THE IMPACT OF BASIC PSYCHOLOGICAL NEED FULFILLMENT ON ENVIRONMENTAL MOTIVATION AND BEHAVIOR IN FIELD-BASED ENVIRONMENTAL EDUCATION

A THESIS

Presented to

The Faculty of the Department of Economics and Business

The Colorado College

In Partial Fulfillment of the Requirements for the Degree

Bachelor of Arts

By

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May 2024

THE IMPACT OF BASIC PSYCHOLOGICAL NEED FULFILLMENT ON ENVIRONMENTAL MOTIVATION AND BEHAVIOR IN FIELD-BASED ENVIRONMENTAL EDUCATION

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Economics

Abstract

This paper seeks to better understand the relationship between course-related basic psychological need (BPN) fulfillment, environmental BPN fulfillment, environmental motivation, and pro-environmental behavior (PEB) in college students who have taken field-based environmental courses. Using an experimentally induced recall treatment, I find no differences in BPN fulfillment, environmental motivation, nor PEB intentions between a BPN-primed treatment group and an active control group. However, I find that course BPN fulfillment, environmental BPN fulfillment, self-determined environmental motivation (SDEM), and PEB intentions are all positively related, and that the relationship between course BPN fulfillment and PEB intentions is mediated by environmental BPN fulfillment and SDEM.

KEYWORDS: (environmental education, environmental motivation, pro-environmental behavior, self-determination theory)
JEL CODES: (D91, Q59, I29)

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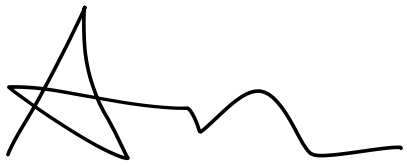

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Introduction

In the face of the continuing environmental crisis, environmental education has been repeatedly recognized as a priority by institutions such as the United Nations and the United States government (EPA, 2023; UNESCO 2023). An explicit goal of environmental education is fostering environmental motivation within students, and thus pro-environmental behavior (Darner, 2009). While self-determination theory (SDT) has been previously explored as a framework for fostering and understanding environmental motivation and behavior in students, there is limited evidence linking elements of SDT between educational and environmental contexts (Darner, 2009). Additionally, field trips have not been explored as a pedagogical tool that may influence these factors.

In this paper, I investigate the role of field study and basic psychological need fulfillment in pro-environmental motivation and behavior. I also examine relationships between course-related basic psychological needs, environmental basic psychological needs, self-determined environmental motivation, and pro-environmental behavior intentions. My hypotheses are as follows:

H1: Among students who have taken an environmental field course, I expect that priming reflection on autonomy, competence, and relatedness experiences from the course will lead to higher course basic psychological need (BPN) achievement responses, higher environmental BPN feelings, higher self-determined environmental motivation (SDEM) responses, and higher pro-environmental behavior (PEB) intention, than the priming of course content.

H1.1: Among students who have taken an environmental field course, I expect the BPN priming treatment to have an inverse relationship with environmental amotivation, a separate subscale from SDEM.

H2: Among students who have taken an environmental field course, I expect positive relationships between survey outcome variables; specifically:

H2.1: I expect course BPN achievement to positively relate to environmental BPN feelings.

H2.2: I expect course basic psychological need (BPN) achievement to positively relate to self-determined environmental motivation (SDEM) responses.

H2.3: I expect course BPN achievement to positively relate to pro-environmental behavior (PEB) intentions.

H2.4: I expect environmental BPN feelings to relate positively to SDEM responses.

H2.5: I expect environmental BPN feelings to relate positively to PEB intentions.

H2.6: I expect SDEM to relate positively to PEB intentions.

H2.7: I expect environmental BPN feelings and SDEM to mediate the relationship between course BPN achievement and PEB intentions.

To test these hypotheses, I conduct a survey at a small, private, liberal arts college in the Southwest among a BPN-primed treatment group and an active control group. To test H1 and 1.1, I run a t-test on outcome variables between conditions. To test H2.1-7, I run a set of regression analyses which control for demographic information. By running

eight regressions across three dependent variables, I see how relationships between variables are mediated.

