

UNIVERSITY OF WISCONSIN-LA CROSSE

Graduate Studies

THE THEORY OF PLANNED BEHAVIOR USED TO BETTER UNDERSTAND
HEALTH EDUCATION AND HEALTH PROMOTION STUDENTS'
ENGAGEMENT IN ENVIRONMENTALLY SUSTAINABLE
BEHAVIORS AND ACTIVITIES

A Manuscript Style Thesis Submitted in Partial Fulfillment of the Requirements for the
Degree of Master of Public Health in Community Health Education

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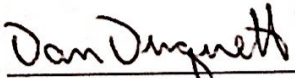
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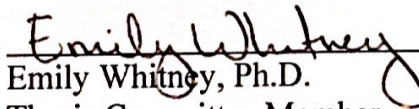
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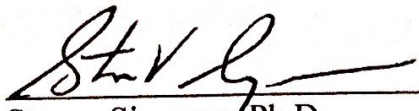
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ABSTRACT

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This study relied on the Theory of Planned Behavior (TPB) to identify beliefs that influence environmentally sustainable behaviors and actions of university students' in a Health Education and Health Promotion department at the University of Wisconsin, La Crosse. Students completed an electronic questionnaire that was developed based on qualitative data collected from two focus groups. The data from the focus groups were ranked ordered based upon frequency in which they were stated. In addition to standard TPB constructs, the survey assessed correlations between taking specific university courses or being involved in a group or extracurricular activities related to environmental or public health and participants' attitudes toward engaging in environmentally sustainable behaviors and activities. Results revealed that the strongest correlations among the participants were between normative beliefs and subjective norms in performing the behavior while perceived behavioral control and intention were least likely to be correlated to the intended behaviors. Undergraduate students who took the HED 335 course were more likely to engage in more environmentally sustainable behaviors and activities, while taking the PH 707 graduate course and being involved in a group or extracurricular activities related to the environmental or public health fields did not show the same results. Examination of the associations between specific beliefs and behaviors revealed important implications for designing effective educational interventions related to environmental sustainability.

Keywords: Theory of Planned Behavior, environmental, sustainability, university students', and belief

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INTRODUCTION

In the Health Education and Health Promotion field, there is a continual need for theory-based, replicable scientific research. Despite the array of environmental sustainability research conducted, there are areas that lack the rigor associated with scientific research. Specifically, a vast majority of studies about environmental sustainability lack theoretical frameworks (Bamberg & Möser, 2007); (Cincera & Krajhanzl, 2013); (Kagawa, 2007); (Toth, Little, Read, Fitton, & Horton, 2013). In this study, Ajzen's (1991) Theory of Planned Behavior (TPB) provides a concrete framework for exploring Health Education and Health Promotion students' engagement in environmentally sustainable behaviors and activities. One of the major strengths of the TPB is that it is widely applicable to a variety of contexts, and has been used successfully in hundreds of different studies within the last two decades (Knabe, 2012). Specifically, this theory was used by Ajzen to identify key beliefs underlying pro-environmental behaviors in high-school students (de Leeuw et al., 2015), which displays commonalities to the present study.

Issues such as air emissions and air quality, energy use and conservation, wastewater and water quality, water use and conservation, biodiversity and natural resources related to environmental sustainability are largely impacted by human choices and actions (Mayer & Frantz, 2004). Human activity on the earth's environmental systems has caused both positive and negative effects. According to Leemans & Solecki (2013, p. 1), "twenty percent of all people use eighty percent of all resources and income

gaps continue to increase in many countries. The consumption of resources as a result of human activity is a key factor that contribute to global environment change.” By developing an understanding of an individual’s intentions to consume resources we may be better able to address the issue. The issue of global environment change cannot be summed up through one study, or through one specific population of people. This study will offer the ability to test the TPB and apply it to an investigation regarding what students’ behavioral beliefs, normative beliefs, control beliefs, attitude toward the behavior, subjective norms, perceived behavioral control, intention, and actual behavioral control are in regards to engaging in environmentally sustainable behaviors and activities.

Purpose of the Study

The purpose of this study was to better understand how students in the Health Education and Health Promotion department at the University of Wisconsin, La Crosse, engage in environmentally sustainable behaviors and activities using the Theory of Planned Behavior as a framework for conducting the research.

Need for the Study

It was anticipated that Health Education and Health Promotion students would engage in environmentally sustainable behaviors and activities more frequently than students in non health related majors, due to the knowledge that was gained through either the undergraduate Community Health Education program or the graduate Public Health program. Both programs have a required environmental health class that focuses on various concerns and issues related to the environment. There has not been any research done on this topic with this specific population using this theoretical framework, and results from this study will help guide or initiate new ways to engage students.

BACKGROUND

“According to ecological footprint computations, global resource consumption began exceeding planetary supply in 1977 and by 2030; global energy demand, population, and gross domestic product are projected to greatly increase over 1977 levels” (Vance, Eason & Cabezas, 2015 p. 1781). According to Leemans (2013, p. 1), “twenty percent of all people use eighty percent of all resources and income gaps continue to increase in many countries.” Issues related to environmental sustainability, such as: air emissions and air quality, energy use and conservation, wastewater and water quality, water use and conservation, biodiversity and natural resources, are largely impacted by human choices and actions (Mayer & Frantz, 2004). The average U.S. person consumes twice as much as they did 50 years ago. On average each individual in the U.S. creates 4 ½ pounds of waste a day, which is twice what we made each day thirty years ago (Leonard, 2007). The interconnectedness of human activity and overconsumption of goods or resources are key factors that are contributing to global environment change. In many respects, university and college campuses can be viewed on a smaller scale of the broader complexities of the environmental issues in the U.S. University and college campuses have significant environmental impacts both on- and off-campus, including air and water pollution, waste, the use of hazardous chemicals, and habitat degradation (Levy & Marans, 2012). Through the application of the TPB, universities and college campuses can foster sustainable strategies that increase students’

engagement in pro-environmental behaviors and activities, while reducing the institution's impact on the environment.

Currently, there is no comprehensive and universally agreed upon definition of sustainability. After the idea of “sustainable development” by the World Commission on Environment and Development (1987) was published, a clearer definition of “sustainability” could generally be used to address many environmental issues (Somogyi, 2016). According to the World Commission on Environment and Development (1987), the term sustainable development is, “The development that meets the needs of the present without compromising the ability of future generations to meet their own needs (p. 43).”

Environmental Sustainability in Higher Education

Sustainability is gaining popularity on College and University campuses across the United States (Morrissey & Závodská, 2014). The efforts that are being made can be found in policy, management and operations, research, curriculum/education, and other programs making strides to increase sustainability among faculty, students, staff and the community (Calder & Dautremont-Smith, 2009). It is said that an increasing focus on sustainability in higher education will foster a more sustainable future (Morrissey & Závodská, 2014). In general, the goal of higher education is to instill graduates with qualities such as good citizenship, moral integrity, leadership, critical thinking, and care for the environment (Calder & Dautremont-Smith, 2009).

Some of the major impacts being made among some Colleges and Universities are through operations and curricula. According to Calder & Dautremont-Smith (2009), “campus greening” is increasing through operations including, recycling and waste

minimization, energy and water conservation, green purchasing, transportation initiatives, sustainable landscaping, green buildings and more. Some campuses believe budgetary constraints are considered a significant barrier to the initiatives mentioned above. This is partly attributed to the lack of knowledge regarding how greening initiatives can save costs as well as an institutional reluctance to change (Morrissey & Závodská, 2014). Most campuses that focus on sustainability measures are looking to save money and to ensure that these savings are used to help finance sustainability efforts with lower rates of return (Calder & Dautremont-Smith, 2009). With that, there is the assumption on campuses that such modeling of sustainability efforts will have an impact on the student's behavior and decision-making when it comes to sustainability. According to Calder & Dautremont-Smith (2009), "A university fully committed to sustainability emphasizes an interdisciplinary and holistic approach to fostering the knowledge, skills, and attitudes needed to build a more sustainable world for present and future generations" (p. 93).

Attitudes and Environmental Sustainability

According to Sherburn & Devlin (2004), people's interests and attitudes towards environmental sustainability can be attributed to spending time outdoors, parent's attitude, education, and involvement in environmental organizations. College students have the ability to attribute to many of those items listed above, but college majors may play just as big of a role in student's interests and attitudes toward environmental sustainability. Studies have looked at the relationship among college major and environmental concern (Shetzer, Stackman, & Moore, 1991). Collectively they have found that majors such as economics, commerce, or other business-related fields do not show support of environmental concern or are less concerned than other majors such as

biological science or environmental studies (Sherburn & Devlin, 2004). According to Stern (2000) “the key to behavioral change is the immediate context of behavior, not deeper values” (p. 525). He goes on to comment, “it might be possible to induce major policy changes even without changing values, for instance, with strong economic arguments” (p. 525). Further, environmental sustainability can be influenced by whether or not individuals believe that their change in behavior and intentions towards environmental sustainability can have an impact to the environment.

