environmental education centers, governmental agencies, and parks. All of these people, along with many citizens who support environmental education without doing it for a living, know what it is because they've chosen to have an interest in it. So what about those who are not interested? Does an average person not immersed in the field of environmental education know its purpose? And, in the context of this study, how do they view environmental educators?

The intention of this study is to identify how public school principals perceive people who are environmental educators. By examining what these perceptions are, it creates the opportunity for teachers and researchers in the field to promote the growth of environmental education by validating and promoting accurate perceptions as well as trying to dispel the misconceptions that may exist.

## **Background**

The professional field of environmental education began a little over forty years ago out of growing concern for the state of the natural environment. The first significant effort to define the goals and objectives of environmental education in an attempt to help legitimize the field was put forth with the writing of the Tblisi Declaration in 1978 by the United Nations Education, Scientific, and Cultural Organization (UNESCO). The primary goals of environmental education can be lumped into the following five categories: 1) awareness 2) knowledge 3) attitudes 4) skills and 5) participation (UNESCO, 1978). Over the last thirty years, despite the fact that these categories are indeed very broad, they have been recognized and accepted in much of the contemporary environmental education literature. They have remained the foundation for many researchers and environmental education professionals in their effort to promote the growth and expansion of environmental education through both formal and non-formal means. Still, there is continued ambiguity in regards to what subjects should and should not be included in environmental education curricula, what the best way to implement it into schools, and who should be teaching it.

## **Research Question**

Is a stereotype about environmental educators present among public school principals?

## **Objectives of this study**

1. Determine if principals stereotype environmental educators
2. Identify the stereotype attributes

## Definition of Terms

### Environmental Education

*Constitutive:* “Environmental Education is the interdisciplinary process of developing a citizenry that is knowledgeable about the total environment, in its natural and built aspects, and that has the capacity and the commitment to engage inquiry, problem-solving, decision-making, and action that will assure environmental quality.” (U.S. EPA’s National Environmental Education Advisory Council’s 1992 definition in MN Greenprint, Minnesota Department of Education, 1993, p.7)

*Operational:* A method or subject taught in a formal K-12 classroom that teaches facts, skills and awareness of all aspects of the natural environment.

### Environmental Educator

*Constitutive:* “An environmental educator... is any world citizen who uses information and educational processes to help people analyze the merits of the many and varied points of view usually present on a given environmental issue.” (Hug, 1977)

*Operational:* A professional educator who works in either a formal or non-formal educational setting with the intention of carrying out the process of environmental education.

### Stereotype

*Constitutive:* “A set of beliefs held by an individual regarding a social group.” (Ashmore & Del Boca, 1981, p. 19)

*Operational:* “A stereotype [trait] is any trait with a diagnostic ratio substantially different from 1.0” (McCauley & Stitt, 1978. p. 934)

## Diagnostic Ratio

*Constitutive:* “A quantitative and individual measure of stereotyping...based on defining stereotypes as probabilistic predictions that distinguish the stereotyped group from others.” (McCauley & Stitt, 1978)

*Operational:* The quotient determined by dividing subjects’ answers to questions regarding the target group by the subjects’ answers to the same questions about “people in general”.

## Limitations

1) The study is limited to public school principals from the east-central region of Minnesota. The results will not be representative of all schools within the state, nor will it accurately identify a national trend.

2) Other methods of stereotype assessment could have been used for this study.

The method of stereotype assessment used in this study was chosen because of its ease of use, its quantitative aspects and because it coincides with the definition of stereotype that was chosen for this study.

3) Since the data was collected by use of self-administered surveys, there is the risk of various interpretations of the questionnaire items; hence the reliability of the results may be limited.

## Significance

One way to ensure that environmental education is getting a fair chance to establish itself as a legitimate and important field is to have professional support by not only those in the field of environmental education, but by those in any variety of administrative positions who can help to encourage its growth in schools.

A professional field can often be identified by the professionals in it. Therefore, it is possible that even though the field of environmental education itself receives support, the people who teach it are possibly being perceived in ways that reflects negatively on themselves and on the field. By identifying what the “picture in a person’s head” is when the term ‘environmental educator’ is used, it may help us better understand how the field is being perceived and how we can change that perception if need be.



## **Chapter Two**

### **Review of Literature**

The literature reviewed in this chapter will provide the foundation for which the idea for this research was built. The literature will fall beneath one of the two umbrella topics covered in this review. The first is environmental education. This section will include the formal goals of environmental education, environmental education in schools, and the perceived bias with current environmental education teaching materials. The second is stereotypes. This section will differentiate between stereotypes and stereotyping, address the difficulties with defining stereotypes, and provide a review of the stereotype assessment techniques.

#### **Environmental Education**

##### **The goals of environmental education.**

The foundation for environmental education is built upon the field's two founding documents: The Belgrade Charter and the Tblisi Declaration (NAAEE, 1996). The Belgrade charter stated the first widely accepted goal statement for the field of environmental education. That statement reads,

“The goal of environmental education is to develop a world population that is aware of, and concerned about, the environment and its associated problems, and which has the knowledge, skills, attitudes, motivations, and commitment to work individually and collectively toward solutions of current problems and the prevention of new ones” (NAAEE, 1996, p.1).

In October of 1977, as a response to the ever-growing concern over environmental health and the quality of life for people around the world, the United Nations Education, Scientific, and Cultural Organization (UNESCO), in cooperation with the United Nations Environment Programme (UNEP), organized an international and intergovernmental conference on the

environment (UNESCO, 1978). Approximately 265 delegates, and 65 representatives and observers from around the world gathered in Tblisi, Georgia and helped create the Tblisi Declaration; a set of formal guidelines, principles and overall framework for the budding field of environmental education (UNESCO, 1978). The intent was to create goals and objectives that would work at all governmental levels, as well as with all age groups in any type of formal or non formal educational setting (UNESCO, 1978).