In testing H1 and 1.1, I find no statistically significant differences between control and treatment groups. This may be because this particular prime was not as psychologically impactful as anticipated, or that more consideration is required when using priming in an educational context.

In testing H2.1-6, I find that all predicted positive relationships between outcome variables exist when controlling for demographic information. All relationships are in line with existing theory (and in some cases empirical results). However, empirical evidence of the relationship between course BPN fulfillment and environmental BPN fulfillment in environmental field classes is novel. I also find that environmental BPNs and SDEM mediate the relationship between course related BPNs and PEB intentions (H2.7).

This paper stands in the literature on self-determination theory and its applications in educational and environmental spheres (Darner, 2009; Fedesco et al., 2020; Ryan & Deci, 2002). It tests frameworks outlined in Darner (2009)'s review of SDT in environmental education and elaborates on Fedesco et al. (2020)'s study on self-determination theory in field-based education. My findings should encourage more research utilizing the SDT frame to explain environmental motivation and behavior in environmental education.

Literature Review

This paper examines how basic psychological need fulfillment leads to pro-environmental behavior through generation of self-determined pro-environmental motivation in environmental field courses. It stands in the literature on self-determination theory and its applications in environmental and educational motivation.

Self-determination theory (SDT) asserts that motivation is affected by three basic psychological needs (BPNs): autonomy (a feeling that an individual is the source of their own behavior), competence (a feeling of efficacy in actions toward desired outcomes), and relatedness (a feeling of connectedness to other individuals and a larger community). Fulfillment of these BPNs causes movement towards self-determination along a spectrum of motivation types (Ryan & Deci, 2002). SDT recognizes that individuals can experience amotivation, a complete lack of intention to act, extrinsic motivation, an intention to act which stems from factors outside the self, and intrinsic motivation, a purely self-determined intention.

Pro-environmental behaviors (PEBs) are often explained by extrinsic motivation, which has four subtypes called regulations. First, external regulation, which relies on external rewards and punishments as the driving force for behavior. External regulation of PEBs causes a decrease in their frequency (Green-Demers et al., 1997; Pelletier, 2002; Pelletier et al., 1998; Séguin et al., 1999). Second, introjected regulation, the partial internalization of external factors, leading to actions driven by ego enhancement or guilt. Third, identified regulation, which is somewhat more self-determined, occurs when a person personally values a behavior as personally important. Fourth, integrated regulation, the most self-determined form of extrinsic motivation, in which one fully

integrates external values into their own beliefs (Darner, 2009; Ryan & Deci, 2002). As regulation of PEBs becomes more self-determined, their frequency and variety increase (Green-Demers et al., 1997; Pelletier, 2002; Pelletier et al., 1998; Séguin et al., 1999). The Motivation Towards the Environment Scale is commonly used to measure pro-environmental motivation using this framework, and I utilize it here (MTES; Darner, 2012; Masson & Otto, 2021; Pelletier et al., 1998).

SDT is also important in education research (Ryan & Deci, 2002). Educational settings can either support or diminish feelings of autonomy, competence, and relatedness, which will subsequently lead to more or less self-determined motivation within students (Ryan & Deci, 2020). BPN support and self-determined motivation is associated with better academic outcomes, higher student self-esteem, and lower dropout rates (Ryan & Deci, 2020). Field study (the use of field trips in education) increases autonomy, competence, and relatedness, and subsequently motivation, within students (Fedesco et al., 2020; Houge Mackenzie et al., 2014).

Research in environmental education (EE) considers both environmental and educational motivation (Hungerford & Volk, 1990; Darner, 2009). Darner (2009) proposes that SDT should be used for understanding and fostering pro-environmental motivation in EE students. By fostering autonomy, competence, and relatedness in the EE classroom, educators may foster more self-determined forms of environmental motivation (such as integrated regulation). However, it is yet unclear which specific pedagogical tools in EE support students' BPNs and pro-environmental motivation (Darner, 2009). Field trips have not yet been examined as a potentially BPN-enhancing pedagogical tool in EE. Another open question is whether academic motivation in an EE classroom

necessarily translates to environmental motivation (Darner, 2009; Darner, 2012). Darner (2012) investigated this link, finding only small differences in environmental motivation outcomes between students in an SDT-guided course and a non-SDT course. However, because explicitly withholding BPNs is unethical, it is possible that they were also being fulfilled in the non-SDT-guided course (Darner, 2012). My use of experimentally induced recall avoids this logistic and ethical conundrum.

