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Digital Object Identifier: <http://dx.doi.org/10.13023/ETD.2016.006>

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Insights into Perspectives on Environmental Sustainability

THESIS

A thesis submitted in partial fulfillment of the
requirements for the degree of Master of Science in the
College of Agriculture, Food and Environment
at the University of Kentucky

By

Amber R. Shobe

Lexington, Kentucky

Director: Dr. Lorraine Garkovich, Professor of Community and Leadership Development

Lexington, Kentucky

2015

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ABSTRACT OF THESIS

Insights into Perspectives on Environmental Sustainability: A University of Kentucky Case Study

As scientists become more aware of the imposing threats associated with climate change, university leaders are encouraged to become familiar with the principles of sustainability. Abundant research already supports the relevance of environmental sustainability in higher education; however, there exists a gap in the literature which investigates an understanding of environmental sustainability and the implementation of its practices. By examining colleges at the University of Kentucky, this study identifies organizational barriers to recognizing a thorough understanding of environmental sustainability at the departmental level. The results indicate that out of the eight colleges selected, two have no existing environmental sustainability programs or initiatives. Based on this research it is possible for departments to initiate self-assessment and situate themselves firmly inside an institutional vision of sustainability.

KEYWORDS: Sustainability, Organizational Culture, Higher Education

Amber R. Shobe

October 8th, 2015

Insights into Perspectives on Environmental Sustainability:
A University of Kentucky Case Study

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ACKNOWLEDGEMENTS

This thesis is the culmination of two years spent in the department of Community and Leadership Development in the College of Agriculture, Food and Environment. Now, at the end of my graduate career I finally understand how my research experience fits into the unique cross section of organizational leadership and agricultural preservation. I grew tremendously during this process, both mentally and spiritually. I was led to utilize my undergraduate degree and teach English overseas, an experience I am all the richer for now. I could not have completed this thesis without the support of all my committee members. Thank you, for pushing me to create the absolute best demonstration of my work.

Dr. Rosalind Harris, thank you for serving as my advisor and mentor for the past two years. It is because of your example that I found the patience and perseverance needed to complete this research. You have shown me that there is in fact room for sensitivity both in and out of academia.

Dr. Lorraine Garkovich, thank you for serving as my thesis chair. You made yourself available to me during a time when I was very much in need of guidance. For that, I am forever grateful. I appreciate your ability to take what I am struggling to say and give it structure. You are a wealth of knowledge and experience to myself and so many others.

Dr. Lee Meyer, thank you for serving on my committee. You added breadth and depth to my research and motivated me to see the bigger picture. You also provided me with a richer understanding of methodology, of which I am truly grateful.

Dr. Alissa Rossi, thank you for serving on my committee. You instinctively understood where I wanted to go with my research, even before I did. You helped me to streamline my ideas and highlight the truly important concepts.

To my mom, thank you, thank you, thank you. You supported me throughout graduate school and motivated me daily to excel. You offered me the encouragement I needed, (particularly when I did not want to hear it, but needed to) and especially when I lost motivation. It is because of you that I am able to follow my dreams of creating a better world. You are my inspiration.

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Chapter I – Introduction

Introduction

In 2015, the topic of environmental sustainability has risen in popularity, often as a stimulating topic in mainstream culture. Populations are inundated with mass media reports and claims designed for those wishing to live a more sustainable lifestyle. Environmental sustainability is a term often used to cover a myriad of topics, however it is actually only one leg of a three pronged stool. This stool is used contextually, throughout this research to represent the Three E's of Sustainability: economy, equity, and environment. Specifically, this research examines environmental sustainability through the perspective lens of climate change, as it is arguably the most critical issue facing millennials today. Institutions having a foundation on which all three legs of sustainability are rightly aligned produce individuals with a holistic understanding of how the environment fits into almost every avenue of daily life. This research explores the eight largest colleges at University of Kentucky to determine if a relationship exists between the understanding of environmental sustainability and the implementation of it. By examining administrators' views of environmental sustainability through a series of interviews, organizational barriers are identified. Addressing these barriers ensures that the goals and actions of each college are aligned with the university's overall plan.