The Tblisi Declaration defines the goals of environmental education as the following:

- to foster clear awareness of, and concern about, economic, social, political, and ecological interdependence in urban and rural areas;
- to provide every person with opportunities to acquire the knowledge, values, attitudes, commitment, and skills needed to protect and improve the environment;
- to create new patterns of behavior of individuals, groups, and society as a whole towards the environment.

(UNESCO, 1978, p. 26)

There are five categories of environmental education objectives also stated by the Tblisi Declaration. They are:

- Awareness-to help social groups and individuals acquire an awareness and sensitivity to the total environment and its allied problems.
- Knowledge-to help social groups and individuals gain a variety of experience in, and acquire a basic understanding of, the environment and its associated problems.

- Attitudes-to help social groups and individuals acquire a set of values and feelings of concern for the environment and the motivation for actively participating in environmental improvement and protection.
- Skills-to help social groups and individuals acquire the skills for identifying and solving environmental problems.
- Participation-to provide social groups and individuals with an opportunity to be actively involved at all levels in working toward resolution of environmental problems.

(UNESCO, 1978, p. 26-27)

These guidelines provided a much-needed boost for the field of environmental education to help legitimize it as a professional field. Today, researchers continue to refer to the goal of the Belgrade Charter and objectives stated in the Tblisi Declaration to guide the development of environmental education programs, curricula and research. One particular example comes from the work of Engleson and Yockers (1994) who used the Tblisi Declaration and the goal statement of the Belgrade Charter to develop their own goal statement for environmental education, stated as, “The goal of environmental education is to help students become environmentally aware, knowledgeable, skilled, dedicated citizens who are committed to work, individually and collectively, to defend, improve, and sustain the quality of the environment on behalf of present and future generation of all living things” (p. 14). The focus of Engleson and Yockers work was to develop guidelines for the writing of environmental education curriculum. They used their goal statement to create five more specific goals to be used to help frame the future development of environmental education materials.

**Perceptual awareness:** To help students develop the ability to perceive and discriminate among stimuli; to process, refine, and extend those perceptions; and to concurrently acquire an aesthetic sensitivity to both natural and built environments.

**Knowledge:** To help students acquire a basic understanding of how the natural environment functions, how its function is affected by human activity, and how harmony between human activity and the natural environment may be achieved.

**Environmental Ethic:** To help students develop a universal ethic on which they may act to defend, improve, and sustain the quality of the environment.

**Citizen Action Skills:** To help students develop the skills needed to identify, investigate, and take action toward the prevention and resolution of environmental issues.

**Citizen Action Experience:** To help students gain experience in applying acquired perceptual awareness, knowledge, and environmental ethic, and citizen action skills in working toward the prevention and resolution of environmental issues at all levels, local through universal (Engleson & Yockers , 1994, p.14).

### **Barriers to environmental education in U.S. schools.**

Although environmental education has greatly expanded since its genesis in the 1970's and it does occur in schools on various levels throughout the country, most researchers and environmental education proponents will say it is not as commonplace within school curricula as it needs to be in order to effectively accomplish its intended goals. Unfortunately, there is a lack of research in the area regarding the extent to which environmental education is included in school curricula (Anderson, 1999; Whittier, 2000).

Many barriers have been cited as reasons for environmental education's lack of progress throughout schools. Ham and Sewing (1988) identified four categories of barriers to environmental education:

**Conceptual-** This reflects the ambiguity surrounding the definition of what environmental education is and materials/subjects that should be taught. Many teachers are confused by the broad, interdisciplinary scope with which environmental education tends to be identified. In addition, this barrier reflects the lack of structure and a distinct teaching method present among other academic fields. The conceptual barrier was also identified by research conducted by Robertson and Krugly-Smolka (1997) and Hart (1997).

**Logistical-** Teachers have identified lack of time, class size, lack of resources, and funding sources all as logistical reasons for not teaching environmental education. Numerous studies have all reported this barrier, particularly the time constraint, and the difficulty with fitting environmental education into a full curriculum (Whittier, 2000).

**Educational-** This reflects the teachers perceived incompetence for teaching environmental education. Many teachers lack what they feel is the proper training and educational background to teach the subject (Ham & Sewing, 1988).

**Attitudinal-** Ham and Sewing's study, focusing on elementary teachers, found that overall they had positive feelings toward environmental education. However, in part because of the previous three barriers, they have developed a negative attitude toward actually pursuing it. In addition, the negative attitudes identified in this study were also stemmed from the association of environmental education and the teaching of science. Environmental education is usually associated with science teaching, and this can be an inhibiting factor for teachers who are not comfortable with, or have any training in, science education.

Another study on the barriers to environmental education was carried out by Fox and Carpenter in 1992. They conducted a Delphi study of the barriers to environmental education as seen by experts in the fields of environmental and science education. Their results closely resembled the results of Ham and Sewing's 1988 study. The main barriers included a lack of environmental knowledge and/or teacher training and a lack of time to fit environmental education into an already full curriculum.

### **Perceived bias in current environmental education materials.**

In the time after the writing of the Tblisi Declaration there came a surge of interest in environmental education. For the most part, environmental education had established a solid foot-hold within the realms of education and grew considerable in its first twenty or so years of existence (Carlsson & Mkandla 1999). But as with many movements that begin with a great surge, it was followed by a surge of criticism. In more recent years there has developed what has become known as somewhat of an environmental education backlash. There are some researchers, parents, teachers, and citizens in general who have become concerned that environmental education has become a platform for turning non-suspecting students into "environmentalists". Sanera and Shaw (1997, p. 1) state that, "Too often the goal of environmental education is to turn children into environmental activists rather than teach them sound science".