Environmental Sustainability and Theoretical Perspectives

“Developing a thorough understanding of what motivates environmental sustainability among college students is an important area for concern” (de Leeuw, Valois, Ajzen, & Schmidt, 2015, p. 128). Previous TPB driven research conducted with high school students focused on pro-environmental sustainability beliefs confirmed the utility of the theory as a framework for understanding pro-environmental intentions and behavior (de Leeuw et al., 2015). In addition, studies pertaining to college students’ sustainability behaviors found that,

Sustainability attitudes and values toward the environment had a significant and positive relationship with university students’ behaviors pertaining to sustainability. In other words, the students with more favorable feelings toward sustainability and more ecocentric values toward the environment readily take more sustainable actions (Sahin, Ertepinar, & Teksoz, 2012, p. 472).

There is a paucity of research in regard to environmental sustainability engagement among college students, however, (de Leeuw et al., 2015) has research regarding the sustainability beliefs of high school-aged youth. Developing a more extensive way to

understand what motivates college students to be more pro-environmental is an area of need due to their ability to make change among himself or herself, community, or nation. According to the work done in secondary education, one theory that could assist in investigating perceptions and intentions would be the TPB.

According to how the TPB has been applied in studies pertaining to environmental sustainability previously, “intentions to perform eco-friendly behaviors and perceived behavior control are the immediate antecedents of pro-environmental sustainability” (de Leeuw et al., 2015, p. 129). A behavior is also influenced by a person’s normative beliefs, which are individual’s beliefs about the likely consequences of performing that behavior. When college students believe that adopting environmentally sustainable behaviors mainly produces positive outcomes, their attitude towards these behaviors will be favorable.

Theory of Planned Behavior

According to Montano & Kasprzyk (2002), the main determinant of a behavior is the intention to act on it. Therefore, the TPB suggests a successful behavior change depends on high levels of intention, which needs a person to have a high level of volitional control over their behaviors. When there is a high level of volitional control, motivation using intention, attitude, and normative measures primarily determines the behavior. The TPB was developed to take into account involuntary control when predicating behavior (Ajzen, 1991). The TPB included perceived behavioral control as a construct from the Theory of Reasoned Action to take into account the factors that cannot be controlled for and perceived control determines intention as well as attitude when referring to the behavior and subjective norm. Perception of difficulty when performing a

behavior will affect intention when attitude and subjective norm are held level. Relative weight of the measured variables may vary among different population and behaviors (Montano & Kasprzyk, 2002).

Control beliefs regarding the existence of barriers and facilitators of behavioral performance determine perceived control when perceived power of the barrier or facilitator is taken into consideration (Montano & Kasprzyk, 2002). The value of the use of theory to determine intentions and predict actions regarding environmentally sustainable behaviors has been supported through previous research, and earlier studies points to the appropriateness of this approach when trying to establish accurate information regarding college student's perceptions and intentions to engage in environmental sustainable activities.

METHODS

Introduction

The purpose of this study was to better understand Health Education and Health Promotion students' at the University of Wisconsin, La Crosse engagement in environmentally sustainable behaviors and activities using the Theory of Planned Behavior (TPB) (Ajzen, 1991). This theory uses three types of beliefs (behavioral beliefs, normative beliefs and control beliefs) as foundational regarding an individual's intention to perform the behavior and activities in question. These beliefs were identified using a two-step process. Using a small sample of individuals representative of the research population, focus groups were utilized to elicit readily accessible behavioral outcomes, normative referents, and control factors for environmentally sustainable behaviors and activities. This was accomplished through two focus groups with seven students in the first group and eleven students in the second group, both comprised of undergraduate and graduate students from the Health Education and Health Promotion program at UWL. The focus groups were implemented according to (Fishbein & Ajzen, 2010) suggestive procedures. The survey, developed using the rank ordered responses of the focus groups and referred to as the standard TPB questionnaire, consisted of demographic, belief, and behavioral intention questions that were measured on a 10-point Likert-type scale. The questions were phrased with respect to the action, target, context, and time of the behavior of interest, and were given to a larger sample (n=49), including focus group participants, of Health Education and Health Promotion students (see Appendix C).

Subject Selection

The study groups were undergraduate and graduate students from the Health Education and Health Promotion programs at University of Wisconsin-La Crosse, located in La Crosse, Wisconsin. Participation in the focus groups was on a voluntary basis. Flyers were used as promotional material to get individuals to participate in a focus group. An electronic version of the flyer was sent out via email to all Health Education and Health Promotion students and was uploaded to the UWL Health Education and Health Promotion Facebook page. Email was the primary form of contact if students' were interested in participating. The students' were given two weeks to respond to the flyer and were given two options of different focus group days and times. The focus groups were conducted in a reserved conference room on the UWL campus. Pizza was provided as an incentive for students' to attend. Focus group participants were provided with an informed consent document to sign and return to the investigator prior to focus group being conducted. The focus group participants were able to keep a copy of the informed consent document, if requested. The focus groups were formatted as an open discussion. The researcher or committee chair would ask a question and give the participants the ability to answer, while the researcher took notes and marks of the answers being discussed.

The survey was sent out using Qualtrics (a web-based survey tool to conduct survey research), to 224 undergraduate and graduate students enrolled in the Health Education and Health Promotion department during the time of the study. The students had a two-week time span to complete the survey, once the two-weeks were done the researcher closed access to the survey. The survey had a statement at the beginning

indicating that by taking the survey, participants were signifying informed consent to take part in this study.

Instrumentation

Focus Groups

Planning of the focus groups, development of the questions, and the moderation of focus groups were implemented according to the suggested procedures (Fishbein & Ajzen, 2010). The first focus group included seven participants, while the second included eleven. The primary researcher and the thesis committee chairperson moderated the focus groups. The open-ended questions were grounded by the TPB constructs and were used to ensure that the beliefs for the attitude component and the referent groups for the subjective norm component were salient for the behavior and population (see Appendix C). The salient beliefs were identified by asking the respondents to name positive as well as negative consequences of engaging in environmentally sustainable behaviors and activities. The wording of the attitude and referent group questions instructed respondents to communicate, in their own opinion, the advantages and disadvantages of engaging in environmentally sustainable behaviors and activities, and who would approve or disapprove of their participation. The data from the focus groups were rank-ordered based upon frequency with which each was stated, and was used to formulate the survey. Although the participation in focus groups were not as large as intended, the information provided was enough to properly establish what was necessary to measure in the survey.

Survey

The survey consisted of questions including belief and behavioral intention questions measured using a 10-point Likert-type scale. It was suggested (Fishbein & Ajzen, 2010) to use a 7-point Likert-type scale but due to the inability to format the questions according to the Theory of Planned Behavior Questionnaire, a 10-point scale was used instead. The questions followed the guidelines put forth by the Theory of Planned Behavior Questionnaire Construction (Fishbein & Ajzen, 2010). The questions were phrased with respect to the behavior of interest: action (participation), target (environmentally sustainable behaviors and activities), context (University of Wisconsin, La Crosse), and time. As previously discussed, according to the TPB, human behavior is guided by three kinds of considerations: beliefs about the likely consequences of the behavior (behavioral beliefs), beliefs about the normative expectations of others (normative beliefs), and beliefs about the presence of factors that may facilitate or impede performance of the behavior (control beliefs) (Ajzen, 1991). Questions formulated from the focus group responses were used to assess each of the theory's major constructs: behavioral beliefs, normative beliefs, control beliefs, attitude toward the behavior, subjective norms, perceived behavioral control, actual behavioral control, and intention.

Data Collection

This study involved human subjects; therefore, approval was sought from the UWL Institutional Review Board (IRB) for the Protection of Human Subjects. The focus groups were conducted once approval was received. The survey was developed based upon the responses from two focus groups, as described earlier. The survey was comprised of the top three most frequently stated responses within each construct of the

TPB: behavioral beliefs, normative beliefs, control beliefs, attitude toward the behavior, subjective norms, perceived behavioral control, actual behavioral control, and intention. The survey questions related to participants attitude toward the behavior, subjective norms, and perceived behavioral control and was measured on a 10-point Likert-type scale. The questions were phrased with respect to the behavior of interest in terms of action, target, context, and time. The data collected during this study was treated with both anonymity and confidentiality.