Because the use of field trips (field study) fulfills students' BPNs, I theorize that field study is a pedagogical tool within EE that leads to BPN fulfillment, and thus to pro-environmental motivation and behavior (Fedesco et al., 2020). To test this, I use experimentally induced recall on students at a small liberal arts college in the Southwest who have taken environmental classes with field trips. Experimentally induced recall is a form of priming in which subjects are randomized into treatment and control conditions which ask them to recall different experiences or recall the same experiences in different ways (Bogliacino et al., 2017; Callen et al., 2014; Delis et al., 2021). Priming treatments cause stronger recall of an aspect of a memory, affecting subsequent behavior and responses. Silverman et al. (2023) randomized students between explaining how a course topic was relevant to their lives, or simply reflecting on course content. Similarly, I prime students' memories associated either with their BPN fulfillment from the course (treatment) or with course content (control). This design also allows me to investigate long-term changes in environmental motivation and behavior, rather than just short-term.

Data

Data Collection & Survey Design

I developed a survey which implements an experimental treatment and collects data on BPNs, environmental motivations, and intentions of pro-environmental behavior. The survey begins by asking respondents if they have taken a course with field trips and/or environmental themes in the past and asks them to write down the name of that course. Respondents are then asked to respond in writing to one of two randomly presented prompts. One is the treatment, meant to activate memories of BPN fulfillment: "thinking about the course you just listed, describe (as vividly as you can while staying brief) a **'**highlight moment' of successfully working on something you felt really mattered and that connected you with other people." The other is the active control: "thinking about the course you just listed, describe (in as much detail as you can while staying brief) some of the most interesting or 'valuable' pieces of content you learned from the course."

Then, respondents complete a modified version of the MTES with modernized language, more generalized behavior (beyond recycling), and half as many questions (Pelletier et al., 1998; see Appendix for full survey). There are two questions each measuring intrinsic motivation, integrated regulation, identified regulation, introjected regulation, external regulation, and amotivation.

This is followed by questions about autonomy, competence, relatedness to the class, and relatedness to a larger community during the course. After that are questions about autonomy and competence in environmental behavior, and relatedness to a smaller and larger pro-environmental community. Questions about interest in being contacted for

environmental opportunities, activism intentions, and diet and waste intentions measure intention towards pro-environmental behavior. Last is demographic information.

Before implementing the survey, I was granted an exemption from the Institutional Review Board and completed pre-testing using guidelines from Krosnick & Presser (2010). The survey was then emailed to all students and recent alumni at a small, private liberal arts college in the Southwest. Because this college has a block schedule in which students take only one course at a time, field trips are more common than at other colleges and universities. I received 581 responses, 403 of which completed the written response and all BPN, motivation, and PEB questions. 230 of these respondents listed a course that included both environmental topics and field trips (an environmental field course). These 230 are the subsample that this paper will be analyzing.

Descriptive Statistics

Compared to the college population, the subsample of respondents who have taken an environmental field course (n = 230) is more white (78.7% vs. 67%) and female (62.72% vs. 54%; Table 1). However, respondents could select multiple races, and 17.7% of respondents who selected white also selected at least one more race or ethnicity. 57.27% of the subsample had an environmental major such as environmental science, environmental studies, organismal biology & ecology, etc. (Table 1). Most respondents graduate in 2023-24, 2024-25, or 2025-26, with some graduating in 2022-23 and 2026-27, and very few in 2027-28 (Table 1). 40.27% of respondents took the course in 2022-23, with 30.97% in 2023-24, and 21.68% in 2021-22 (Table 1). Among these

demographic characteristics, there is no statistically significant differences between control and treatment groups (Table 2).