This criticism of environmental education, though not commonly stated in the literature, is one of which many professionals in the field are aware. Wilke (1996) adds to this by stating what he has witnessed as current major criticisms of environmental education, including the fact that environmental education tends to be based more on emotions and feelings rather than on facts, it has a tendency to be perpetuated through environmental issues rather than information, and

that it is often viewed as having a political agenda. These criticisms are familiar to any environmental education researcher, and many are working to understand how to reverse this negative image and the damaging effects it has had, and can have, on the field. Vander Stoep (1997) asks how environmental education professionals will be able to, "...counteract some of the backlash against "environmental education", a label which has become, in some sectors, laden with images of doom-saying and extremism more appropriately associated with environmentalism or environmental advocacy" (p. 12).

Although these attitudes are acknowledged, they are rarely cited as a barrier to environmental education's growth. One exception came with the Fox and Carpenter study. Their study reported that 38% of respondents said that negative attitudes toward environmental education is a barrier (Fox & Carpenter, 1992). Attitudinal barriers were also cited by Ham and Sewing, but again, most of those negative attitudes stemmed from the perception that environmental education is synonymous with science, therefore the negative attitudes were toward the idea of having to teach science rather than toward environmental education itself (Ham & Sewing, 1988). The difference between Ham and Sewing's findings on attitudes and the results from Fox and Carpenter's research is reflected in one specific response of the latter study, "the term 'environmental education' is an inhibitor in itself; it almost sends forth a message of advocacy as opposed to education" (Fox & Carpenter, 1992 p. 412). This acknowledgment by an expert within the field may help to confirm the idea that maybe negative attitudes toward environmental education are more prevalent than research to-date has shown and could actually be a factor inhibiting the growth of environmental education throughout schools. Furthermore, it may begin to acknowledge that perhaps those negative attitudes stem from the perception by some that environmental education is equivalent to environmental

activism and associated with more radical environmental movements and ideas. Then of course one must consider that if environmental education, its materials, curricula and overall objective are perceived to be associated with environmental activism, then perhaps the environmental educators, those who choose to teach this subject, are also being perceived as environmental activists rather than legitimate teachers.

## **Stereotypes**

### **Differentiating between stereotype and stereotyping.**

To define the boundaries of this study, it is necessary to differentiate between stereotypes and the process of stereotyping. A stereotype, although not having one all-encompassing definition, can be explained as a set of beliefs about a person or category of persons. A more thorough explanation of the definitions of stereotypes will be examined in the next section. Leyens, Yzerbyt, and Schadron (1994) state the relationship between stereotypes and stereotyping in the following statement, “Stereotypes are only an end-product or a point of departure from the process [of stereotyping]” (p. 11). The process of stereotyping is defined as, “the process of applying a stereotypical judgment such as rendering [individuals] interchangeable with other members of the category” (Leyens, Yzerbyt, & Schadron 1994, p. 11). To apply a stereotype, one would consider that every member from a particular group share the defining traits within a stereotype (Leyens, Yzerbyt, & Schadron 1994). From a psychological standpoint, stereotyping is accepted as common, though “covert” (Miller, 1982), mental process and deems itself functional to social interactions (Miller, 1982). However, one must first identify if a stereotype exists and/or what attributes constitute a stereotype before there can be accurate measure of whether or not a person is stereotyping. Identifying if a stereotype is present and, if so, the attributes that constitute the stereotype, are the goals of this study.



### **Difficulties in defining stereotype.**

Since Walter Lippman first used and defined the term *stereotype* in a social psychological context in 1922, there has not been *one*, professionally agreed-upon and accepted definition of this word; there have been *many*. In his book *Public Opinion* Lippman, an American journalist and political commentator, never actually gave a precise definition of the term (Brown, 1986; Leyens, Yzerbyt & Schadron, 1994) but rather gave it four defining elements: 1) simple rather than complex 2) more likely to be erroneous than accurate 3) acquired through second-hand sources rather than direct experience and 4) resistant to change (Harding, 1968; Leyens, Yzerbyt & Schadron, 1994; Miller, 1982). A simple summary of Lippman's idea of stereotypes would be, "...an oversimplified picture of the world, one that satisfies a need to see the world as more understandable and manageable than it really is" (Brown, 1986, p. 586; McCauley, Stitt & Segal, 1980, p. 195). Although Lippman was indeed a journalist, not a social psychologist, his insight into the contemporary issues of stereotypes and stereotyping was incredible (Leyens, Yzerbyt & Schadron 1994; Miller, 1982). Many researchers today continue to use or at least refer to some or all of the elements Lippman assigned to stereotypes.

Since Lippman's work, many definitions of stereotype have been attempted and challenged. Miller (1982) claims that all researchers tend to agree that a stereotype is a, "...social perception or judgment on the part of an observer who assigns-overtly or in thought-a dispositional quality (trait, attitude, motive, intention) to another individual or group" (p. 28). A very general definition of a stereotype that is encompassed in the majority of definitions could be, "...shared beliefs about person attributes, usually personality traits, but often also behaviours, of a group of people" (Leyens, Yzerbyt & Schadron 1994, p. 11). In terms of this study, the definition of stereotype as "a set of beliefs held by an individual regarding a social group"

(Ashmore & Del Boca, 1981, p. 19) may be more appropriate. This definition differs from the one given by Leyens et al. in that it reflects the idea that stereotypes are held by individuals, not necessarily shared. According to many authors this concept, known as group consensus, is an area that researchers tend to disagree on when defining stereotype (Ashmore & Del Boca, 1981; Leyens, Yzerbyt & Schadron, 1994; Miller, 1982).

Other primary areas where disagreement occurs are whether or not stereotypes are *bad*, whether or not they are rational, and whether stereotypes reflect either a) what makes a categorized group different from society or b) what makes categorized group members similar (Ashmore & Del Boca, 1981; Brown, 1986; Gardner et. al., 1988; Leyens, Yzerbyt & Schadron, 1994; Miller, 1982;). A researcher's operational and/or constitutive definition of stereotype will reflect his/her professional training, the nature of their research, and personal preference. The definition of stereotype for this study as stated above was selected, in part, because of the chosen stereotype measure which will be explained in the next section.