Research Questions

1. What is the relationship between behavioral beliefs and attitude toward the behavior regarding environmentally sustainable behaviors and activities?
2. What is the relationship between normative beliefs and subjective norms regarding environmentally sustainable behaviors and activities?
3. What is the relationship between control beliefs and perceived behavioral control regarding environmentally sustainable behaviors and activities?
4. What is the relationship between attitude toward the behavior and intention regarding environmentally sustainable behaviors and activities?
5. What is the relationship between subjective norm and intention regarding environmentally sustainable behaviors and activities?
6. What is the relationship between perceived behavioral control and intention regarding environmentally sustainable behaviors and activities?
7. What is the strongest predictor (attitude toward the behavior, subjective norm, perceived behavioral control) of behavioral intention regarding environmentally sustainable behaviors and activities?

Taking either course HED 335 (Human Ecology and Environmental Health) or PH 707 (Environmental Health) and involvement in groups or extra-curricular activities related to the environmental sustainability or public health field are variables possibly influencing environmentally sustainable attitudes toward the behavior. Therefore, the following additional research questions were proposed:

8. If an undergraduate student, does taking HED 335 relate to student attitude toward the behavior regarding environmentally sustainable behaviors and activities?
9. If a graduate student, does taking PH 707 relate to student attitude toward the behavior regarding environmentally sustainable behaviors and activities?
10. Does involvement in groups or extra-curricular activities related to the environmental health or public health field relate to student attitude toward the behavior regarding environmentally sustainable behavior and activities?

Data Analysis

This was a descriptive study based on the exploratory nature of the methodology and this study used research questions instead of hypotheses. All variables on the survey were quantitatively coded and entered into Microsoft Excel. The data was then transferred and analyzed using the Statistical Package for the Social Sciences (SPSS).

The statistical analysis that was conducted included: overall theoretical constructs measurement towards each factor, descriptive statistics, bivariate correlations, and regression statistics. Regression statistics created a model for intention using attitude, subjective norm, and perceived behavioral control. To predict the relationship between

the TPB constructs and the students' intent for engagement in environmentally sustainable behaviors and activities, a multivariate linear regression test was conducted.

RESULTS

The survey was sent out to 224 undergraduate and graduate Health Education and Health Promotion students. Seven returned surveys were incomplete and not included in the data analysis. 49 of the 56 surveys returned were fully completed and the data from those responses were examined using descriptive statistical techniques. 31 of the participants were undergraduate students while 18 were graduate students within the Health Education and Health Promotion department. Descriptive statistics for six survey items per construct generated means and standards deviations for the theory variables (intention, attitude, subjective norm, perceived behavioral belief). Relationships between the theoretical constructs were investigated using bivariate correlations. The relationships examined included: behavioral beliefs (BB) and outcome evaluations, BB and attitude toward the behavior (ATT), normative beliefs (NB) and motivation to comply, NB and subjective norm (SN), control beliefs (CB) and power of control factors, (CB) and perceived behavioral control (PBC). The relationships among the previously stated theory constructs (research questions one through three) are presented below. Next, bivariate correlations between attitude toward the behavior and intention, (INTATT), subjective norm and intention, (INTSN), and perceived behavioral control and intention, (INTPBC) were examined (research questions four through six). Finally, using the regression equation the researcher can determine the relative contributions of intention based on attitude toward the behavior, subjective norm, and perceived behavioral control (research question seven).

Scoring

Theory Variables

Each behavioral belief item was scored on 10-point Likert scale, with 10 representing a belief considered extremely likely and one indicating an extremely unlikely belief. Evaluation statements were used to correspond with each belief and were scored with one indicating a favorable evaluation and 10 representing the opposite (see Appendix E). Each construct asks two questions each and questions are phrased differently for attitude, subjective norm, and perceived behavioral control. Two attitude scores were obtained; one direct and the other an indirect assessment. The direct measure was indicated by the mean of the three items (8-10) designed to assess whether the individual felt it was difficult or easy to be more environmentally sustainable. This score was used in the regression equation to predict intention. The indirect assessment was determined from the beliefs based on the salient outcomes of the undergraduate and graduate HEHP students. A total was obtained by multiplying the score for each belief item (17-22) by its evaluation score (1-6), summing across the modal set and dividing by the number of items in the set. The possible range of scores being one to 30, one representing a strong negative or unfavorable attitude and 30 a strong positive or favorable attitude.

Each normative belief item was scored on a 10-point Likert scale, with 10 indicating a belief that the referent thinks the behavior should be performed and one indicating it should not be performed. The score representing an individual's subjective norm was determined directly and by an indirect assessment. The direct method used the score provided by the single item for eliciting general subjective norm. This score was

used in the regression equation, along with the attitude to predict intention. The indirect assessment used the beliefs based on salient referents. Multiplying each normative belief (32-36) by its corresponding motivation to comply score (11-16), then summing across the set and dividing by the number of items in the set.

Each control belief item was scored on a 10-point Likert scale, with 10 representing a behavior that the individual thinks should be performed and one indicating it should not be performed. This score was used in the equation, alongside with attitude and subjective norm to predict intention. The indirect assessment used the control factors. Multiplying each control belief (23-28) by its corresponding power of control factors (29-31), then summing across the set and dividing by the number of items in the set.

Intention with regard to the behavioral category (environmental sustainability) was inferred based upon the average of the six item scores comprising the category. Each item was scored on a 10-point Likert scale, with 10 being assigned to a behavior an individual intends to perform and one to a behavior that will not be performed.

The multiple regression equation ($\text{Intention} = 4.83 + (.073)(\text{SN}) - (.022)(\text{ATT}) - (.002)(\text{PBC})$) indicated that SN was the strongest predictor of intention, and 22% of intention is determined by all three constructs (ATT, SN, PBC).

Descriptive Statistics

Means and Standard Deviations of the Theory Variables

The results show that intent to engage in environmentally sustainable behaviors and activities were significantly predicted by subjective norms for HEHP students ($x=12.56$). Perceived behavioral control ($x=5.32$) and attitude ($x=6.77$) were not shown to be great predictors for intent to engage in environmentally sustainable behaviors and

activities. (Table 1, page 18) displays the means and standard deviations of all the theoretical constructs operationalized for this study.

Table 1. Theory Variables
Means and Standard Deviations

Theory Variable	Possible Range	Mean	Standard Deviation
Intention	1.00-10.00	6.48	1.47
Attitude	1.00-30.00	6.77	2.77
Subjective Norm	1.00-30.00	12.56	3.72
Perceived Behavioral Control	1.00-30.00	5.32	3.70
Behavioral Beliefs	1.00-6.00	3.74	.826
Normative Beliefs	1.00-6.00	4.15	1.59
Control Beliefs	1.00-6.00	3.97	1.59

The mean intention to engaging in environmentally sustainable behaviors and activities for this sample was 6.48 out of a possible 10, indicating a positive intention. Three items comprised the intention subscale. Mean scores for intention items ranged from 4.84 to 8.57 (Table 2, page 19). Two of the three intention items were considered positive. The exception was outdoor cleanups, which had a mean score of 4.84, indicating a slightly negative intention.

Table 2. Intention Items
Means and Standard Deviations

Item	Mean	Standard Deviation
Alternative transportation	6.04	2.68
Re-usable items	8.57	1.53
Outdoor cleanups	4.84	2.20

Behavioral belief item scores ranged from 3.86 to 8.92 (Table 3, page 20), suggesting that only some of the behavioral belief items (saving resources, positive health impacts, and educating others) are more likely to occur than the remaining items (inconvenience, consume time, and cost money). Positive health impacts ($x= 8.92$) shows that people are likely to engage in environmentally sustainable behaviors and activities if it is good for their health or others health. Inconvenience ($x= 3.86$) shows that the students who engage in more environmentally sustainable behaviors and activities do not find it to cause them inconvenience.

Table 3. Behavioral Belief Items Means and Standard Deviations

Item	Mean	Standard Deviation
Saving resources	8.33	1.42
Positive health impacts	8.92	1.15
Educating others	8.14	1.41
Inconvenience	3.86	1.96
Consume time	4.06	2.08
Cost money	4.14	2.01

Table 4 shows the mean range from 1.78 to 7.67 for the outcome evaluation items. For the following items, the lower the mean score the more positive those items were rated, and the higher the mean score the more negative those items were rated as positive health impacts ($x= 1.78$) which reflects that individuals find it is extremely good and positive health impacts would be a reflection of engaging in environmentally sustainable behaviors and activities. Saving resources ($x= 1.86$) and educating others ($x=$

2.65) are also found to be good for individuals. Individuals find it bad if they have to spend too much money ($x= 7.67$) to engage in environmentally sustainable behaviors and activities. Consuming too much time ($x= 6.67$) and being too inconvenient (6.76) are also found to be bad for individuals.

