University of Nebraska - Lincoln

DigitalCommons@University of Nebraska - Lincoln

Environmental Studies Undergraduate Student Theses

Environmental Studies Program

Summer 2014

Student's Connectedness to Nature in Relation to Academic Major and Learning Style

Brett Kelly
University of Nebraska-Lincoln

Follow this and additional works at: http://digitalcommons.unl.edu/envstudtheses

STUDENT'S CONNECTEDNESS TO NATURE IN RELATION TO ACADEMIC MAJOR AND LEARNING STYLE

Brett Kelly, B.A.

University of Nebraska, 2014

Advisors: Dr. Lisa Pennisi, Dr. Mark Burbach

Abstract

The purpose of this research is to explore the relation between students' connectedness to nature, academic major type and learning style. This study categorized student's academic major into whether it was oriented toward business/advertising or natural resources/agriculture. Understanding students' relationship with nature is important in a world that faces many environmental challenges. Studying academic major type and learning style provides references for chosen career paths and how students learn most efficiently. By running correlational analyses of these variables, more is understood about how connectedness to nature plays a role in students' academic choices and learning preferences. Results showed a significant correlation between students' score on the Nature Relatedness Scale and Academic Major Type. In particular, students orientated toward natural resources and agriculture displayed significantly higher scores on the Nature Relatedness Scale than those orientated toward business and advertising. This suggests that connectedness to nature is an indicator of how students assemble within the university. Future studies should look more thoroughly at connectedness to nature on the broad spectrum of academic majors.

I.   Introduction

It is important to understand what motivates people in the culture of academia. In this world that faces a multitude of environmental problems that stem from overconsumption and encroachment on natural habitats there is a need to assess the individual's connection to nature. Academic majors are very good indicators of student ideals and personality characteristics. It is important to look at how students perceive the world in relation to their dominant learning style. Learning styles are a good way to characterize a student's strengths and weaknesses in learning. By studying individuals' connectedness to nature, their learning styles and academic major, more will be understood about how these variables relate to one another. That is the goal of the present research, to examine how these variables interrelate.

II.   Literature Review

Academic majors are good indicators of personality characteristics. Pringle et. al. (2010) found that stereotypes and simplified thinking of job roles play a key part in how students choose a major. Arnoicky and Stroink (2011) displayed that majoring in an outdoor recreation major was predictive of both environmental behavior and environmental cooperation. Academic majors have been shown to be indicators of level of environmental concern. Ewert and Baker (2001) showed that students in British Columbia from different majors have significant fundamental differences in level of environmental concern. Furthermore, there is a correlation between lower pretest/posttest environmental scores among business students and higher scores among science students who were enrolled in an environmental education program (Ridener 1999). These findings provide a context for studying how different academic majors relate to the individual's connectedness to nature.

Connectedness to nature predicts love for animals, self-identification with nature, and preference for green products (Tam 2013). It has also been correlated with many indicators of well-being (Nisbet, Zelenski and Murphy, 2011). One study looked at anthropomorphism, which is the attribution of human characteristics to anything non-human. Anthropomorphism of nature is an indicator of conservation behavior (Tam, Lee and Chao, 2013). Anthropomorphic feeling toward animals is significantly correlated with supporting animal welfare (Butterfield, Hill and Lord, 2012). It is not a far stretch to theorize that since anthropomorphism of animals leads to pro-animal attitudes, that anthropomorphic feelings toward nature would lead to higher connectedness to nature. Looking at how learning style compares to academic major and connectedness to nature will help create a broader understanding of these topics.

Learning styles have been proven to be significant identifiers of variation in student's epistemological (i.e. theory of knowledge) beliefs. Tumkaya (2012) found that students with diverging learning styles consistently were in favor of epistemological beliefs that there is one unchanging truth and that learning depends on ability. In comparison, the assimilating converging and accommodating styles had no significance when compared to epistemological beliefs (Tumkaya, 2012). This is noteworthy as it shows that learning styles can indicate likelihood for variation in other attributes. A study by Muscat and Mollicone (2012) found among a sample of engineering students that about 60 percent of the students preferred learning from concrete experience as opposed to 10 percent from reflective observation, 13 percent through abstract conceptualization and 18 percent through active experimentation. This suggests that engineering students generally have a learning style that stresses learning through specific experiences and relating to other people. One study looked at the learning styles of students in a virtual classroom setting on the Bogotá Campus in Colombia. Findings showed that most

students had the diverging learning style which stresses observation and understanding from many different points of view. The design of the course was then evaluated and proven to give priority to the converging learning style (Agudelo, Urbina and Gutiérrez, 2010). This can be an example of how students' learning styles may not be reflected by their academic program and provides a basis as to why this needs to be further studied in academic settings.