### **Review of stereotype assessment.**

The landmark effort in assessing stereotypes was put forth in 1933 by Daniel Katz and Kenneth Braly in the study, "Racial Stereotypes of One Hundred College Students". Theirs was a simple technique and used Lippman's concept of stereotypes being "the pictures in our heads" (Lippman, 1922, p. 1; Miller, 1982, p. 10). They devised a list of personality traits with a free-response technique by asking 25 Princeton college students to, "list as many specific characteristics or traits as you think are typical of the following racial and national groups" (Katz & Braly, 1933, p. 284). This was an attempt for the researchers to use traits that represented a more representative population, rather than being "limited by their own knowledge of racial stereotypes" (Katz & Braly, 1933, p. 284). The researchers then provided 100 Princeton college

students with the adjective list and asked the students to first, “write as many of these words in the following space as you think are necessary to characterize these people adequately” (p. 282). Next, the students task was to, “go back over the 10 lists of words which you have chosen and mark with an X the five words in each list which seem to you the most typical of the race in question” (p. 282).

Katz and Braly presented their data in two ways. First, they provided a table with the 12 most frequently selected traits of each of the 10 nationalities and gave the percentage of students that chose that trait (p. 284-285). Second, in order to look at the degree of agreement the subjects had when assigning the traits, they listed the least number of traits it took to identify 50% of the possible votes (p. 287). Through this method, we can see that Katz and Braly relied on agreement among subjects, or group consensus, in order to identify a stereotype. They emphasized the social, or group, aspect of defining stereotype (Brigham, 1971; Brown, 1986; Gardner et. al., 1972; Gardner et. al., 1988; Katz & Braly, 1933; Leyens, Yzerbyt & Schadron, 1994; McCauley & Stitt, 1978; Miller, 1982).

Researchers worked with the Katz and Braly technique for a number of years before any new method was seriously attempted (Miller, 1982). There soon came to be critiques of the adjective checklist technique. There was a reliability issue with the vagueness of the term *typical* that appeared in the directions for the questionnaire (McCauley & Stitt, 1978). One subject may define typical as meaning ‘the majority of people in this group would have this trait’. While another subject may understand it as ‘a trait more likely of a member of this group than any other group’. This lack of reliability was a downfall of the Katz and Braly study. Other critiques arose from a series of studies that replicated the Katz and Braly research and dealt with the subjects reluctance to assign a trait to a group in which there has been little or no primary contact with. It

was seen as forced stereotyping (Brigham, 1971; Leyens, Yzerbyt & Schadron, 1994; Miller, 1982). Relating to this, as the term stereotype became commonplace within social psychology, it was often viewed as a parallel with prejudice and there was concern from some subjects that they would be viewed as prejudiced if they responded truthfully (Brown, 1986; Leyens, Yzerbyt & Schadron, 1994; Miller, 1982)

Two of the more prominent critiques stemmed from how Katz and Braly defined stereotypes in terms of consensual beliefs and stereotypes as negative or irrational. Some researchers began to feel that stereotypes did not have to be consensual, but are held on an individual level. Nor did some feel that stereotypes and the process of stereotyping were necessarily negative or irrational. The first person to bring the consensual vs. individual argument to the forefront was John Brigham in his 1971 review of stereotype literature, "Ethnic Stereotypes". He notes that up until then, there had been no quantitative measure of individual stereotypes.

An attempt to create a more quantitative stereotype measurement was made by Gardner, Kirby, Gorospe, and Villamin with the introduction of the Stereotype Differential which, "requires [subjects] to rate ethnic group labels on a series of bipolar trait-descriptive adjectival scales...and is indexed in terms of extreme polarity of ratings. This polarization is assessed by means of the *t* statistic" (1972, p. 260). This was indeed a more quantitative measure (Gardner et. al., 1972; Gardner et. al., 1988; McCauley & Stitt, 1978), yet continued to emphasize group consensus in defining a stereotype even though its intent was to create an individual measure (McCauley & Stitt, 1978). This study also acknowledged the idea that stereotypes should not be deemed illogical without a measure of individual differences in the process of adopting stereotypes (Gardner et. al., 1972). The Stereotype Differential did incorporate one very

important concept to stereotype assessment however, and that was it could indicate the degree to which a trait was perceived to characterize members of a group and do so on a continuous scale (Eagly & Steffen, 1988; Gardner et al., 1972; Gardner et al., 1988), something the Katz and Braly measure failed to do.

John Brigham followed Gardner, Kirby, Gorospe and Villamin in an attempt to create a new measure. His was a percentage measure used in a number of his own studies, which asked subjects to give a “percentage of a stereotyped group thought to have any trait or characteristic of interest” (McCauley & Stitt, 1978, p. 930). His method focused on stereotypes as being held by individuals and reverts back to defining them as illogical (Brigham, 1973; Miller, 1982). Brigham’s ethnic studies were the first to show that many of the traits viewed as *typical* in the Katz and Braly study were actually characteristic of less than half of the members of the racial and ethnic groups (Brigham, 1973; McCauley & Stitt, 1978). His study also questioned the Katz and Braly technique by finding that, “the traits for which the mean percentage is highest can turn out to have the least relation to attitude toward the target ethnic group” (McCauley & Stitt, 1978, p. 930; Brigham, 1973;). However important Brigham’s findings were, some researchers still felt that his measure may not have been assessing stereotypes as all, rather some other social phenomena (McCauley & Stitt, 1978).