As climate change is arguably the biggest issue facing millennials today; universities cannot run from this fact. Unfortunately, much of the current environmental damage to the planet is irreversible. Scientists already know the outcome but cannot avoid it as climatologists have long since identified the threats associated with being a

coal dependent society. The short term effects are higher fuel rates and international policy crises. The long term effects however, are irreversible environmental damage resulting in planetary conditions not conducive for human life (The Tenth International Conference on Climate Change). In the simplest of terms, humanity is living on this planet as if there were another one to go to. The earth is 4.6 billion years old. Scaled to 46 years indicates that humans have been here for four hours. The industrial revolution began one minute ago. In that time humanity has destroyed more than 50% of the world's forests. This is not sustainable. Specifically, Americans comprise only about 5% of the world's population and annually produce 27% of the world's garbage (Scientific American, 2012). Comparatively, according to Boston College's Office of Sustainability the average college student produces 640 pounds of solid waste each year, including 500 disposable cups and 320 pounds of paper. The average college student also generates 142 pounds of food waste a year, according to Recycling Works, a program in Massachusetts. Additionally, college campuses as a group throw out a total of 22 million pounds of uneaten food each year, the Food Recovery Network has found. It is a small – but significant — piece of the 35 million tons of food discarded by Americans in 2012 alone, according to the latest estimate from the U.S. Environmental Protection Agency.

As a land grant institution, the University of Kentucky is afforded the resources and backing necessary to generate effective environmental sustainability efforts. By identifying the organizational barriers present within specific colleges outreach, research and instruction their efforts can be created and applied in a manner consistent with university goals.

The University of Kentucky

The history of the University of Kentucky's sustainability initiatives can be traced back to the original Environmental and Natural Resource Issues (ENRI) Task Force, established in 1994 and the Center for Sustainability Cities. The ENRI is part of the University of Kentucky Cooperative Extension Service. It exists to develop and implement environmental educational programs for all Kentuckians. Around the time of its inception it was comprised of faculty, staff and students interested in establishing environmental sustainability initiatives on campus. This group is credited with establishing the true foundation of sustainability at the University of Kentucky.

UK Green Thumb is an independent student organization founded in 1993. In 2005, students from Greenthumb met with President Todd and the Vice President for Finance Dick Seimer to discuss campus wide initiatives. This meeting resulted in the creation of the Sustainability Task Force. That Task Force made recommendations that led to the creation of the President's Sustainability Advisory Committee in 2008. PSAC then authored the Sustainability Policy Statement and successfully lobbied for the creation of the Office of Sustainability and a full time sustainability coordinator. The 2009-2014 Sustainability Strategic Plan was generated in an effort to make the University of Kentucky an "exemplar in the application of sustainability principles and practices" and to establish an institutional culture of sustainability (UK Strategic Plan 2009-2014). At present, many of the original objectives from the strategic plan have been accomplished. However, this research shows that the university goal of promoting an institutional culture of sustainability remains largely unchanged. Uncovering organizational barriers could help ensure that the goals and actions of each college are

aligned with the university's overall plan. In sum, this research analyzes the eight largest colleges at University of Kentucky to determine if a relationship exists between the understanding of environmental sustainability and the implementation of it by their administration. In the 20th century this commitment remains relevant but also in need of close analysis. With regard to the Three E's of Sustainability, this research identifies specific organizational barriers to implementing effective, environmental sustainability initiatives at the University of Kentucky.

According to the Association for the Advancement of Sustainability in Higher Education (AASHE) the University of Kentucky's Sustainability Tracking, Assessment & Rating System™ (STARS) is certified at the silver level. However, rating was expired for a period of three years before being reinstated. The non-involvement of the University of Kentucky by not maintaining participation for three years raises questions as to institutional commitment to action. STARS is a transparent, self-reporting framework for colleges and universities to measure sustainability performance. Stars ratings are given at the platinum gold, silver and bronze levels. It is the most thoroughly vetted and extensively tested international sustainability framework for colleges and universities. A STARS rating can indicate increased retention and graduation rates. According to AASHE, institutions with STARS ratings have 5% higher retention rates and 7% higher graduation rates than non-accredited institutions. Decisions made by the university such as regaining a STARS accreditation can positively affect the lives of future generations of students. With the latest advancements in technology within arm's reach, academics can discover new ways to teach the interconnectedness of all things. In doing so, students can begin to look at the world through the perspective lens of climate

change and equity extended into the future. Students can be encouraged to think critically about the palpable quality of the world they will leave behind and conceptualize how the actions of this generation will be adjudicated by future generations.

Approach to Methods

Currently, the University of Kentucky offers students few opportunities to learn about environmental sustainability in a formal context. Especially if the courses are not already included in the students designated disciplinary major. The data collected for this study are from interviews. Eight interviews were transcribed and then color coded by college. Responses from each college were listed under each interview question. The process of transcribing allows the researcher to become well acquainted with the data (Reissman, 1993). The researcher created Microsoft Word files for the interviews, observations, documents, journal entries and field notes. All files were stored in the researcher's external hard drive. The researcher utilized responses given to facilitate the process of coding. The data are not coded sentence by sentence or paragraph by paragraph, but coded for meaning.