Table 1: Demographics

Variable	Frequency	Percent
Race/Ethnicity		
American Indian or AK Native	4	1.74
Asian	30	13.04
Native HI or Pacific Islander	3	1.30
Black or African American	12	5.22
Middle Eastern or North African	2	0.87
Hispanic/Latine	30	13.04
White/Caucasian	181	78.70
Other	3	1.30
Major		
Environmental Major	130	57.27
Non-Environmental Major	97	42.73
Gender		
Male	68	29.82
Female	143	62.72
Nonbinary	16	7.02
Self-Identify	1	0.44
Graduation Year		
2022-23	18	8.00
2023-24	67	29.78
2024-25	66	29.33
2025-26	49	21.78
2026-27	23	10.22
2027-28	2	0.89
Course Year		
2019-20	8	3.54
2020-21	8	3.54
2021-22	49	21.68
2022-23	91	40.27
2023-24	70	30.97

Table 2: Summary Statistics

	Control		Treatment			
Variable	Mean	SD	Mean	SD	Difference	P-Value
Gender, Male	0.29	0.45	0.31	0.46	-0.02	0.69
Gender, Female	0.60	0.49	0.64	0.48	-0.04	0.50
Race, White	0.79	0.41	0.79	0.41	0.00	0.95
Course Year[a]	-1.00	0.09	-1.18	0.09	0.18	0.17
Grad. Year[a]	1.09	1.14	.88	0.11	0.22	0.16
Env. Major	0.40	0.49	.46	0.50	-0.06	0.40

Note. Two-sample t-test with equal variances. Grad. Year = Graduation Year; Env. Major = Environmental Major

[a] 0 is current academic year (2023-24), -1 is last academic year (2022-23), 1 is next academic year (2024-25), etc.

Results

To determine the differences in BPNs, environmental motivation, and PEB intentions between the control and treatment groups, I ran two-sample t-tests with equal variances on nine variables. The two relatedness questions were averaged into one variable, which was then averaged with the autonomy and competence scores to get each respective BPN score. Each of the environmental motivation (EM) variables is an average of the respective two questions on the MTES. PEB intentions is an average of the four pro-environmental behavior intentions questions. All are scored from one to five. None of these variables had statistically significant differences in the treatment group compared to the control group (Table 3). Given that there were no significant differences between condition groups, I collapsed them together for subsequent analyses.

Table 3: Experimental Results

	Control		Treatment			
Variable	Mean	SD	Mean	SD	Difference	P-Value
Course BPNs	3.36	0.75	3.46	0.79	-0.10	0.34
Env. BPNs	3.44	0.66	3.50	0.61	-0.06	0.49
Intrinsic EM	3.58	0.81	3.57	0.93	0.01	0.95
Integrated EM	3.39	1.01	3.53	1.17	-0.14	0.34
Identified EM	4.02	0.71	3.98	0.79	0.04	0.66
Introjected EM	3.55	0.86	3.36	0.92	0.19	0.10
External EM	2.05	0.87	1.93	0.88	0.11	0.32
Amotivation EM	1.76	0.75	1.82	0.78	-0.06	0.54
PEB Intentions	3.32	0.79	3.31	0.93	0.01	0.91

Note. BPNs = basic psychological needs; EM = environmental motivation, PEB = pro-environmental behavior; SD = standard deviation

Next, I ran analyses to determine the relationship between each of my four main variables, within the entire subsample, while controlling for demographics. These four are course BPNs, environmental BPNs, self-determined environmental motivation (SDEM; as measured by an average of intrinsic, integrated, and identified motivation scores), and PEB intentions. Within this, I also tested if the relationship between course BPN fulfillment and PEB intentions is mediated by environmental BPN feelings and SDEM.

In Table 4, I present results regressing environmental BPN fulfillment on course BPN fulfillment and demographic variables. For every one-point increase in course BPN fulfillment, environmental BPN fulfillment increases by .24 points in this model, highly significant at $p < 0.01$. The only other statistically significant variable in this model is environmental major.