Understanding the significance of the Brigham method, Clark McCauley and Christopher Stitt developed what they termed the diagnostic ratio. It borrows Brigham’s concept of percentage estimates, but also takes into account a base rate, which is also estimated by the subjects. This idea comes from predication studies within social psychology and incorporates Bayes Rule (McCauley & Stitt, 1978). This method requires subjects to first estimate the number of people in a particular category that have a certain trait. This is value A. Next they are

asked to estimate the number of all people in the world who have that certain trait. This is value B. The percentage (as a decimal) of value A is then divided by the percentage (as a decimal) of value B and the resulting quotient is what is called the diagnostic ratio. If the diagnostic ratio is significantly greater than 1.0, it is a positive stereotype trait, meaning it is an attribute that is associated with the target group. If it is significantly less than 1.0, it is a negative stereotype trait, meaning the attribute is one that is not associated with the target group (McCauley & Stitt, 1978). Negative stereotype attribute in this sense does not mean “bad”, it means that that particular attribute is as much a part of the stereotype because of its lack of existence, as another attribute is part of the stereotype because of its existence (McCauley & Stitt, 1978). It is just as beneficial to identify the attributes that are not associated with a group as it is to identify the attributes that are associated with a group. Both types of attributes help define a stereotype.

The diagnostic ratio has become a recognized quantitative measure of individual stereotypes (Ashmore & Del Boca, 1981; Brown, 1986; Leyens, Yzerbyt & Schadron, 1994; Miller, 1982). However, it has been criticized for not clearly defining how to compute the individual-difference measure that it claimed to create (Gardner et al., 1988) and it fails to provide a continuous measure like the stereotype differential (Eagly & Steffen, 1988). The diagnostic ratio is not limited, however, as is the stereotype differential, to measuring only trait adjectives, rather than behaviors and other valuable stereotype characteristics (McCauley & Stitt, 1978). Proponents feel that the diagnostic ratio may also be more precise than other measures such as the stereotype differential (Eagly & Steffen, 1988). Furthermore, although the measure was developed to assess individual stereotypes, it is possible to identify consensual beliefs among the subjects as well (Gardner et al. 1988; Martin, 1987).

McCauley and Stitt acknowledged a point made by LeVine and Campbell (1972) which has been termed the “kernel of truth” hypothesis. LeVine and Campbell expressed the idea that stereotypes are not necessarily invalid, but that through perceptual processes, real differences between groups are likely to be exaggerated ( McCauley & Stitt, 1978). As a way of testing a stereotype’s validity, McCauley & Stitt included in their diagnostic ratio idea a process that would not only compare how subjects felt about a target group with how they felt about people in general, but would compare how subjects felt about the target group with known statistics about the target group. This was a measure to see if there was a “kernel of truth” to a particular stereotype.

### **Chapter Summary**

The literature review helps form the background of research question by addressing three areas. First, by reviewing the formal goals and objectives of environmental education as they are written by the developers of the field, it establishes the legitimacy of the field and its intentions. The five categories of objectives for the field of environmental education as written by the Tblisi Declaration are: 1) Awareness 2) Knowledge 3) Attitudes 4) Skills and 5) Participation (UNESCO, 1978).

Second, a review of the barriers to implementing environmental education in schools shows us that for logistical, educational, conceptual and attitudinal reasons on behalf of the teacher and other professionals in the field (Fox & Carpenter, 1992; Ham & Sewing, 1988), environmental education is not as prominent in public schools as researchers feel it should be in order to be fulfilling the established objectives. Finally, discussing how many people feel that environmental education is more focused on activism and certain political ideologies, despite what the field’s stated objectives are, helps us realize that negative attitudes do exist about

environmental education based on the idea that environmental education is often seen as environmental activism. By looking at these three areas, it can be assumed that if there are negative attitudes toward environmental education because it's presumed association with activism, then there may be negative attitudes toward environmental educators because of a presumption that they are environmental activists. Therefore, could an existing stereotype about who environmental educators are and what their motives are, be a possible barrier to the implementation of environmental education? In order to answer this question properly, one must take a step backwards and first ask if a stereotype does indeed exist about environmental educators, which is what this study accomplished.



## **Chapter Three**

### **Methodology**

#### **Research Design**

This study was a cross-sectional survey research (McMillan, 2000) which was determined to be the most effective research design for meeting the objectives of this study. The population surveyed were public school principals at elementary, middle and high school levels.

#### **Subject Selection**

The subjects for this study were principals from elementary, middle and high schools representing three separate education districts in east-central Minnesota. The contact information for these principals was obtained from the districts' websites. A total of 94 survey invitations were emailed out to every principal within those three education districts. Surveys were online forms and were anonymous.

Principals were chosen because of their administrative position within schools and their influence over curriculum and subjects taught within their school. Private, charter, and parochial schools were excluded because of varying administrative structures and overall school objectives that could have influenced the results. The east-central region of Minnesota was chosen because of geographic familiarity.

## **Instrument**

The data for this research was gathered by a self-administered online survey created specifically for this study. There were 15 statements, or attributes total; each one represented a different attitude or belief. The attributes were chosen by the researcher based on the review of literature, a pilot effort in a university class and personal experience with, and exposure to, attitudes about environmental educators. For each attribute, two separate actions were asked of the subject. First, they were asked to estimate as a percentage, the number of environmental educators that would agree with the statement and/or possess the characteristic represented. Second, they were asked to estimate, also as a percentage, the number of 'people in general' who would agree with the statement and/or possess the characteristic. The instructions of the survey stated that there are no correct percentages known for any of the attributes; they were asked to estimate the percentages the best they could, as whole percentages.

The statements used in this survey were designed specifically to be used with the diagnostic ratio technique of stereotype assessment developed by McCauley and Stitt (1978). Previous research in stereotype assessment revealed no such instrument for stereotypes about environmental educators. Many attributes were single word descriptors. However, some attributes were represented by a statement or phrase on the instrument. Table 1 shows the statement/phrase as used on the instrument and the corresponding attribute summary phrase used in the reporting and analysis.

