

# From Intentions to Actions: The Role of Environmental Awareness on College Students

Julie E. Schmidt

Faculty Sponsor: Tracie Blumentritt, Department of Psychology

## ABSTRACT

This study examined the ways environmental education influences the attitudes and behaviors of university students. Previous research has been able to associate strong attitudes with intentions; this research goes beyond intentions by measuring behaviors. Surveys were used to verify the impact of an introductory environmental course on participants' environmental awareness. Two independent groups were divided by the characteristic of enrollment in the course. Students in the course reported greater pro-environmental attitudes and behaviors than students who were not enrolled. Results also revealed a positive correlation between attitudes and behaviors at the end of the course. These findings suggest a need for stressing the importance of environmental awareness in an educational setting, in order to benefit both student knowledge and future welfare of the greater population.

## INTRODUCTION

The past several decades has seen an increase in environmental awareness for individuals and societies. Controversies over issues such as "organic versus heavily processed foods" or "a high fuel economy versus the effects of global warming" display prime examples of the influence of environmental issues on today's Americans. The rise in awareness has also coincided with an increase in environmental education since the 1970s (Lotz, 1999; McMillan, Wright, & Beazley, 2004). Previous studies regarding environmental education (EE) have been conducted on elementary or secondary students, with fewer studies on university and college level students (Leeming et al., 1993; McMillan et al., 2004). Faculty at colleges and universities have developed curriculum regarding environmental issues. For instance, the interdisciplinary minor of Environmental Studies at UW-L was established in 1994 (K. Maly, personal communication, 2005). This study explored the impact of a college course in environmental issues on student attitudes and behaviors.

Environmental awareness is broadly defined. Among other things, awareness encompasses incorporating knowledge of contemporary issues affecting nature locally and beyond, discovering which actions can make a difference in your surroundings, and self-awareness concerning personal environmental philosophies (W. Bocher, personal communication, 2005). A large topic of interest within the environmental education realm is establishing how personal traits or lifestyle factors contribute to a person's environmental attitudes and behaviors. A general attitude can be defined as something which "must be perceived by the individual as connected in some meaningful way to a specific situation to serve as a basis for an evaluative reaction in that situation" (Prislin & Ouellette, 1996, p. 845). Ajzen (2001) reviewed the ability of attitudes to predict intentions and overt behavior; according to the *theory of planned behavior*, people act in accordance with their intentions, while intentions in turn are influenced by attitudes toward the behavior. Prislin & Ouellette (1996) found that highly embedded attitudes toward preservation of the environment were more strongly related to behavioral intentions than low-embedded attitudes were. The concept of embeddedness involves how deeply an attitude lies within cognition, and also how much that attitude is supported by similar beliefs and experiences of the individual. Results of their research offered evidence that embeddedness levels influence behavioral intentions and actions. "Consequently, the more elements with which an attitude is connected, the broader the scope of situations to which the attitude is potentially applicable" (Prislin & Ouellette, 1996, p. 849). Due to these findings, an environmental education course should make environmental issues more accessible and relevant to students enrolled. The activation of greater environmental awareness should also strengthen the link between pro-environmental attitudes and behaviors. Therefore, in this study, it was expected that students taking a course on environmental issues would display an overall increase in pro-environmental attitudes and behaviors, while those not enrolled would show little change in their environmental awareness.

In addition to embeddedness being a moderator between attitudes and behavior, Schultz & Oskamp (1996) stressed the importance of effort in connecting attitudes with behavior. They sought to discover if situations requiring a high degree of effort involved attitudes strongly predicting behavior, while also investigating the role of incentive in the attitude-behavior relationship among people with varying strengths of environmental attitudes.

Their study revealed that incentives increased the amount of effort a person was willing to expend on a behavior, and there was a positive correlation between attitudes of environmental concern and participation in a high effort experimental recycling program. However, when effort required was lower or incentives were removed, the relationship between environmental concern and predicting recycling behavior was greatly reduced (Schultz & Oskamp, 1996). Thus, by directly understanding the benefits of preserving the environment, students enrolled in an environmental education course would likely be more invested in protecting their surroundings compared to students not enrolled, regardless of the amount of effort required for the cause.

The introductory course currently offered at UW-L is Environmental Issues (ENV 201), and its main goal is to raise the environmental awareness of each student enrolled. Assignments include weekly writings expressing opinions on the environmentally conscious readings, monthly “nature solos” in which students are asked to relax and write their thoughts while out in the environment, a self-made chart of every item consumed within a 24 hour period, and an informal presentation on an environmental song or poem which has personal meaning. The class also goes on several field trips and has frequent guest speakers, displaying how one can make a difference through action and providing the proper resources on how to do so. Research on university-level environmental classes has consistently found positive value changes in students at the conclusion of the course (e.g., Leeming et al., 1993; McMillan et al., 2004). By adding the behavior component, this study sought to expand and improve on traditional classroom-related research.

It was hypothesized that being enrolled in the introductory environmental education course would be associated with an increase in pro-environmental attitudes and behaviors. In addition, I expected the correlation between environmentally-conscious attitudes and behaviors to increase as a function of course participation. Although the behaviors may require more effort, the *relationship* between pro-environmental attitudes and behaviors should be stronger.