Table 4. Outcome Evaluation Items
Means and Standard Deviations

Item	Mean	Standard Deviation
Saving resources	1.86	1.44
Positive health impacts	1.78	1.39
Educating others	2.65	1.99
Inconvenience	6.76	2.31
Consume time	6.76	1.65
Cost money	7.67	1.56

The normative belief items (Table 5, page 22) provide evidence that study participants believe university leaders and local environmental groups think that individuals should engage in environmentally sustainable behaviors and activities ($x= 6.53$ and 7.88). Participants also believe that oil and gas companies, shipping companies, and big-box stores think the participants should not engage in environmentally sustainable behaviors and activities ($x= 7.24, 6.41, 6.49$, respectively).

Table 5. Normative Beliefs Items
Means and Standard Deviations

Item	Mean	Standard Deviation
University Leaders	6.53	1.93
Local environmental groups	7.88	2.14
Oil and gas companies	7.24	2.44
Shipping companies	6.41	2.26
Big-box stores	6.49	2.32

Table 6, page 22 is concerned with motivation to comply with important others. Individuals from this sample were more motivated to comply with university leaders ($x=5.24$), local environmental groups ($x=5.48$), and peers ($x=5.51$), then with oil and gas companies ($x=2.53$), shipping companies ($x=2.67$), and big-box stores ($x=2.53$).

Table 6. Motivation to Comply Items
Means and Standard Deviations

Item	Mean	Standard Deviation
University Leaders	5.24	2.13
Local environmental groups	5.48	2.07
Peers	5.51	1.87
Oil and gas companies	2.53	2.10
Shipping companies	2.67	2.06
Big-box stores	2.53	2.04

The control belief items (Table 7, page 23), provide evidence that study participants believe that having a campus garden, healthier food options, more marketing for environmental sustainability events, having a lack of access to healthier foods, and lack of social support and marketing on campus all negatively effect how they would engage in environmentally sustainable behaviors and activities. In terms of how items could be answered on the survey, one indicated very rarely, while 10 indicated very frequently ($x= 7.10, 8.35, 6.22, 6.43, 5.57, 5.98$, respectively). Specifically, the strongest positive association was found between students having healthier food options available to them on campus and belief they would buy said items more frequently ($x= 8.35$).

Table 7. Control Beliefs Items
Means and Standard Deviations

Item	Mean	Standard Deviation
Campus garden	7.10	2.89
Healthier food options	8.35	1.56
Environmental sustainability events	6.22	2.48
Lack of access to healthier foods	6.43	2.84
Lack of social support	5.57	2.46
Lack marketing on campus	5.98	2.73

The final set of items (Table 8, page 24), is concerned with power of control factors. The mean score items ranged from 4.08 to 4.39, with one indicating strongly agree and 10 indicating strongly disagree. In this set of items the participants agree that having a campus garden, healthier food options, and more marketing on campus for

related events would make it easier for them to engage in more environmentally sustainable behaviors and activities ($x = 4.08, 4.12, 4.39$, respectively).

Table 8. Power of Control Factors Items Means and Standard Deviations

Item	Mean	Standard Deviation
Campus garden	4.08	3.12
Healthier food options	4.12	3.13
Marketing on campus	4.39	3.14

Relationship Among Theory Variables

Pearson correlations (r) were used to examine the following relationships: (1) behavioral belief and attitude toward the behavior, (2) normative belief and subjective norm, (3) control beliefs and perceived behavioral control, (4) attitude and intention, (5) subjective norm and intention, and (6) perceived behavioral control and intention, (Figure 1, page 26) provides a graphic description of these relationships. Behavioral belief and attitude ($r = .51$) and normative belief and subjective norm ($r = .83$) have the strongest relationships. More moderate relationships were observed between attitude and intention ($r = .28$), control beliefs and perceived behavioral control ($r = .14$). Perceived behavioral control and intention ($r = .05$) was found to have almost no relationship.

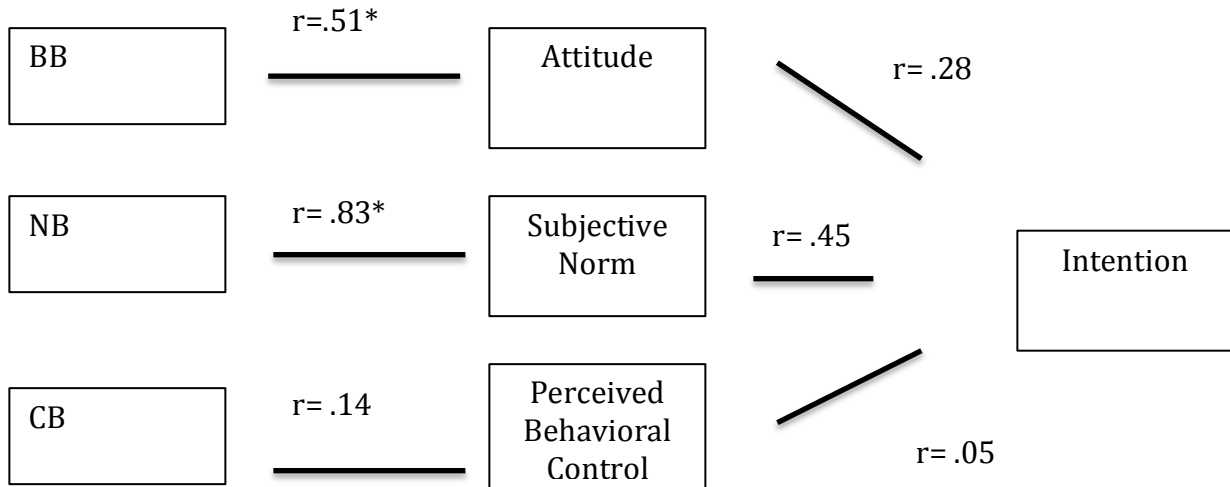


Figure 1. Relationship Among TPB Variables

Health Courses and Extracurricular Activities or Group Involvement

HED 335 or PH 707

Independent sample t-tests were used to determine if taking either HED 335, if an undergraduate, or PH 707, if a graduate influenced HEHP students' intent to engage in environmentally sustainable behaviors and activities. Also, involvement in a group or extracurricular activities related to the environmental or public health field.

Of the thirty-one undergraduate students that completed the survey, twenty-two signified that they have taken HED 335 (Human Ecology and Environmental Health). An independent sample t-test was used to determine if taking this course influenced the undergraduate students attitude toward environmental sustainability. The significant value (0.18) determined that the variability of intentions in the two conditions is not significantly different. The significant (2-tailed) value (0.00) concludes that there are a statistically significant difference between undergraduates taking the HED 335 course and its influence on their engagement of environmentally sustainable behaviors and activities.

Of the eighteen graduate students that participated in the survey, twelve of those students signified that they have taken PH 707 (Environmental Health). An independent sample t-test was used to determine if taking this course influenced graduate students attitude toward environmental sustainability. The significant value (0.64) showed that variability in the two conditions was not significantly different. The sig. (2-tailed) value ($p= 0.51$) indicated that there was not a statistically significant difference in intent of environmentally sustainable behaviors and activities between graduates taking the PH 707 course and graduate not taking the PH 707 course.

Of the 49 participants, thirty students indicated that they have been involved in a group or extracurricular activity related to the environmental or public health field. An independent sample t-test was used to determine if involvement in groups or extracurricular activities influenced both undergraduate and graduate students attitude toward environmental sustainability. The significant value (0.32) determined that there was not a statistically significant difference in variability between the two conditions. The sig. (2-tailed) value (0.86) concluded that there was not a statistically significant difference in engagement in environmentally sustainable behaviors and activities based on involvement in groups or extracurricular activities related to environmental health or public health field. Results indicate that the largest influence on engagement in more environmentally sustainable behaviors and activities can be found among undergraduate students who have taken the course HED 335. Taking PH 707 or participating in groups or extracurricular activities did not have a significant influence on intent to engage in environmentally sustainable behaviors and activities.

DISCUSSION

This study tested whether attitude beliefs, subjective norm beliefs, and perceived behavioral control beliefs were associated with intentions from the TPB specifically related to engagement in environmentally sustainable behaviors and activities for UWL HEHP students. The most severe limitation of this study was the number of participants in both the focus groups and the survey, although those who participated in the focus groups and who took the survey noted some important factors when they considered engaging in more environmentally sustainable behaviors and activities.

Results found that the relationship between subjective norms and intention had the most statistical significance. Based on survey responses the participants believe that local environmental groups want them to engage in environmentally sustainable behaviors and activities more so than university leaders want them to. Participants believe that oil and gas companies do not want them engage in environmentally sustainable behaviors and activities more so than shipping companies and big-box stores. When asked, participants noted that they care most about what their peers think in them engaging in said behaviors and activities and care least about what the shipping companies think of them engaging in said behaviors and activities. These findings reveal the importance of social influences and local initiatives to increase education and awareness of environmental sustainability.