**Table 1***Attribute summary phrases*

<u>Questionnaire statement/phrase</u>	<u>Attribute summary</u>
Environmental activist	Activist
Hunting is a necessary and acceptable means of controlling game populations	Pro-hunting
Tree-hugger	Tree-hugger
The protection of endangered species should occur regardless of the cost to the personal/national/world economy.	Species over economy
Open-minded	Open-minded
The well-being of people should take priority over the well-being of the environment .	People over environment
Progressive	Progressive
Liberal	Liberal
Idealist	Idealist
The damage sustained to the environment is much too great to repair	Damage too great to repair
Logical	Logical
Science-minded	Science-minded
One should be optimistic about the future of our planet	Optimism for future
Irrational	Irrational
Self-motivated	Self-motivated

*Note.* The attribute summary is the verbiage used in reporting and analysis.

## Data Analysis

In order to best capture an individual, quantitative measure, the diagnostic ratio for each respondent's estimate for each attribute was calculated. To accomplish this, each percentage was converted into a decimal. The value estimated for environmental educators is labeled 'A'; the value estimated for all people in general is labeled 'B'. Value A was divided by value B. The result is the diagnostic ratio. The mean diagnostic ratio was then calculated for each attribute. An independent sample, one-tailed t-test was then performed for each mean to determine significance. The probability was deemed significant at a value of  $<.05$ .

If the decimal quotient was significantly larger than 1.0, it was considered a positively distinctive stereotype attribute, meaning that subjects felt the attribute was more likely to be true of environmental educators than of people in general. If the quotient was significantly smaller than 1.0, it was considered a negatively distinctive stereotype attribute, meaning the subjects felt the attribute is less likely to be true of environmental educators than of people in general. The attributes showing either positive or negative significance are both considered stereotypes. The difference lies in the fact that the degree of positive significance reflects the degree to which that attribute exists in one's set of beliefs and the degree of negative significance reflects the degree to which attribute doesn't exist in one's set of beliefs.

## Chapter Four

### Results

The purpose of this research was to identify how public school principals perceive environmental educators. This was accomplished by administering an online survey, mimicking an instrument developed by McCauley and Stitt (1978), and analyzing the results using the diagnostic ratio, a quantitative method of identifying stereotypes.

There were a total of 21 responses; three of which were responses to say they didn't have time to fill out the survey or were not interested in being part of the research, making the number of counted respondents for this research 18.

Of the 15 total traits, 14 of them had mean diagnostic ratios greater than one. For the traits showing a p-value significantly different from one it is interpreted, based on the operational definition of stereotype used in this research, that those traits are a positively distinctive stereotype trait. As indicated in Table 2, nine of the 15 traits tested to be a positively distinctive trait. What this means is that these nine traits are stereotype traits because the principals in this study believe that environmental educators are significantly more likely to possess this attribute than all people in general.

One of the 15 traits, 'people over environment' had a mean diagnostic ratio less than one (.61). The t-test showed a significant difference from one. What this means is that principals in this study believe that environmental educators are significantly less likely to possess this attribute than all people in general. Five of the traits showed no significant distinction from one therefore they are not stereotypes by operational definition.

**Table 2***Test of significance of mean diagnostic ratios*

Attribute	n	Std Dev	Mean DR	p
Progressive	18	1.43	2.29	.0007*
Science-minded	18	1.95	2.68	.0010*
Liberal	18	0.97	1.80	.0014*
Species over economy	18	3.18	3.32	.0033*
Idealist	18	1.16	1.83	.0037*
Activist	18	4.11	3.85	.0046*
Tree Hugger	16	3.09	2.91	.0129*
Self-motivated	17	0.56	1.33	.0136*
Logical	18	1.72	1.77	.0373*
Damage too great to repair	15	3.48	2.55	.0533
Open-minded	18	0.75	1.28	.0658
Pro-hunting	18	0.72	1.25	.0795
Irrational	15	1.74	1.61	.0980
Optimism for future	15	0.61	1.13	.2115
People over environment	14	0.53	0.61	.0082**

*Note.* DR=diagnostic ratio

\*p&lt;.05, one-tailed upper. \*\*p&lt;.05, one-tailed lower

## **Chapter Five**

### **Discussion**

This final chapter will be a review the methodology and discuss further the strength and weaknesses of the instrument used. Included will be discussion of the significance and implications of the results, as well recommended direction for future research on this topic.

#### **Methodology and instrument design**

The instrument style used in this study was taken from previous research on measuring ethnic stereotypes performed by McCauley and Stitt (1978). They developed this instrument style as a method of finding the diagnostic ratio, which can help provide a quantitative measure of individual stereotypes (McCauley & Stitt 1978). Though the instrument was designed for quantifying ethnic stereotypes, I felt that it could easily be used to quantify stereotypes of any group. For the purposes of this study the group was environmental educators. The original instrument was comprised of attributes of possible ethnic stereotypes that were derived from previous stereotype research; specifically attributes determined by research conducted by Karlins, Coffman, and Walters (1969). For this study, since no previous stereotype research had been conducted about environmental educators, the attributes were chosen by the researcher based on the review of literature, a pilot effort in a university class and personal experience with, and exposure to, attitudes about environmental educators by being involved in environmental work and academics for a number of years. This method of selection of course presents limitations to the study. However, it was decided that this was an acceptable method given the infancy of this line of research.

For each of the 15 attributes, subjects were asked to estimate the percentage of environmental educators they felt agree with the statement and/or possess the characteristic

represented. Next, they were asked to estimate the percentage of ‘all people in general’ whom would agree with the statement and/or possess the characteristic. On the surface this appears very odd as there is no way a person can know the correct answer. To avoid this discomfort with the respondents, the instructions clearly stated that there were no correct or incorrect percentages known; they were supposed to estimate. Despite this, some comments I received back from subjects via email expressed displeasure with the way the survey was constructed. I would expect this to be the case any time this instrument was used. This may have been avoided if the survey was not self-administered. If I could have been present to answer questions or provide more background, subjects may have been more at ease. However, due to the fact that I was surveying principals from an entire region, this would not have been logistically possible. Even so, due to the nature of stereotypes, I could not have given too much information about what I was looking at in my results, as this may have skewed the responses. In a sense, stereotype research has to be disguised otherwise responses may not accurately reflect the respondents true attitudes or feelings. This being because often ‘stereotype’ is equated to ‘prejudice’ and subjects, feeling that they may be seen as prejudice, will respond in a way that protects them from that label (Brown, 1896; Leyens, Yzerbyt, & Shadrom, 1994; Miller, 1982).