Table 4: Regressions of Environmental Basic Psychological Need Fulfillment

	I	
Variable	Coefficient	95% CI
Course BPNs	0.24***	[0.14, 0.35]
Grad. Year	0.00	[-0.08, 0.08]
Course Year	-0.01	[-0.10, 0.08]
Env. Major	0.36***	[0.19, 0.52]
Race, White	0.10	[-0.09, 0.29]
Gender, Female	0.10	[-0.06, 0.26]
Constant	2.32***	[1.88, 2.76]

Note. BPNs = basic psychological needs; Grad. Year = graduation year; Env. Major = environmental major; CI = confidence interval
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

In Table 5, I present three different models with self-determined environmental motivation (SDEM) as the dependent variable. Model II includes course BPNs but not environmental BPNs and shows that course BPNs are highly predictive of SDEM (0.25 point increase in SDEM per point increase in course BPNs). Model III includes only environmental BPNs, not course BPNs, and shows a relation with an even higher magnitude (0.63). In Model IV, when both environmental and course BPNs are included, the significance and coefficient of course BPNs drops (Table 5). Table 6 shows that course BPNs, environmental BPNs, and SDEM are all highly related to PEB intentions when they are in separate models (Models V, VI, and VII, respectively), but that the magnitude and significance course and environmental BPNs drop dramatically when a complete model is run (Model VIII). In this most complete model, SDEM stands as the variable with the greatest magnitude and highest significance in its relationship with PEB intentions.

Table 5: Regressions of Self-Determined Environmental Motivation

	II		III		IV	
Variable	Coefficient	95% CI	Coefficient	95% CI	Coefficient	95% CI
Course BPNs	0.25***	[0.12, 0.37]	-	-	0.10*	[-0.01, 0.22]
Env. BPNs	-	-	0.63***	[0.50, 0.77]	0.59***	[0.45, 0.73]
Grad. Year	0.09*	[-0.01, 0.18]	0.09**	[0.00, 0.17]	0.09**	[0.00, 0.17]
Course Year	-0.13**	[-0.24, -0.02]	-0.11**	[-0.21, -0.02]	-0.12**	[-0.22, -0.03]
Env. Major	0.43***	[0.23, 0.63]	0.24***	[0.06, 0.42]	0.22**	[0.04, 0.40]
Race, White	0.07	[-0.16, 0.30]	0.00	[-0.20, 0.20]	0.01	[-0.19, 0.22]
Gender, Female	0.01	[-0.18, 0.20]	-0.05	[-0.23, 0.12]	-0.05	[-0.22, 0.12]
Constant	2.36***	[1.83, 2.90]	1.23	[0.72, 1.74]	0.99***	[0.42, 1.56]

Note. BPNs = basic psychological needs; Grad. Year = graduation year; Env. Major = environmental major; CI = confidence interval
* p < 0.10, ** p < 0.05, *** p < 0.01

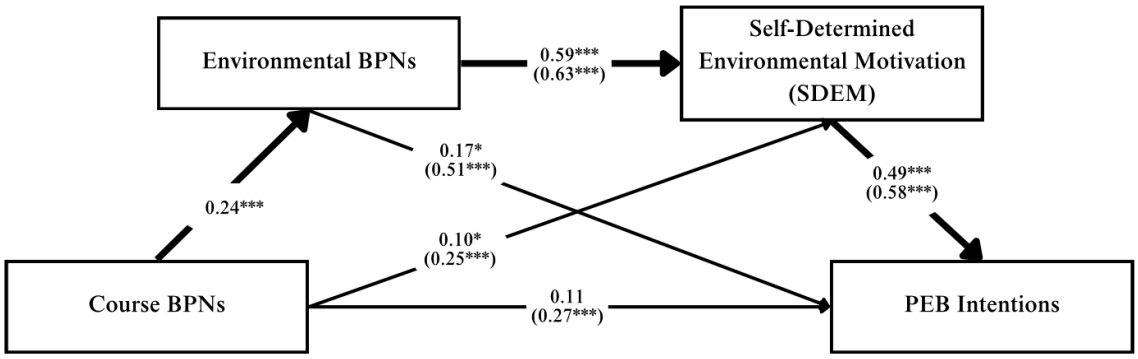
Table 6: Regressions of Pro-Environmental Behavior Intentions