At the University of Kentucky the eight largest colleges could be an excellent place to begin nurturing the links between an understanding of environmental sustainability and the implementation of its practices. By successfully eliminating organizational barriers to implementation it is possible to provide students and faculty with accurate information. This could also facilitate the same understanding throughout the rest of the university and by extension the community; making it easier to implement additional sustainability initiatives in the future. Currently, there are no environmental sustainability initiatives on campus that encourage cross college relations.

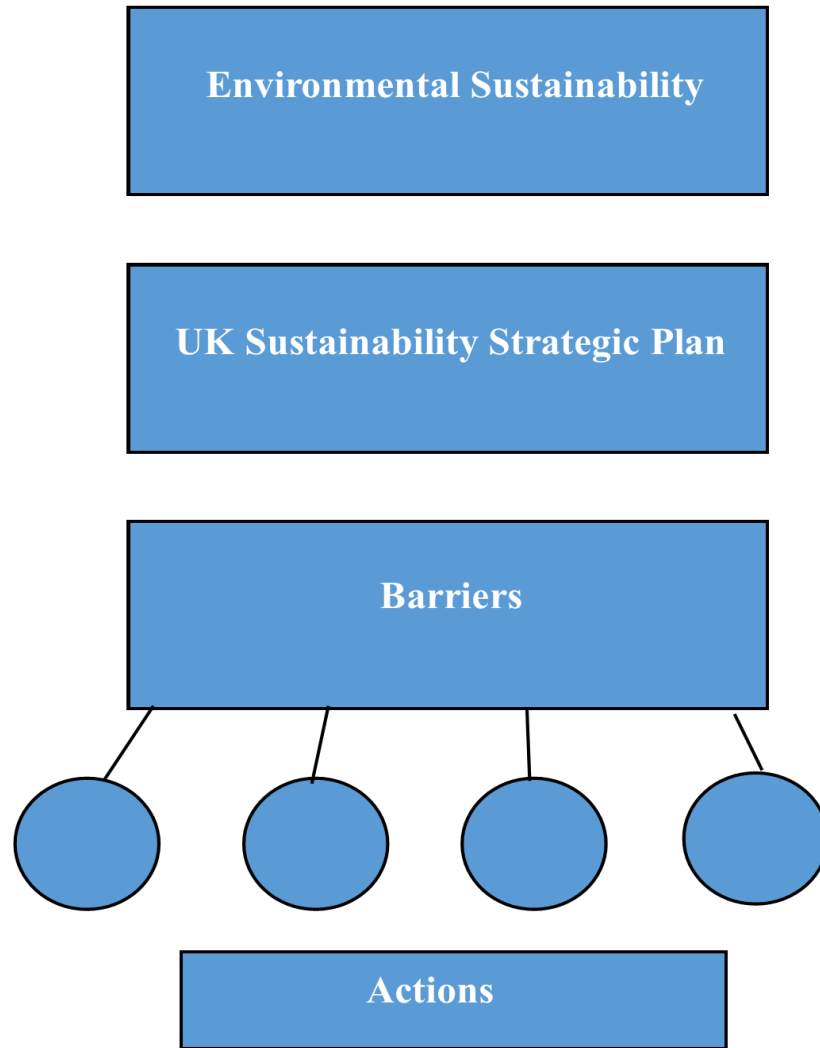


Figure 1.1: Barriers to Environmental Sustainability

This research follows a case study design where the data is analyzed case by case through thematic and later by cross-case analysis (Stake, 2006). Thus, interviews, observations, documents, journal entries and field notes were analyzed for each college. Following the case-by case analysis, all major themes were used to conduct the cross-case analysis. Themes salient across all cases were retained, as well as any outliers. For thematic analysis, the researcher followed Braun and Clarke's (2006) step-by-step guidelines. The guidelines are: familiarize yourself with your data, generate initial codes,

immerse in the data, review themes, define and name themes, and produce the report (Braun & Clark, 2006.) For this qualitative case study, the researcher followed the merging findings procedure. From the resulting data the researcher then analyzed and compared research, instruction and outreach efforts among the eight colleges. Finally, the researcher indicates specific opportunities for expansion and interdisciplinary collaboration.