The study being carried out will evaluate the learning style and connectedness to nature of students across a variety of academic majors at the University of Nebraska Lincoln. The first prediction is that students whose majors are more orientated toward science will display significantly higher scores on the Nature Relatedness (NR) scale while those whose majors are orientated toward business will display lower NR scores. This would be comparable to Ridener's (1999) findings that science majors display higher environmental awareness than business majors. The second prediction is that there will be no significant relationship between academic major and learning style from Kolb's Learning Style Inventory (LSI). This is because there is no evidence to suggest that learning style from the LSI is related to broad-spectrum academic majors. The third prediction is that there will be no significant relationship between NR scores and the four learning styles. This is also because there is a lack of research that has been done comparing these variables.

III.   Materials and Methods:

The NR Scale measures the affective, cognitive, and experiential aspects of a person's connectedness to nature (Nisbet, Zelenski and Murphy, 2009). This scale consists of 21 statements that are assessed on a Likert scale that ranges from 1 (disagree strongly) to 5 (agree strongly). Once the items are scored, the average of the 21 answers is the individual's NR score (Bruni, Schultz and Saunders). A score closer to 5 on the NR scale means a higher cognitive,

physical, and affective relationship with nature. The NR scale has the ability to detect a person's identification with nature, familiarity with nature, nature related worldview, and desire to be in nature (Nisbet, Zelenski and Murphy, 2009).

Kolb's Learning Style Inventory (LSI) is a tool that classifies individuals into different learning styles. Each statement has to do with aspects of how a person learns. It consists of twelve statements that an individual must rate from 1-4. The participant rates the four choices based on which is most like them (4) and which is least (1). The LSI is then scored and learning style is figured. There are four learning styles: diverging, assimilating, converging, and accommodating. The diverging style individual has developed stronger skills in concrete experience and reflective observation. The assimilating style shows strengths in abstract conceptualization and reflective observation. The accommodating style student learns better from concrete experience and active experimentation. And the converging style learner learns best using abstract conceptualization and active experimentation (Kolb, 2007). An individual can score far into one of these learning styles, be strongly correlated with two styles, or could be right in the middle displaying a balance of the four. A Chinese translated version of the LSI was administered to students in Hong Kong and found to be consistent and repeatable in the context of their higher education (Law and Meyer, 2010).

Flyers were distributed to students physically in a classroom and then via email. Most of the students who received the flyer in class did not go online to take the survey. Measures were taken to email students the survey link. The questionnaires consisted of demographic questions (including academic major), the Nature Relatedness Scale and Kolb's Learning Style Inventory. One hundred forty-two students combined from the majors of Advertising, Agronomy, Business, Environmental Studies, and Fisheries and Wildlife participated in the study. Results grouped

business and advertising majors together while the other natural resource majors were grouped together for comparison. Data was analyzed and critiqued using IBM SPSS software and Microsoft Excel software. Based on academic major, scores on the NR scale and outcomes of the LSI, data was analyzed.

IV.   Results

The step-wise regression for connectedness to nature showed that academic college (β = .63, p<.000), was a significant predictor of students' connectedness to nature (Table 1). This means that students in the College of Agriculture and Natural Resources had higher NR scores than did students in the combined Colleges of Business Administration and Journalism.

The step-wise regression also indicated that gender and learning style were not significantly linked to connectedness to nature. Correlation analysis indicated that learning style was also not related to academic college.

Table 1.

Step-wise Regression for Connectedness to Nature (N = 142, listwise deletion of missing data)

Variable:	B	SE B	B
Constant	2.466	.132	
Academic College	.923	.096	.631***

R^2 = 0.40; F = 92.642; ***p < .001

Excluded Variables: Gender, Learning Style (Accomodating, Assimilating, Divergent, Convergent)

Findings fall in line with what was hypothesized. Students who have majors orientated toward business/advertising have significantly lower scores on the NR Scale than students whose majors are more orientated toward natural resources and agriculture. These results are consistent with Ridener's findings that students more oriented toward science have higher environmental scores than business students (1999).