	V		VI		VII		VIII	
Variable	Coefficient	95% CI	Coefficient	95% CI	Coefficient	95% CI	Coefficient	95% CI
Course BPNs	0.27***	[0.12, 0.41]	-	-	-	-	0.11	[-0.03, 0.24]
Env. BPNs	-	-	0.51***	[0.34, 0.68]	-	-	0.17*	[-0.02, 0.35]
Self-Det. EM	-	-	-	-	0.58***	[0.46, 0.72]	0.49***	[0.33, 0.64]
Grad. Year	0.02	[-0.09, 0.12]	0.02	[-0.08, 0.12]	-0.03	[-0.13, 0.07]	-0.02	[-0.12, 0.07]
Course Year	-0.02	[-0.15, 0.11]	0.00	[-0.12, 0.12]	0.07	[-0.04, 0.18]	0.04	[-0.07, 0.16]
Env. Major	0.40***	[0.17, 0.63]	0.27**	[0.04, 0.50]	0.19*	[-0.01, 0.40]	0.13	[-0.08, 0.34]
Race, White	0.13	[-0.13, 0.40]	0.07	[-0.18, 0.32]	0.08	[-0.15, 0.31]	0.08	[-0.15, 0.32]
Gender, Female	0.16	[-0.05, 0.39]	0.11	[-0.01, 0.33]	0.16	[-0.04, 0.36]	0.15	[-0.05, 0.34]
Constant	1.99***	[1.37, 2.60]	1.29***	[0.66, 1.93]	1.02***	[0.49, 1.54]	0.45	[-0.22, 1.13]

Note. BPNs = basic psychological needs; Self-Det. EM = self-determined environmental motivation; Grad. Year = graduation year; Env. Major = environmental major; CI = confidence interval
* p < 0.10, ** p < 0.05, *** p < 0.01

A mediation model, with regression coefficients from the analysis, showcases my predicted causal relationship (Figure 1). In a model with PEB intentions as the dependent variable, and course BPNs as the only non-demographic independent variables, they are highly related (0.27***). However, when all other variables are added, the significance of course BPNs drops out (0.11) and the relationship is better explained by the cascade from course BPNs, to environmental BPNs (0.24***), to SDEM (0.59***), to PEB intentions (0.49***).

Figure 1: Mediation Analysis



Note. Coefficients without parentheses are from most complete model available, coefficients in parentheses are from models with only the two variables connected via the arrow plus demographic information. BPNs = basic psychological needs; PEB = pro-environmental behavior
* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$

Discussion

Hypothesis 1 (H1) and its sub-hypothesis (H1.1) are not supported. There were no significant differences in course BPN fulfillment, environmental BPN fulfillment, any environmental motivation types, nor PEB intentions between the treatment and control groups. This could be attributed to the wording of the prompts, or that priming perhaps does not cause students to remember their past experiences differently as I had expected.

Hypothesis 2 (H2) and all its sub-hypotheses (H2.1-6) are supported. One of the simpler and yet more notable results is that course BPN fulfillment in environmental field classes is strongly related to environmental BPN fulfillment (H2.1). The connection between these two variables within EE was theorized by Darner (2009), but this is the first empirical evidence of the relationship. Course BPNs also relate positively to SDEM and PEB intentions (H2.2 & H2.3); however, as I will discuss later, these relationships are mediated. Environmental BPN fulfillment relates positively to SDEM, supporting previous findings (H2.4; Pelletier, 2002; Pelletier et al., 1996; Pelletier et al., 1999). Environmental BPNs also relate positively to PEB intentions, but this is mediated by SDEM (H2.5). SDEM also is strongly positively related to PEB intentions, again supporting previous research (Green-Demers et al., 1997; Masson & Otto, 2021; Pelletier, 2002; Pelletier et al., 1998; Séguin et al., 1999).

The confirmation of H2.7, that environmental BPN feelings and SDEM mediate the relationship between course BPN achievement and PEB intention, is noteworthy, as it provides insight into how all variables are likely related (Figure 1). While the positive relationship between course BPNs and SDEM is highly significant in a simple model, magnitude and significance drop in a model which incorporates environmental BPNs. This is likely because it is not course BPNs themselves that are important to SDEM, but their effect on environmental BPNs. Similarly, the magnitude and significance of the relationship between course BPNs and PEB intentions drop in the full model. The same phenomenon can be seen between environmental BPNs and PEB intentions; when SDEMs are incorporated, the magnitude and significance drop. Environmental BPNs likely don’t lead directly to PEB intentions, but to SDEM, which leads to PEB intentions.