Results indicated that undergraduate students who took the HED 335 course are more likely to have a greater intent to engage in more environmentally sustainable behaviors and activities, while taking the PH 707 graduate course and being involved in a group or extracurricular activities related to the environmental or public health fields did not show the same results. When compared to other literature that used the same theoretical framework, results from this study are inconsistent (de Leeuw et al., 2015). Participants in previous literature were high school aged and results indicated that perceived behavioral control showed the greatest association with intention, possibly due to the barriers high school students face related to environmental sustainability. According to the results of this study, college aged students are more influenced by others (subjective norms) as it comes to environmental sustainability intentions. This research failed to reveal significant results between perceived behavioral control and intention, which indicates that participants did not feel barriers were a strong indication of whether or not they intend to engage in environmentally sustainable behaviors and activities.

These findings highlight the importance of having perceived social influences that value environmental sustainability and that, to increase the generator of environmental sustainability intentions for college students, there should be items in place that intentionally build environmental sustainability in the perceived social influences. Based on the survey, social influences that impact the college students' engagement in environmental sustainability most are university leaders, local environmental groups, and peers. Having staff and professors from the university team up with local environmental groups to develop and implement various programs and events related to environmental

sustainability would provide opportunities to college students to get involved. These programs and events cannot only be educational but provides a network of people to come together that can influence environmental sustainability initiatives among the community, university, and individually.

RECOMMENDATIONS

Recommendations for future research include a study that prompts a larger number of university students in other academic departments, not just the HEHP department. Issuing a survey to all UWL students would possibly allow for a comparison of intent for environmentally sustainable behaviors based on department or program. This research would be an additional phase to the current study presented.

The current study looked at whether or not students' involvement in groups or extracurricular activities influenced their attitude toward environmental sustainability. A recommendation for a future study would be to control for the previous experience students have pertaining to environmental sustainability and to control for whether or not students who took HED 335 or PH 707 plays a factor in the results.

Although the survey was developed using responses from two focus group sessions, the sample of environmentally sustainable behaviors and activities used in the study it did not perfectly represent of all possible environmentally sustainable behaviors and activities. Researchers should be aware in future research that university students may be motivated by factors other than the ones presented in that current study, that would assist in fully measuring items that drive environmentally sustainable intentions.

Future research can rely on the key beliefs identified in the current study to develop sound educational interventions that aim to foster intent to engage in environmental sustainability among university students. This study showed HEHP

students are more motivated to engage in environmentally sustainable behaviors and activities if their peers, local environmental groups, and university leaders support them in doing so. Getting more programs and events on the university campus related to environmental sustainability would help foster the support needed for students to be more motivated in their engagement in said behaviors and activities.

The present study has the potential to make a number of important contributions. Results could be used at UWL where the study was conducted to assist in the development of a campus garden. Results indicated that having a campus garden and healthier food options on campus would assist in increasing engagement of environmental sustainability behaviors and activities. Having a campus garden would not only provide healthy produce for students to eat but it would also provide the opportunity to be a part of nature and learn life skills that students can use in the future. Since the graduate class PH 707 does not prove to increase students engagement in environmentally sustainable behaviors and activities. It would be a great opportunity to incorporate, in combination with the course curriculum, to have the graduate students plant and maintain the campus garden. A campus garden is a great way for UWL to increase student engagement in environmentally sustainable behavior and activities.

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APPENDIX A
DEFINITION OF TERMS

DEFINITION OF TERMS

Sustainable Development- “The development that meets the needs of the present without compromising the ability of future generations to meet their own needs.” (World Commission on Environment and Development, 1987 p. 43).

Behavioral Beliefs- Beliefs about the likely outcomes of the behavior and the evaluations of these outcomes (Ajzen, 1991).

Normative Beliefs- Beliefs about the normative expectations of others and motivation to comply with these expectations (Ajzen, 1991).

Control Beliefs- Beliefs about the presence of factors that may facilitate or impede performance of the behavior and the perceived power of these factors (Ajzen, 1991).

Attitude Toward the Behavior- a person’s overall evaluation of the behavior (Ajzen, 1991).

Subjective Norm- a person’s own estimate of the social pressure to perform or not perform the target behavior (Ajzen, 1991).

Perceived Behavioral Control- the extent to which a person feels able to enact the behavior (Ajzen, 1991).

Intention- Indications of how hard people are willing to try, of how much of an effort they are planning to exert, in order to perform the behavior (Ajzen, 1991).

Actual Behavioral Control- The extent that a person has the required opportunities and resources, and intends to perform the behavior, he or she should succeed in doing so (Ajzen, 1991).

APENDIX B
LITERATURE REVIEW

LITERATURE REVIEW

Introduction

The purpose of this study is to better understand UWL Health Education and Health Promotion students' engagement in environmentally sustainable behaviors and activities using the Theory of Planned Behavior (TPB)(Ajzen, 1991). The theory uses three types of beliefs (behavioral beliefs, normative beliefs and control beliefs) as foundational regarding an individual's intention to perform the behavior or activities in question. In order to better understand the issue at hand it is essential to define the term sustainability. According to the World Commission on Environment and Development (1987), the term sustainable development is, "The development that meets the needs of the present without compromising the ability of future generations to meet their own needs (p. 43)."

Issues related to environmental sustainability, such as: air emissions and air quality, energy use and conservation, wastewater and water quality, water use and conservation, biodiversity and natural resources, are largely impacted by human choices and actions (Mayer & Frantz, 2004). Human activity on the earth's systems has caused positive and negative effects. According to Leemans (2013, p. 1), "twenty percent of all people use eighty percent of all resources and income gaps continue to increase in many countries. An American family, for example, consumes as much as eight Bangladeshi families or twenty-five Ethiopian families". Our society faces a crisis of abusing the resources that we have available. The United States has become a nation of consumers. With the average U.S. person consuming twice as much as they did 50 years ago (Leonard, 2007). On average each individual in the U.S. creates 4 ½ pounds of waste a

day, which is twice what we made each day thirty years ago (Leonard, 2007). According to Leonard (2007), all this garbage is either being dumped in a landfill or burned in an incinerator and then dumped in a landfill. In both instances the air and water are being polluted and the climate is consistently changing. The interconnectedness of human activity and overconsumption of goods or resources are key factors that are contributing to the global environment to change.

In order to better understand the implications mentioned in the above paragraph, it is essential to understand all that is included when talking about environmental sustainability. According to Sutton (2004), the word environmental is referring to just the biological environment or all possible environments including social, economic, physical and intellectual. The term sustainable means, “able to last or continue for a long time” (Merriam-Webster’s online dictionary, n.d.). It can also mean, “the integration or balancing of social, environmental and economic issues” (Sutton, 2004). When these words come together it becomes “the ability to maintain the qualities that are valued in the physical environment” (Sutton, 2004 p. i). The issues such as: air emissions and air quality, energy use and conservation, wastewater and water quality, water use and conservation, biodiversity and natural resource are largely of local significance while others have regional or even global relevance (Sutton, 2004). These issues are to be addressed by various companies, organizations, and even individuals who are making strides to engage in more environmentally sustainable behaviors and activities.

Environmental Sustainability in Higher Education

Sustainability is gaining popularity in Colleges and Universities across the United States (Morrissey & Závodská, 2014). The efforts that are being made can be found in

policy, management and operations, research, curriculum/education, and other programs that are making strides to increase sustainability among faculty, students, staff and the community (Calder & Dautremont-Smith, 2009). It is said that increasing sustainability in higher education will foster a more sustainable future (Morrissey & Závodská, 2014). In general, the goal of higher education is to instill graduates with qualities such as good citizenship, moral integrity, leadership, critical thinking, and care for the environment (Calder & Dautremont-Smith, 2009).

Some of the major impacts being made among some Colleges and Universities are through operations and curricula. According to Calder & Dautremont-Smith (2009), “campus greening” is increasing through operations including, recycling and waste minimization, energy and water conservation, green purchasing, transportation initiatives, sustainable landscaping, green buildings and more. Some campuses believe budgetary constraints are considered a significant barrier to the initiatives mentioned above. This is partly attributed to the lack of knowledge regarding how greening initiatives can save costs as well as an institutional reluctance to change (Morrissey & Závodská, 2014). Most campuses that focus on sustainability measures are looking to save money and to ensure that these savings are used to help finance sustainability measures with lower rates of return (Calder & Dautremont-Smith, 2009). With that, there is the assumption within campuses that such modeling of sustainability efforts will have an impact on the student’s behavior and decision-making when it comes to sustainability. According to Calder & Dautremont-Smith (2009), “A University fully committed to sustainability emphasizes an interdisciplinary and holistic approach to fostering the knowledge, skills, and attitudes needed to build a more sustainable world for present and future generations.” (p. 93).