Chapter II – Literature Review

Introduction

Universities have a significant impact on the environment. According to Inform, Inc. in 1992 universities across the United States generated roughly 3.7 million tons of waste, or about 2% of the US solid waste stream. Colleges and universities have the potential to serve as models of waste prevention for their communities as well as for students, faculty, and alumni. While colleges can work towards reducing waste, of particular significance are the perceptions students have about consumption before they reach college. It is important to understand an individuals' beliefs about consumption in relation to quality of life. This understanding can indicate whether or not the individual is likely to reevaluate undesirable patterns. Over the past 15 years, research conducted with Americans suggests that many individuals are deeply concerned about issues related to overconsumption (cf., Schor, 1999; Stafford, Taylor, & Houston, 2001). However, even so the American public is also traditionally characterized as deeply attached to nonessential or conspicuous consumption (Brooks, 2008). Thus, for many Americans the quantity of goods consumed on a daily basis can become indicative of fiscal achievement or deficiency.

Arbuthnot (2012) has stated that much of our consumption behavior is habitual. In our daily lives we use resources like water, energy, and fossil fuel (and produce the accompanying gaseous and solid wastes) without much thought (e.g., Ji & Wood, 2007). As behavior therapists can attest, shifting habits requires considerable effort and time, and this is most effectively accomplished one behavior at a time (e.g., Danner, Aarts, Papies, & de Vries, 2011; Webb, Sheeran, & Luszczynska, 2009). Public campaigns directed at generic consumption reduction are likely to have little impact on specific behaviors (e.g., Pelletier & Sharpe, 2008). In contrast, campaigns that select specific behavior-change targets, and address specific barriers to such change, are much more likely to be effective.

Akin to the gold rush of the 19th century academics have begun to value and migrate towards the concept of collegiate environmental sustainability. This has led to many universities revamping their curriculum as well as an influx in eco-friendly building design. Outside of academia the green movement is developing at a much more rapid pace. Companies are scrambling to hire sustainability coordinators, utilizing eco-friendly office supplies, and establishing recycling programs. Similar to how the lure of sudden wealth brought about rapid, uncontrolled population growth of California, the concept of creating permanent wealth is particularly appealing to big business; and as result of bureaucratic structuring, many universities function like big businesses, utilizing an internal network of communication. Therefore, it is now more likely that faculty developers work with a diverse cross-section of individuals within the university, i.e. provosts, deans and directors, and instructional designers. Specifically, a distinction between “green themes” and true environmental sustainability practices is especially

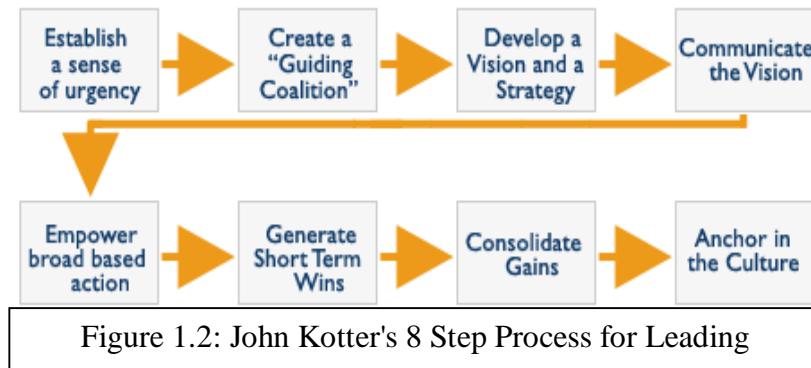
relevant for institutions of higher learning. Understanding this distinction can help implement positive behavior changes that benefit the environment. Tom Friedman has written “In the green revolution we’re having, everyone’s a winner, nobody has to give up anything... That’s not a revolution. That’s a party. We’re having a green party (Friedman, 2008, p. 251).” The terms “green” and sustainability are often used interchangeably. However, it essentially boils down to products versus processes. Friedman continues,

“For one thing, “green” is typically associated with individual products and processes that seek to “pick the low-hanging fruit... Sustainability, on the other hand, is radical- in the proverbial sense of “going to the roots” – and implies undertaking those necessary changes in our economic, social, and urban processes to achieve a dynamic, virtuous and balanced relationship with nature.”

True sustainability emphasizes the combination of both products and processes, balancing all three legs of the stool. Universities can create positive change directly through reduced consumption and instructional efforts. Reminiscent of Orr’s notion that not all education is “good” education, Breen address the question of what kind of ecological citizen’s universities are producing (Orr, 1994, p.5); primarily because it is not enough for universities to simply promote sustainability without tangible evidence of practice. Berea College in Kentucky is becoming an exemplar of sustainability and plans to reduce its energy consumption 45% by 2015. At Berea students are educated to solve human problems rather than use their knowledge as a means of gaining further advantage over those who are disadvantaged. Berea emphasizes engaged learning through initiatives

and programs that offer opportunities to connect faculty, staff, and students in major community environmental sustainability projects.