Some of the individual links have been shown previously. However, the full causal relationship between these four variables (based on theoretical underpinnings; Darner, 2009) has not. The stronger relationships seen in each direct link, compared to those that bypass intermediate steps, provide evidence that these specific mechanisms are the pathway through which BPN support in EE leads to pro-environmental behavior.

Conclusion

These results shed light on how researchers and educators can use SDT to understand and encourage environmental motivation in students. If environmental educators have a goal of encouraging pro-environmental behavior in students, one way to do this is simply supporting students' basic psychological needs of autonomy, competence, and relatedness. A psychologically healthy class environment matters not only for student well-being, but for fulfilling the goals of environmental education. Future research should further explore the role of SDT in environmental education, as there are many directions that may provide more insight into student environmental motivations.

However, these results come with a set of qualifiers. All findings are within students at a wealthy private college who have chosen to take environmental field courses. This is not representative of a wider population, and results may look different in different populations. I recommend attempting replication of these findings in different age groups, across diverse socioeconomic settings, and within global populations. Additionally, while the priming treatment described here was ineffective, it is possible that differently framed priming treatments could have a different effect. Future research

on experimentally induced recall of educational experiences is recommended. Some of my analytical methods are also imperfect. While existing theory provides a logical chain of causation, my mediation analysis does not necessarily show causation itself, only positive relationships. It is possible (yet unlikely, according to theory) that there is an unknown confounding variable, or that causation moves in a different direction than predicted. This is especially true in this case, since the questions were asked in a different order in the survey than the order of the chain presented in the mediation analysis (Appendix; Figure 1). In the future, more robust mediation analyses or analyses that can more firmly establish causation would help in supporting these results.

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Appendix

Survey

Have you taken a course that included any field trips (e.g. short trips, day trips, multi-day trips, or block-long off campus experiences)?

- ○ No
- ○ Yes

Did any of your courses with field trips **also** include environmental topics (e.g. ecology, climate change, human impacts on the environment, or other topics you would consider "environmental")?

- ○ No
- ○ Yes

Have you taken any courses that included environmental topics (e.g. ecology, climate change, human impacts on the environment, or other topics you would consider "environmental")?

- ○ No
- ○ Yes

Depending on previous answers:

Please choose *one* of these courses which included both field trips and environmental topics. Write the course title below (if you don't remember the exact title, write your best guess):

_____

Please choose *one* of these courses which included field trips. Write the course title below (if you don't remember the exact title, write your best guess):

_____

Please choose *one* of these courses which included environmental topics. Write the course title below (if you don't remember the exact title, write your best guess):

_____

Please write the course title of the most recent class you have completed below (if you don't remember the exact title, write your best guess):

Please write the course title of a class you completed *last academic year (2022-23)* below (if you were not here last academic year, write the name of the last course you completed) (if you don't remember the exact title, write your best guess):

_____

Randomly shown one of these two questions:

For this first question, we want you to briefly reflect on your experiences in the course you just listed. This is the only written answer in the survey!

Thinking about the course you just listed, describe (as vividly as you can while staying brief) a "highlight moment" of successfully working on something you felt really mattered and that connected you with other people.

_____

_____

For this first question, we want you to briefly reflect on what you learned in the course you just listed. This is the only written answer in the survey!

Thinking about the course you just listed, describe (in as much detail as you can while staying brief) some of the most interesting or "valuable" pieces of *content* you learned from the course.

_____

_____

Environmental Motivation:
Note. All questions in random order, with same options as question 1.

Thank you for your written response. Following are a few multiple choice questions.

There are many things that people can do for the environment. For example, recycling, composting, using more efficient forms of transport, or environmental activism. There are also many reasons why people do these things. Listed below are several statements of possible *reasons* for why people might act in pro-environmental ways.

Please indicate the degree to which each reason corresponds to why you do things for the environment.