Attitudes and Environmental Sustainability

According to Sherburn & Devlin (2004), people's interests and attitudes towards environmental sustainability can be attributed to spending time outdoors, parent's attitude, education, involvement in environmental organizations, and the loss of a valued place. Studies have been done that look at the relationship among college major and environmental concern (Shetzer, Stackman, & Moore, 1991). These studies collectively have found that majors such as economics, commerce, or other business-related fields do not show support of environmental concern or are less concerned than other majors such as biological science or environmental studies (Sherburn & Devlin, 2004). According to Stern (2000) who points out that "the key to behavioral change is the immediate context of behavior, not deeper values" (p. 525). He goes on to comment, ". . . it might be possible to induce major policy changes even without changing values, for instance, with strong economic arguments" (p. 525). According to Stern (2000), environmental sustainability can be influenced by whether or not individuals believe that there change in behavior and intentions towards environmental sustainability can have an impact to the environment.

Environmental Sustainability and Theoretical Perspectives

"Developing a thorough understanding of what motivates environmental sustainability among college students is an important area for concern"(de Leeuw, Valois, Ajzen, & Schmidt, 2015, p. 128). Based on previous research, studies (de Leeuw et al., 2015) have been conducted on high school student's beliefs on pro-environmental sustainability driven by the Theory of Planned Behavior. The results confirmed the utility of the Theory of Planned Behavior as a framework for understanding high school

students' pro-environmental intentions and behavior (de Leeuw et al., 2015). Another study was done on college student's behaviors pertaining to sustainability. This study found that, "sustainability attitudes and values toward the environment had a significant and positive relationship with university students' behaviors pertaining to sustainability. In other words, the students with more favorable feelings toward sustainability and more ecocentric values toward the environment readily take more sustainable actions" (Sahin, Ertepinar, & Teksoz, 2012).

While there is a growing body of research (de Leeuw et al., 2015) regarding the beliefs of high school aged youth, there appears to be a scarcity of studies on college-aged adults specifically driven by theory. Developing a more extensive way to understand what motivates college students to be more pro-environmental is an area of need. The theory that would assist in investigating perceptions and intentions would be the Theory of Planned Behavior (TPB).

According to the TPB "intentions to preform eco-friendly behaviors and perceived behavior control are the immediate antecedents of pro-environmental sustainability" (de Leeuw et al., 2015). A behavior is assumed by a person's beliefs, which are people's beliefs about the likely consequences of performing that behavior. When college students believe that adopting environmental sustainable behaviors mainly produces positive outcomes, their attitude towards these behaviors will be favorable (de Leeuw et al., 2015).

"There is sufficient evidence that acknowledges the potential of children and young people as actors of change" (Percy-Smith & Burns, 2013, p. 324). To achieve a more sustainable world, "learning" is seen as being key, we can assume if we teach

children and young people the right skills and knowledge they will live sustainably (Percy-Smith & Burns, 2013). Gronhoj & Thogersen (2012), suggest that there is a need for research when it comes to educate and encouraging youth to engage in more environmentally sustainable behaviors. This research should be backed from a theoretical perspective to which young people acquire skills, knowledge, and attitudes that are relevant to consume in a more environmentally sustainable way. With youth influences on pro-environmental behavior can come from an array of influences such as media, school, peers, and parents through observation and reinforcement processes (Gronhoj & Thogersen, 2012).

From a theoretical perspective, Gronhoj & Thogersen (2012), found that adolescents' perceptions of parents' and peers' perceived behavior (descriptive norms) and approval (injunctive norms) influence their attitudes. In this study they were looking specifically at to healthy eating and physical activity (Gronhoj & Thogersen, 2012). Another study looking more from an environmental aspect found that, "A number of factors would underpin a longer-term change in both attitude and behavior," this suggests having a positive attitude towards sustainability is necessary, but not sufficient to drive behavior change, while another study has argued that a combination of knowledge, motivation and feedback is associated with longer-term attitude and behavior change (Toth, Little, Read, Fitton, & Horton, 2013). Toth et al. (2013) also noted that there is a lack of research in teenager's attitudes and behaviors towards the environment. "Little is known about how teenagers use energy and their attitudes towards energy and energy saving, although there are differences in energy use between adults and teenagers" (Toth et al., 2013).

Engaging in more environmentally sustainable behaviors and activities can be best viewed as a mixture of self-interest, and researchers who view self-interest as an important motive rely heavily on rational choice models such like the Theory of Planned Behavior. The theory also stresses the importance of situational constraints. When an individual is forming their behavioral intention, they do not take into account their attitudes towards this behavior and also estimate their ability to perform this behavior, which can be referred to as their perceived behavioral control (Bamberg & Möser, 2007). Social norms are also viewed as a factor that contributes to decision-making. “In the TPB framework a social norm is primarily conceptualized as perceived social pressure that is the expectations of significant reference persons to perform or not perform a behavior” (Bamberg & Möser, 2007). Past studies suggests that there is a gap in research to employ full framework provided by the Theory of Planned Behavior including not only direct measures of attitude, subjective norm, and perceived behavioral control as predictors of intention and self-reported behavior but also accessible behavioral, normative, and control beliefs that are assumed to underlie these predictors (de Leeuw et al., 2015).

Theory of Planned Behavior and Reasoned Action

According to the Theory of Reasoned Action (TRA) and Planned Behavior, “attitudes toward a behavior are assumed to be based on behavioral beliefs, which are a persons beliefs about the likely consequences of performing the behavior” (de Leeuw et al., 2015, p. 129). The TPB is an extension of the TRA, which was developed due to some of the limitations in dealing with behaviors over which people have incomplete willingness to control (Ajzen, 1991). The TRA has been widely used as a model for the prediction of behavioral intentions and/or behavior (Madden, Ellen, & Ajzen, 1992).

This model is very useful for identifying where and how to target strategies for changing behaviors. “The development and testing for the TRA were predicated on the assumption that the behaviors being studied were under full volitional control” (Madden, 1992, p. 3). The TPB integrates perceived behavioral control as a precursor to behavioral intentions (see Figure 1). For both TRA and TPB the central focus is the individual’s intention to perform a given behavior. The purpose of focusing on intentions is to capture motivational factors that contribute to behavior change. As a general rule, the stronger the intention to engage in a behavior, the more likely the behavior will occur (Ajzen, 1991). As Figure 1 shows, there is a relationship among behavioral and normative beliefs, attitudes, intentions, and behavior (Ajzen, 1991).

The TRA asserts the main precursor to behavior as behavioral intention. In turn, precursors to intention are attitude in regards to performance of the behavior and the subjective norm in relationship to the behavior. Behavioral beliefs are related to opinions about outcomes or aspects of performing the behavior, taking into account evaluations of outcomes or aspects, determine attitudes. Subjective norm is a reflection of normative beliefs, which are determined by the approval or disapproval of a behavior by individuals important to the subject. Therefore, if a person believes that those important to him or her approve of the performance of a behavior and the subject is motivated to comply with the referents, a positive subjective norm results (Montano & Kasprzyk, 2002).

The TRA may not have been sufficient in predicting behaviors. According to Montano & Kasprzyk (2002) the main determinant of a behavior is the intention to act on it. Therefore, the theory’s success depends on degree of volitional control of the

behavior. When there is a high level of volitional control, motivation using intention, attitude, and normative measures primarily determines the behavior. The TPB was developed to take into account involuntary control when predicating behavior (Ajzen, 1991).