## METHOD

Participants consisted of 115 undergraduate university students, with 70 subjects enrolled and 45 not enrolled. Students taking the course were tested in pre-test/post-test fashion, at the beginning and end of the Fall 2006 semester. The control group was gathered by asking students in the course to list names of friends with similar demographic characteristics who had not taken the course. “Matching is considered one of the best ways to improve a design that is quasi-experimental in nature and random assignment is not possible” (Marczyck, DeMatteo, & Festinger, 2005, 290). Students not enrolled were contacted through email and asked to participate in the study with the added incentive of a chance to win a \$50 gift certificate to a local grocery store. The winner was drawn at random and awarded in December 2006.

Each student completed a modified version of the New Environmental Paradigm (NEP) survey, designed to measure the degree to which people view humans as part of nature (Schultz, Gouveia, Cameron, Tankha, Schmuck, & Franek, 2005). NEP scores ranged from 21 to 84 using a 4-point Likert scale with 1 as *strongly agree* and 4 as *strongly disagree*. Sample NEP items included questions such as “Humans should live in harmony with the rest of nature,” “Technology can overcome any environmental problems,” and “There are limits to industrial growth” (La Trobe & Acott, 2000, p. 18). Participants also completed a “behavior checklist” of self-reported environmentally-conscious actions ranging from easy to difficult, such as “looked for ways to reuse things,” “encouraged friends or family to recycle,” “picked up litter that was not your own,” and “volunteered time to help an environmental group” (Schultz et al., 2005, p. 461). Responses were based on a 6-point Likert scale including the categories *never*, *rarely*, *sometimes*, *often*, *very often*, and “not applicable” if there was “no opportunity for the action” (Schultz et al., 2005, p. 462). Behavioral scores ranged from 12 to 60. The last part of the survey asked for demographics such as age, gender, year in school, major, living situation, and political affiliation. The surveys were administered in a group classroom setting for those taking the course, and in an online format for participants not taking the course. Informed consent was obtained prior to testing, and data was compared using SPSS.

## RESULTS

Data analysis consisted of dependent samples *t*-tests and correlations. NEP scores for time 1 in class ( $M=37.53$ ,  $sd=8.19$ ,  $p=.00$ ) were significantly different from time 2 ( $M=35.68$ ,  $sd=6.69$ ,  $p=.00$ ), yielding a *t*-score of 38.33 (time 2:  $t=39.94$ ). Students not enrolled in the course had significantly different scores on the NEP ( $M=38.52$ ,  $sd=8.20$ ,  $p=.00$ ) with a *t*-score of 32.54. Behavior scores for time 1 in class ( $M=35.07$ ,  $sd=8.06$ ,  $p=.00$ ) were also significantly different from time 2 ( $M=36.07$ ,  $sd=6.90$ ,  $p=.00$ ), yielding a *t*-score of 36.68 (time 2:  $t=39.11$ ). Again, students not enrolled in the course had significantly different scores on the behavior list ( $M=35.60$ ,  $sd=7.08$ ,  $p=.00$ )

and a t-score of 33.72. A Pearson Correlation test revealed a significant correlation between time 1 and time 2 for in-class students on both variables of attitude ( $r=.65, p=.00$ ) and behavior ( $r=.78, p=.00$ ).

## DISCUSSION

The purpose of this study was to discover the impact of an environmental education course on student attitudes and behaviors. It was predicted that being enrolled in a course on environmental issues would be associated with an increase in pro-environmental attitudes and behaviors, and also increase the correlation between environmentally-conscious attitudes and behaviors as a function of course participation. Results indicated a significant difference in pro-environmental attitudes and behaviors between students enrolled in the course and not enrolled. After taking Environmental Issues (ENV 201), students reported higher levels of environmental awareness than students who had not taken the class, while also reporting more environmentally-conscious behaviors. Students not enrolled in the course displayed overall lower levels of environmental awareness. From time 1 to time 2, results implicated an increase in pro-environmental attitudes and environmentally-conscious behaviors for students taking the course. This increased correlation is in the expected direction and magnitude, suggesting pro-environmental attitudes and behaviors are more heavily linked after taking an environmental education course.

To be more specific, it can be assumed that the Environmental Issues (ENV 201) class was successful in heightening the environmental awareness of students by making environmental concerns more accessible and relevant in their minds. In accordance with the *theory of planned behavior* and the concept of embeddedness, as environmentally-conscious attitudes are applied to more situations, it is likely that these attitudes will influence and predict more environmentally-conscious behaviors. Through reading and writing about nature, discussing environmental subject matter, embracing the outdoors, and acknowledging the human's impression and responsibility on this planet, student attitudes *and* behaviors can be effectively altered through education. These results indeed stress a greater need for environmental awareness in the realm of mainstream education, in the hopes of providing students with the ambition and abilities to care for the environment while securing their future health and happiness.

## LIMITATIONS

Limitations to this study include the sample used. There was no population for the freshman class, which is rare for the course. Environmental Issues (ENV 201) is not a required course but is often taken to fulfill a science requirement for various majors. It is therefore important to note the students' reasoning for taking the course. It is possible that students enrolled are already more environmentally aware or inclined to be pro-environmental, making the results appear more dramatic. Not all students were present for both the pre-test and post-test, thus data became less succinct than expected. The problem with self-reporting must also be considered, as many students could have claimed to perform environmentally-conscious behaviors without actually doing them. The association between attitudes and behaviors is shaped by many intervening variables. For that reason, future studies would benefit from examining various traits that may impact individual environmental awareness. Attributes such as political affiliation, living situation, family history, or socioeconomic status would gain great insight and increase overall reliability.

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