There was no significance to how students scored on Kolb's LSI and how they scored on the NR Scale. Although there have been studies that link certain academic majors (i.e. engineering) to learning style, there was no indication that any of these majors were significantly correlated with a particular learning style. There was also no significance in the gender of students and how they scored on the Kolb LSI or the NR scale.

V.   Discussion

Since there was not already evidence of a relationship between learning style and connectedness to nature, it is not surprising that there was no significant correlation between these two variables in this sample. It would be interesting to look into the whole spectrum of academic colleges or academic majors and how they relate to Connectedness to Nature.

It would be beneficial to try to understand further what the implications NR score have for job roles. Looking into the affective, cognitive and experiential breakdowns of the NR Scale would be useful in seeing where discrepancies may lie in differing academic majors. Future research should look into the spectrum of academic majors and gain more understanding of how the variables of connectedness to nature and academic major influence each other.

References

Agudelo, L. N. R., Urbina, V. S., & Gutiérrez, F. J. M. (2010). On-line learning styles based on the kolb model in virtual education. *Apertura: Revista de Innovación Educativa.*, *2*(1), 72-85.

Arnocky, S., & Stroink, M. L. (2011). Variation in environmentalism among university students: Majoring in outdoor recreation, parks, and tourism predicts environmental concerns and behaviors. *Journal of Environmental Education*, *42*(3), 137-151. Retrieved from Google Scholar.

Bruni, C. M., Schultz, P. W., & Saunders, C. (n.d.). *Conpsych measures: Measurement tools for environmental practioners - nature relatedness scale*. Retrieved from http://www.conpsychmeasures.com/CONPSYCHMeasures/Measures/NR/NR.html

Butterfield, M. E., Hill, S. E., & Lord, C. G. (2012). Mangy mutt or furry friend? Anthropomorphism promotes animal welfare. *Journal of experimental Social Psychology*, *48*(4), 957-960.

Ewert, A., & Baker, D. (2001). Standing for where you sit: An exploratory analysis of the relationship between academic major and environment beliefs. *Environment and Behavior*, *33*(5), 687. Retrieved from Academic Search Premier.

Kolb, D. A. (2007). *Kolb learning style inventory*. (LSI Workbook). Experience Based Learning Systems, Inc.

Law D. C. S. & Meyer, J. H. F. (2010). Adaptation and validation of the inventory of learning styles for quality assurance in a hong kong post-secondary education context. *Quality in Higher Education*, *16*(3), 269-283.

Muscat, M., & Mollicone, P. (2012). Using kolb's learning cycle to enhance the teaching and learning of mechanics of materials. *International Journal of Mechanical Engineering Education*, *40*(1), 66-78.

Nisbet, E. K., Zelenski, J. M., & Murphy, S. A. (2009). The nature relatedness scale: Linking individuals' connection with nature to environmental concern and behavior. . *Environment and Behavior*, *41*(5), 715-740.

Nisbet, E. K., Zelenski, J. M., & Murphy, S. A. (2011). Happiness is in our nature: Exploring nature relatedness as a contributor to subjective well-being. *Journal of Happiness Studies*, *12*(2), 303-312.

Pringle, C. D. (2010). Personality characteristics and choice of academic major: are traditional stereotypes obsolete?. *College Student Journal Publisher*, *44*(1), Retrieved from Google Scholar

Ridener, L. R. (1999). Effects of college major on ecological worldviews: A comparison of business, science, and other students. *Journal of Education for Business*, *75*(1), 15-21. Retrieved from Google Scholar.

Tam, K. P. (2013). Concepts and measures related to connection to nature: Similarities and differences. *journal of environmental psychology*, *34*, 64-78.

Tam, K. P., Lee, S. L., & Chao, M. M. (2013). Saving Mr. Nature: Anthropomorphism enhances connectedness to and protectiveness toward nature. . *Journal of experimental Social Psychology*, *49*(3), 514-521.

Tumkaya, S. (2012). The investigation of the epistemological beliefs of university students according to gender, grade, fields of study, academic success and their learning styles. *Educational Sciences: Theory and Practice*, *12*(1), 88-95.