### **Analysis of results**

A variety of interpretations could be made of the results from this survey. This section will be a review of traits that may arguably play a role in hindering a principal’s administrative support for incorporating environmental education in his/her school.

To recap, Ham and Sewing (1988) identified four categories of barriers among teachers in general 1) conceptual 2) logistical 3) educational 4) attitudinal. Fox and Carpenter (1992) conducted another study of environmental and science education professionals and reported



barriers that all fit into the same categories reported by Ham and Sewing (1988). In addition, however, they also identified 1) lack of interest or negative attitude and 2) political constraints as categories of barriers. The analysis of this research should focus on how any traits deemed stereotypes in this research, could contribute to any of these six total barriers.

One can not state, as fact, that any of these traits hold negative or positive connotations to the individual subjects based on the data collected with this instrument. The data in this research only define stereotype traits to be present or not present. No implications of positive or negative feelings toward any of the traits can be stated as an absolute. To illustrate views of potential negativity in any of these items, this quantitative method would need to accompany a more qualitative analysis of each respondent's view toward environmental educators and environmental education as well as their view of the positive or negative implications of each trait. For the purposes of the discussion of this chapter, all analysis regarding the negativity of the traits is based on assumptions.

A total of 10 traits were identified to be stereotypes by the operational definition of stereotype in this research. They were: progressive, science-minded, liberal, species over economy, idealist, activist, tree-hugger, self-motivated, logical, and people over environment. Of these traits, potentially five of the positively distinctive ones, could be interpreted as contributors to the barriers of environmental education in schools based on the reviewed research: science-minded, liberal, species over the economy, activist, and tree-hugger. The one negatively distinctive attribute, people over the environment, would also contribute heavily to the negativity barrier identified by Carpenter and Fox (1992). Below is an examination of these six attributes.

Science-minded. The idea that environmental educators are science-minded is somewhat expected. Under the category of attitudinal barrier, Ham and Sewing (1988) reported that many

teachers see environmental education as synonymous with science education. For the results of this study, however, how the science-minded perception could be seen as a barrier is in the category of logistics; specifically lack of administrative support. If a principal sees environmental education as a subject that is limited to science-minded people and potentially only science subjects, then perhaps they would not be as likely to support a teacher of another subject who wishes to integrate environmental education into an existing curriculum for fear of it being an inefficient use of time and resources. Another illustration could be the principal would only consider introducing the possibility of environmental education integration to science teachers, without considering a social studies teacher, for example.

Liberal. Fox and Carpenter (1992) report political constraints as a barrier to environmental education. The context in which political constraints were considered a barrier in their study was illustrated by how local businesses, or industrial plants, could be considered environmentally unfriendly based on the topics taught within the realms of environmental education. Whereas a teacher “might find it politically difficult to talk about the negative effects of that or similar plants when many of the parents are working at these places and/or when the local economy depends on the continued operations of that plant.” (Fox & Carpenter, p. 412), a principal may find it equally difficult to support, or encourage an environmental education program in their school. This holds true with the basic ‘liberal’ trait. If a school is located in heavily conservative city or region, adopting what is perceived as a liberal subject taught by overtly liberal people, if not state-mandated, may not happen due to the political pressures, whether real or perceived, of the community. In corresponding with a high school principal from northeastern Minnesota, I was told, “Multiple times per day, I am faced with community/political

pressures in decision making...community and school politics can be extreme” (Gregory Hexum, personal communication, 2011)

Species over economy, activist, tree-hugger. These three attributes could be deemed as significant to this research all fit into the barrier Fox and Carpenter (1992) called lack of interest and/or negative attitude. ‘Species over economy’ was the summary phrase for the question, “The protection of endangered species should occur regardless of the cost to the personal/national/world economy”. This phrase represented what I saw as an environmentalist statement; something very distinct from what an environmental educator should say. It’s a statement that reflects much personal value and belief. It would be easy to feel negatively toward this statement if it’s not what you believed. The idea that principals may view this as what environmental educators believe, potentially illustrates the negativity for the field of environmental education that Fox and Carpenter (1992) reported. The significance of the trait of ‘activist’ could also illustrate that negativity toward the field if indeed the subjects see activism as a negative thing. Again, views on negative or positive associations with the 15 traits were not determined in this research. However, through personal experiences and in reviewing relevant literature it is likely safe to say that activism is often viewed as a negative attribute; in which case one could argue that it correlates to the barrier of negative attitude’ as described by Fox and Carpenter (1992).

The trait phrase ‘people over the environment’ is a summary of the question, “The well-being of people should take priority over the well-being of the environment”. As with the trait ‘species over economy’, this statement has a tone of strong activism and based on a distinct belief. This trait tested to be negatively distinctive, meaning that principals were significantly less likely to feel that environmental educators felt this way than people in general. The lack of

the trait 'people over the environment' can be interpreted conversely as the presence of the trait 'environment over people'. The negative attitude barrier stated by Fox and Carpenter (1992), again, reflects the idea that simply the name environmental education puts the idea of environmental activism in the heads of many. The results of all three of the traits mentioned in this section back this idea up by showing that often environmental educators are perceived as environmental activists, or at least sharing many beliefs that define activism rather than education.