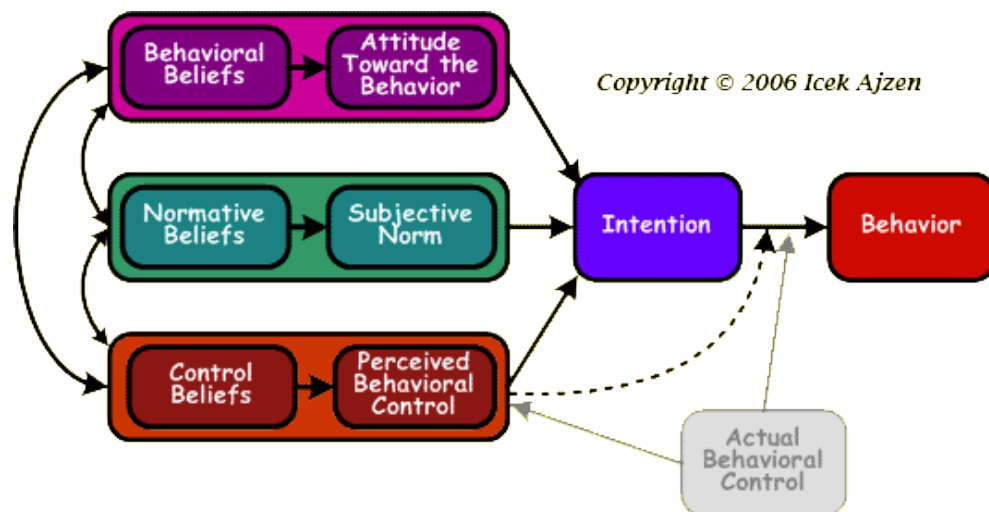


Figure 2. TPB Model. Ajzen (2006)

The TPB included perceived behavioral control as a construct to take into account the factors that cannot be controlled for. The TPB also declares perceived control solely and determines intention as well as attitude when referring to the behavior and the subjective norm. Perception of the difficulty of a performance will affect intention when attitude and subjective norm are held persistent. Different populations and behaviors may vary in relationship to the relative weights of the measured variables (Montano & Kasprzyk, 2002).

Control beliefs about the existence of barriers and facilitators of behavioral performance determine perceived control when perceived power of the barrier or facilitator is taken into consideration (Montano & Kasprzyk, 2002). The TPB has been tested and proven to be effective. In turn, the use of theory to determine intentions and

behaviors among environmental concerns has been supported through previous research, and will make it possible to establish accurate information regarding college student's perceptions and intentions towards environmental sustainability.

Summary

This background has examined some of the literature related to college students and their engagement in environmentally sustainable behaviors and activities. The term "sustainability" has not one clear definition and when paired with the "environmental" it can be difficult to understand. With the collection of research gathered, there is a clearer understanding of what environmental sustainability entails. This research is important because it speaks about the relevance and the issues that go along with environmental sustainability. This allows for more investigation to take place and to target a specific population that can be actors of change.

The literature shows that sustainability is making an impact on many Colleges and Universities throughout the country. These initiatives provide a unique opportunity for students, faculty, staff, and the community to become more involved with the environmental issues that are happening all around us. However, "campus greening" is not the only answer to changing behavior among college students. The collection of research displays the importance of young people in regards to being actors of change when it comes to sustainability. The research indicates how this can be incorporated through theory, in which young people acquire skills, knowledge, and attitudes that are relevant to engage in a more environmentally sustainable way.

One theory that is being used increasingly is the Theory of Planned Behavior (Ajzen, 1991). This theory combines several constructs that collectively represent a

person's control over the behavior: behavioral beliefs, normative beliefs, control beliefs, attitudes toward the behavior, subjective norms, perceived behavioral control, actual behavioral control, and intention. Studies have shown the TPB can be an effective framework for understanding students' pro-environmental intentions and behavior. This theory will assist in better understanding University of Wisconsin, La Crosse Health Education and Health Promotion student's engagement in environmentally sustainable behaviors and activities.

APPENDIX C
FOCUS GROUP QUESTION

1. What behaviors and activities do you associate with college students and environmental sustainability?
2. What do you see as the advantages of you engaging in environmentally sustainable behaviors and activities?
3. What do you see as the disadvantages of you engaging in environmentally sustainable behaviors and activities?
4. What else comes to mind when you think about environmental sustainability?
5. Please list the individuals or groups who would approve or think you should engage in environmentally sustainable behaviors and activities.
6. Please list the individuals or groups who would disapprove or think you should not engage in environmentally sustainable behaviors and activities.
7. Sometimes, when we are not sure what to do, we look to see what others are doing. Please list the individuals or groups who, while at college, are most likely to engage in environmentally sustainable behaviors and activities.
8. Please list the individuals or groups who, while at college, are least likely to engage in environmentally sustainable behaviors and activities.
9. Please list any factors or circumstances that would make it easy or enable you to engage in environmentally sustainable behaviors and activities, while a college student.
10. Please list any factors or circumstances that would make it difficult or prevent you from engaging in environmentally sustainable behaviors and activities, while a college student.

APPENDIX D

INFORMED CONSENT DOCUMENT: FOCUS GROUPS

Protocol Title: Using the Theory of Planned Behavior to Better Understand Health Education and Health Promotion Students' Engagement in Environmentally Sustainable Behaviors and Activities

Principle Investigator: Colton Anderson
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Purpose and Procedure:

- The purpose of this study is to better understand UWL Health Education and Health Promotion students' engagement in environmentally sustainable behaviors and activities using the Theory of Planned Behavior.
- My participation will involve partaking in one focus group.
- The total time requirement will be between 60-90 minutes.
- Focus groups will take place in Cartwright 263.
- During the focus groups, I will answer all questions honestly and accurately.

Potential Risks:

- Overall, potential risks associated with participation in the study are unlikely and of low risk, beyond the inconvenience of time.

Rights and Confidentiality:

- My participation is voluntary. I can withdraw or refuse to answer any question without consequences at any time.
- I can withdraw from the study at any time for any reason without penalty.
- The results of this study may be published in scientific literature or presented at professional meetings using grouped data only.
- All information will be kept confidential through coding. My data will not be linked with personally identifiable information.

Possible Benefits:

- There are no immediate benefits expected for the participants.

Questions regarding study procedures may be directed to Colton Anderson (715-558-5215), the principal investigator, or the study advisor Dr. Dan Duquette, Department of Health Education and Health Promotion, UW-L (608.785.8161). Questions regarding the protection of human subjects may be addressed to the UW-La Crosse Institutional Review Board for the Protection of Human Subjects, (608-785-8124 or irb@uwlax.edu).

Participant _____ Date _____
Researcher _____ Date _____

APPENDIX E

SURVEY

Please answer each of the following questions by clicking the number that best describes your opinion. Some of the questions may appear to be similar, but they do address somewhat different issues. Please read each question carefully.

[Outcome Evaluation]

1. For me to save resources (money, electricity, gas, etc.) is
Extremely good: 1 2 3 4 5 6 7 8 9 10 :Extremely bad
2. For me, positive health impacts (personal, environmental) are
Extremely good: 1 2 3 4 5 6 7 8 9 10 :Extremely bad
3. For me to educate others on environmental sustainability is
Extremely good: 1 2 3 4 5 6 7 8 9 10 :Extremely bad
4. For me to have a lot of inconvenience is
Extremely good: 1 2 3 4 5 6 7 8 9 10 :Extremely bad
5. For me consuming to much time is
Extremely good: 1 2 3 4 5 6 7 8 9 10 :Extremely bad
6. For me spending to much money is
Extremely good: 1 2 3 4 5 6 7 8 9 10 :Extremely bad

[Past Behavior: Self- Report]

I spend about _____ time each week engaging in environmentally sustainable behaviors and activities.

0-30 30-1hour 1-2 hours +2 hours

[Direct Measures]

1. For me to use alternative transportation (bike, walk, ride share) on a regular basis is
Extremely difficult: 1 2 3 4 5 6 7 8 9 10 :Extremely easy
2. For me to use re-usable items (water bottle, grocery bags) on a regular basis is
Extremely difficult: 1 2 3 4 5 6 7 8 9 10 :Extremely easy
3. For me to participate in outdoor cleanups (city, marsh, nature) on a regular basis is
Extremely difficult: 1 2 3 4 5 6 7 8 9 10 :Extremely easy

[Motivation to Comply]

1. Generally speaking, how much do you care what UWL University leaders (chancellor, dean, etc.) think you should do
Not at all: 1 2 3 4 5 6 7 8 9 10 :Very much
2. Generally speaking, how much do you care what the local environmental groups and organizations think you should do
Not at all: 1 2 3 4 5 6 7 8 9 10 :Very much
3. Generally speaking, how much do you care what your peers think you should do
Not at all: 1 2 3 4 5 6 7 8 9 10 :Very much
4. Generally speaking, how much do you care what the oil and gas companies think you should do
Not at all: 1 2 3 4 5 6 7 8 9 10 :Very much
5. Generally speaking how much do you care what the shipping companies (Amazon, Fed-Ex, UPS) think you should do
Not at all: 1 2 3 4 5 6 7 8 9 10 :Very much
6. Generally speaking how much do you care what the big-box stores (Wal-Mart, Target, Best-Buy) think you should do
Not at all: 1 2 3 4 5 6 7 8 9 10 :Very much

[Behavioral Beliefs]