---

1. Because doing things for the environment makes me happy.

- ○ Does not correspond at all
- ○ Corresponds Slightly
- ○ Corresponds Moderately
- ○ Corresponds Strongly
- ○ Corresponds Exactly

2. Because I enjoy doing things for the environment for their own sake.

3. Because doing things for the environment has become a fundamental part of who I am.

4. Because doing things for the environment is part of the way I've chosen to live my life.

5. Because doing things for the environment is a sensible way to improve the environment.

6. Because I think it's a good idea to do something about the environment.

7. Because I would feel guilty if I didn't do things for the environment.

8. Because I think I'd regret not doing something for the environment.

9. To avoid being criticized for not doing things for the environment.

10. Because other people would be upset if I didn't do things for the environment.

11. Honestly, I don't know; I truly have the impression that I'm wasting my time doing things for the environment.

12. I don't know; I can't see how my efforts are helping the environmental situation.

Course Basic Psychological Need Fulfillment:
Note. All questions in random order, with same options as question 1.

Thanks for your responses! There are only twelve more multiple choice questions plus some demographic information remaining.

For these next few questions, think back to the course you wrote about earlier.

1. How much freedom were you provided in the way you wanted to do things during the course?

- ○ None at all
- ○ A little
- ○ A moderate amount
- ○ A lot
- ○ A great deal

2. How much real world knowledge and skill did you gain from the course?

3. After finishing the course, how much more connected did you feel to a larger community?

4. How connected did you feel with your class community during the course?

Environmental Basic Psychological Need Fulfillment:
Note. All questions in random order, with same options as question 1.

Thank you for answering questions about your course. Now, here are some broader questions about the environment.

1. How much control do you have over your own environmental behavior?

- ○ None at all
- ○ A little
- ○ A moderate amount
- ○ A lot
- ○ A great deal

2. How much knowledge and skill do you possess that can allow you to take action for the environment?

3. How many of the people you are close to are pro-environmental?

4. To what extent do you feel part of a larger pro-environmental community?

Pro-Environmental Behavior Intentions:

How open are you to being contacted via email for future environmental volunteering opportunities (such as focus groups, service work, or activism)?

- ○ Do not contact me at all
- ○ Contact me for major events only (once or twice a year)
- ○ Contact me for occasional events (every few months)
- ○ Contact me somewhat frequently (once a month)
- ○ Contact me as frequently as opportunities arise (every couple of weeks or more often)

Considering your life at school, how likely are you to engage in the following pro-environmental activities in the next month? Please be as realistic as possible.
Note. All questions in random order, with same options as question 1.

1. Participate in some form of environmental activism:

- ○ Very Unlikely
- ○ Unlikely
- ○ Neutral
- ○ Likely
- ○ Very Likely

2. Opt for a vegetarian or vegan meal to reduce your carbon footprint:

3. Bring a reusable container when buying a drink (coffee, tea, etc.):

Demographics:

Thank you! Please just fill out this quick last page of information and press the "next" arrow to go to a separate page where you can fill out your email for the gift card raffle.

In what block did you take the course you wrote about earlier?

▼ Block 1 ... Summer Block C

In what academic year did you take the course you wrote about earlier?

▼ 2019-2020 ... 2023-2024

When is your anticipated time of graduation?

▼ December 2022 ... December 2027

What is your major/intended major?

_____

What is your minor/intended minor (if applicable)?

_____

What is your gender identity?

- ○ Male
- ○ Female
- ○ Non-binary
- ○ Prefer to self identify (please specify)

_____

Which races/ethnicities best describe you? (select all that apply)

- ☐ American Indian or Alaska Native
- ☐ Asian
- ☐ Native Hawaiian or Other Pacific Islander
- ☐ Black or African American
- ☐ Middle Eastern or North African
- ☐ Hispanic/Latine
- ☐ White/Caucasian
- ☐ Other (please specify)

_____

Please enter your email. (Again, this is not to identify you but to connect your survey responses to aggregate course data. Your email will be removed from our data once we create an anonymous ID for you.)

_____

Optional: Do you have any more comments or notes about the survey? Please share below:

_____

_____