The other four attributes: progressive, logical, idealist and self-motivated are much less likely to fit easily within the parameters of the barriers to environmental education based on the research of Ham and Sewing (1988) or Fox and Carpenter (1992). Idealist could arguable be a contributor to the negativity barrier. I believe that the association would be more indirect, however, as a result of a more prominent political label being used initially, such as liberal or activist. Therefore, I don't feel there is a strong enough argument to place that attribute in the category of a trait that could contribute to negativity directly. Progressive, logical and self-motivated are all traits that typically wouldn't produce a barrier. They are likely attributes that are expected, and even desired, in the minds of many; particularly principals and administrators. It would seem appropriate to say these wouldn't be attributes contributing to a negative attitude or lack of support for environmental education.

## Recommendations

There are many directions one could go with this line of research. As mentioned previously, one could use the quantitative instrument used in this study and combine it with a qualitative portion based on interviews. This would paint a more complete picture of whether any attributes found to be either positively or negatively significant were seen as having either positive or negative connotations to the subject. A combination of these methods could also potentially get into the ‘whys’ of stereotyping by discovering information about a subject’s previous experience or interaction with environmental educators or knowledge of environmental education.

Considering the fact that the data in this study was collected 10 years ago, one may also consider what the data would have looked like if collected today. That past ten years has brought about great change in terms of how socially acceptable it is to be ‘green-minded’ and that social acceptance of, and exposure to, environmental attitudes may play a role in individuals’ attitudes. One factor in why principals may or may not stereotype environmental educators could be exposure to the subject in the formal school setting. To explore this a bit, another interesting follow up study could be one that would assess and compare attitudes of principals in schools that have environmental education with principals in school without it. Again, combining both a quantitative and qualitative component to a study like this would likely prove to be most telling.

Drawing again on Fox and Carpenter (1992) the barrier they defined as ‘negative attitude’ reflects the term environmental education itself. What if it were called something else? The subjects of this study did show to have a certain set of beliefs about environmental educators. An interesting follow-up may be to conduct a focus-group study that test subjects’ perceptions of the field of environmental education, or environmental educators, but use different

nomenclature. For example would science education (educators), or conservation education (educators) evoke the same type of response as environmental education (educators)? Consider shifting the terminology to include ‘humans’ in the title, rather than ‘environment’. Would the shift to more anthropocentric nomenclature change perceptions of the subject and its political motivations? Moving research in this direction a bit could emphasize the need for better marketing of environmental education. Most academic fields in the traditional K-12 system aren’t associated with politics the way environmental education is. There is a case to say environmental education will never succeed the way it is intended to unless it can disassociate itself with any given political agenda.

There are indeed many directions one could take the research from this point. If stereotypes about those who are professional environmental educators persist, it is likely that the negative attitudes toward environmental education will persist as well. The results of this study could support the ideas of many researchers who have already expressed concern about the ambiguity of the field and the negative image of environmentalism that often surrounds it. This study may indicate that beyond needing environmental education for the health and well-being of the environment, we may first need education *about* environmental education and those who teach it, for the health and well-being of the field.

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## Appendix A

### Questionnaire

#### General Instructions

On this page you will find statements/phrases, each followed by two questions. You are asked to complete each statement with an estimated percentage. *There exists no correct or incorrect percentage for any of the items.* You are asked to estimate the percentage to the best of your ability (like you would if you were asked the question, “What percentage of Americans are teachers?”).

\*\*Please use whole percentages (ie. 30%, or 67%, **rather than** 30.3% or 66.9%)

1) “Environmental activist”

The percentage of Environmental Educators who are: \_\_\_\_\_%

The percentage of all people in general who are: \_\_\_\_\_%

2) Hunting is a necessary and acceptable means of controlling game populations.

The percentage of Environmental Educators that feel this way is \_\_\_\_\_%

The percentage of people in general who feel this way is \_\_\_\_\_%

3) “Tree-hugger”

The percentage of Environmental Educators that may be described this way is \_\_\_\_\_%

The percentage of all people in general who may be described this way is \_\_\_\_\_%

4) The protection of endangered species should occur regardless of the cost to the personal/national/world economy.

The percentage of Environmental Educators who believe this is \_\_\_\_\_%

The percentage of people in general who believe this is \_\_\_\_\_%

5) “Open-minded” (i.e. open to hearing others’ points of view)

The percentage of Environmental Educators who are: \_\_\_\_\_%

The percentage of all people in general who are: \_\_\_\_\_%

6) The well-being of people should take priority over the well-being of the environment.

The percentage of Environmental Educators that feel this way is \_\_\_\_\_%

The percentage of all people in general who feel this way is \_\_\_\_\_%

7) ) “Progressive”

The percentage of Environmental Educators who may be considered this is \_\_\_\_\_%

The percentage of people in general who may be considered this is \_\_\_\_\_%

8) “Liberal”

The percentage of Environmental Educators who may be considered this is \_\_\_\_\_%

The percentage of people in general who may be considered this is \_\_\_\_\_%

9) “Idealist”

The percentage of Environmental Educators who may be considered this is \_\_\_\_\_%

The percentage of people in general who may be considered this is \_\_\_\_\_%

10) The damage sustained to the environment is much too great to repair.

The percentage of Environmental Educators who would agree with this is \_\_\_\_\_%

The percentage of all people in general who would agree with this is \_\_\_\_\_

11) “Logical”

The percentage of Environmental Educators who may be considered this is \_\_\_\_\_%

The percentage of people in general who may be considered this is \_\_\_\_\_%

12) “Science-minded”

The percentage of Environmental Educators who may be considered this is \_\_\_\_\_%

The percentage of people in general who may be considered this is \_\_\_\_\_%

13) One should be optimistic about the future of our planet.

The percentage of Environmental Educators who would agree with this is \_\_\_\_\_%

The percentage of all people in general who would agree with this is \_\_\_\_\_%

14) "Irrational"

The percentage of Environmental Educators who may be considered this is \_\_\_\_\_%

The percentage of people in general who may be considered this is \_\_\_\_\_%

15) "Self-motivated"

The percentage of Environmental Educators who may be considered this is \_\_\_\_\_%

The percentage of people in general who may be considered this is \_\_\_\_\_%

*Thank you for participating in this survey!*