1. Engaging in environmentally sustainable behaviors and activities will result in saving resources (money, electricity, gas, etc.)
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely
2. Engaging in environmentally sustainable behaviors and activities will result in positive health impacts (personal, environmental)
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely
3. Engaging in environmentally sustainable behaviors and activities will result in educating others on environmental sustainability
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely
4. Engaging in environmentally sustainable behaviors and activities will cause me a lot of inconvenience
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely

5. Engaging in environmentally sustainable behaviors and activities will consume too much time
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely
6. Engaging in environmentally sustainable behaviors and activities will cost too much money
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely

[Control Beliefs]

1. How often would you use a campus garden if available at UWL
Very rarely: 1 2 3 4 5 6 7 8 9 10 :Very frequently
2. How often would you buy healthier food options if available at UWL
Very rarely: 1 2 3 4 5 6 7 8 9 10 :Very frequently
3. How often would you attend events related to environmental sustainability if more marketing was done throughout UWL
Very rarely: 1 2 3 4 5 6 7 8 9 10 :Very frequently
4. How often does lack of access to healthier food options affect your buying purchases
Very rarely: 1 2 3 4 5 6 7 8 9 10 :Very frequently
5. How often does lack of social support affect your environmental sustainability habits
Very rarely: 1 2 3 4 5 6 7 8 9 10 :Very frequently
6. How often does lack of marketing throughout campus on events related to environmental sustainability affect your attendance to those events
Very rarely: 1 2 3 4 5 6 7 8 9 10 :Very frequently

[Power of Control Factors]

1. Having a campus garden at UWL would make it easier for me to engage in more environmentally sustainable behaviors and activities
Strongly agree: 1 2 3 4 5 6 7 8 9 10 :Strongly disagree
2. Having more healthier food options on campus at UWL would make it easier for me to engage in more environmentally sustainable behaviors and activities
Strongly agree: 1 2 3 4 5 6 7 8 9 10 :Strongly disagree

3. Having more marketing throughout UWL on events related to environmental sustainability make it easier for me to engage in more environmentally sustainable behaviors and activities
Strongly agree: 1 2 3 4 5 6 7 8 9 10 :Strongly disagree

[Normative Beliefs]

1. University leaders (chancellor, dean, etc.) think that I should engage in environmentally sustainable behaviors and activities on a regular basis
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely
2. Local environmental groups and organizations think that I should engage in environmentally sustainable behaviors and activities on a regular basis
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely
3. My peers think that I should engage in environmentally sustainable behaviors and activities on a regular basis
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely
4. Oil and gas companies think that I should not engage in environmentally sustainable behaviors and activities
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely
5. Shipping companies (Amazon, Fed-Ex, UPS) think that I should not engage in environmentally sustainable behaviors and activities
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely
6. Big-box stores (Wal-Mart, Target, Best-Buy) think that I should not engage in environmentally sustainable behaviors and activities
Extremely unlikely: 1 2 3 4 5 6 7 8 9 10 :Extremely likely

[Referents]

1. Most of the students who have taken an environmental health class engage in environmentally sustainable behaviors and activities
False: 1 2 3 4 5 6 7 8 9 10 :True
2. Most of the students in environmental groups or organizations engage in environmentally sustainable behaviors and activities
False: 1 2 3 4 5 6 7 8 9 10 :True
3. Most of the University leaders (chancellor, dean, etc.) engage in environmentally sustainable behaviors and activities
False: 1 2 3 4 5 6 7 8 9 10 :True

4. Most of the students that are business majors do not engage in environmentally sustainable behaviors and activities
False: 1 2 3 4 5 6 7 8 9 10 :True

5. Most of the first year students at UWL majors do not engage in environmentally sustainable behaviors and activities
False: 1 2 3 4 5 6 7 8 9 10 :True

[Demographics]

1. Are you a graduate or an undergraduate?
Yes/No
2. Sex: Male, female, other?
3. If undergraduate, have you taken HED 335 (Human Ecology and Environmental Health)?
Yes/No
4. If graduate, have you taken PH 717 (Environmental Health)?
Yes/No
5. Are you involved in a group or extracurricular activities related to environmental health or public health field?
Yes/No

APPENDIX F

ASSUMPTIONS, LIMITATIONS, AND DELIMITATIONS

Assumptions

It is assumed that the individuals responded to the focus group questions and electronic questionnaire in a truthful manner.

Delimitations

1. This study involved only students with declared undergraduate or graduate major in Health Education and Health Promotion, limiting the sample size.

Limitations

1. The data will be self-reported, which could affect the accuracy of data.
2. The target population participating in this study may be different from the general population; therefore, results of the study may only be generalized to this sample.
3. The results of the study are limited by the ability of the methodology to address the problem and purpose.
4. The results of the study are limited by the ability of the statistical test to detect significant differences/relationships if they exist, between the theoretical constructs and students' engagement in environmentally sustainable behaviors and activities.

APPENDIX G

HEALTH EDUCATION AND BEHAVIOR JOURNAL GUIDELINES

All manuscripts should be prepared in accordance with the style and format requirements of the Publication Manual of the American Psychological Association (6th edition). The manuscript, including captions, footnotes, tables, and references, must be double-spaced with 1-inch margins in a 12-point font. The elements of a manuscript should include: abstract, impact statement, body of text, references, and tables, figures or other graphic images.

Title: The title should stand alone as the first page of the manuscript. (Note: Author information and any acknowledgements should not be included with the title. These are to be uploaded as a separate Title Page and Acknowledgements document. See above for details.)

Abstract: A narrative abstract of up to 250 words followed by up to 6 keywords, must accompany each submission. Structured abstracts (including the following elements: Background, Aims, Methods, Results, Discussion, and Conclusion) are permitted for reports of empirical research.

Body of text: Introduction, methods, results, and discussion (including limitations and strengths and implications for theory, policy, and/or practice).

References: All references should be prepared in accordance with the format and style requirements of the Publication Manual of the American Psychological Association (6th edition). References to unpublished material are discouraged. Footnotes to the text should be avoided. For further information on how to format citations and references, please consult the APA Style tutorial at: <http://www.apastyle.org/learn/tutorials/basics-tutorial.aspx>

Tables and figures: All tables, figures, and graphic images should be cited sequentially in text, serially numbered, and accompanied by explanatory captions, and constructed in accordance with the style and format requirements of the Publication Manual of the American Psychological Association (6th edition). Do not include tables and figures within the body of the manuscript; tables and figures can be included at the end of the document immediately following the reference list or uploaded in separate document files. Tables should be editable. All figures, illustrations, graphics, and photographs should be supplied with the highest quality original electronic format. All files should follow the SAGE artwork guidelines contained at the SAGE Manuscript Submission Guidelines.

Human Participants and Institutional Review Board: All studies involving data collection with human participants must document that approval was received from an appropriate institutional review board. It must be stated in writing, in the Methods section, that the study protocol was approved by a review committee on the protection of human participants or its equivalent.

Language and other requirements: Manuscripts must be submitted in English. Authors should refrain from using the term subjects when describing or referring to human

research participants. Alternative terms such as respondents, research participants, or some other more specific designation (e.g., youth, females, patients, or residents) should be used. In addition, each manuscript reporting empirical research that is submitted is expected to include implications for theory, policy, and/or practice in the discussion section.

Reporting standards: Health Education & Behavior has adopted guidelines for reporting standards that have been developed in recent years and promulgated by several groups. Manuscripts reporting the results of an intervention that has been evaluated should provide a detailed description of the intervention in the methods section. Health Education & Behavior strongly encourages authors to utilize the checklist and guide that have been provided by Hoffmann et al. (2014) for reporting descriptions of interventions. Reports of randomized controlled trials should adhere to the Consolidated Standards of Reporting Trials (CONSORT) Statement (Rennie, 2001) and reports of evaluations with nonrandomized designs should adhere to the requirements of the Transparent Reporting of Evaluation with Nonrandomized Designs (TREND) (Des Jarlais, Lyles, Crepaz, & the TREND Group, 2004). Health Education & Behavior also expects manuscripts reporting the results of systematic reviews and meta-analytic reports to adhere to the requirements for Preferred Reporting Items for Systematic Reviews and Meta-Analyses (PRISMA)(Moher, Liberati, Tetzlaff, & Altman, 2009). Submitting author are also encouraged to adhere to the NIH OBSSR guidelines on conducting mixed methods research when reporting such studies (OBSSR NIH Best Practices for Mixed Methods Research).

Appendices and supplemental material: Appendices should not be included in the manuscript. However, appendices containing questionnaires and instruments, intervention materials, supplemental data analyses, or other materials or information that are proposed by the author(s) and deemed to be valuable by the editor may be made available for public access via links to a section for such material at the Health Education & Behavior website. Extensive appendices and supplemental material intended for online-only display should be clearly marked with “online supp” in the file name.