In a university setting, faculty developers can begin to implement effective environmental change by seeing themselves as leaders. This transition situates the role of faculty from the bottom, to the top of the institution. University faculty can now act as change agents and become familiar with models of organizational change (Taylor, 2005). Figure 1.2 illustrates John Kotter's (1996) eight step model of a transformational process.



The model may be particularly useful for university faculty in their role as change agents because it emphasizes that you do not need to be the manager to lead change. Figueredo and Tsarenko write, "In the context of universities, it has been suggested that "Any learning which does not lead to personal behavioral changes concerning abuse of environment is thus a failure" (Nicolaidis, 2006). Creating opportunities for students to actively participate in "greening" the campus is one way to nurture the connection between sustainable theory and practice. Service learning projects are another viable option. Either of these ought to increase student and faculty "connectedness" to institutional sustainability. Specifically, Kotter's eight step model of a transformational

process can be applied to universities focusing on environmental sustainability. Steps 1 through 4 can be considered foundational. Establishing a sense of urgency, creating a guiding coalition, and developing and communicating a vision and are all necessary steps to transforming the environmental organizational culture of a university. Steps 5 through 8 are primarily proactive. At an individual level, college administrators can rigorously empower broad based action, generate incentives, consolidate gains and anchor success within the university's organizational culture.

David Orr (1992), a well-known environmentalist also writes, "The crisis of the biospheres is symptomatic of a prior crisis of mind, perception, and heart. It is not so much a problem in education, but a problem of education." Universities have two options: either promote sustainable practices or promote actions that will devastate future generations. It is equally important that organizations do not stop with the formation of sustainable initiatives, for without implementation and monitoring the initiatives become useless. Orr (1992) adds, "Education is not widely regarded as a problem, although the lack of it is. The conventional wisdom holds that all education is good, and the more of it one has, the better....The truth is that without significant precautions, education can equip people merely to be more effective vandals of the Earth".

This is an interesting comparison. The idea that academics and leaders can also be vandals indicates the importance of not only acquiring environmental knowledge but the correct knowledge. It is through a precise understanding of environmental sustainability that scholars deviate from other "vandals of the earth". Likewise, some of the greatest environmentally sound minds attended universities that still uphold many practices contributing to climate change. For example, Wendell Berry, a famous Kentucky writer

withdrew many of his personal papers from the University of Kentucky archives to protest the name of the Wildcat Coal Lodge - a dorm for the University of Kentucky basketball team. Although Berry's rebuttals were met with some support from faculty and the Lexington community at large the name went unchanged. Berry's main argument was the naming of this dorm clearly undermined the atrocities experienced by many residents throughout eastern Kentucky. Despite having a sustainability strategic plan in place the university, like so many others, continues to glorify the chief industry responsible for contributing to climate change. Within many organizations an assured relationship between the understanding of sustainability and the implementation of it remains in the hands of the institution.

From a broader perspective, understanding the significance of how change is implemented within other industries can offer insight on how students and faculty can work together to create change. Specifically, in both academia and the healthcare industry there is evidence available in support of the notion that poverty and the environment are closely related. Fertile soil, a stable climate and fresh water are all needed to produce an uncontaminated food supply to developing regions around the world. The healthcare industry has long acknowledged that risks to population health due to environmental change have far reaching implications.

Scientists have concluded that we need to prevent atmospheric carbon dioxide concentrations exceeding 450-500ppm to avoid the serious, perhaps irreversible, damage to many natural systems and ecological processes (EPA, 2015). As such, stakeholders in healthcare and academia both have several reasons for implementing environmental sustainability. The first is an overall concern for human health and the environment. By

weaving information about environmental preservation into academic curriculum future generations will have the advantage of being well versed in the connection between human health and the environment. The second reason pertains to extending the life of fundamental equipment. Hospitals need hundreds of electronic monitoring systems to operate effectively; similarly universities require students to have unlimited access to a full range of multi-modal communication technologies. Energy Star designation promotes fiscal savings in both settings. The final reason is that engaging personnel in responsible consumption efforts produces more satisfied consumers, thus providing them with a competitive advantage. Patients benefit from and appreciate facilities reflect concern for the global environment; while universities apply a vested interest in sustainability as a marketing tool for incoming students. Therefore universities, like hospitals can ensure that responsible consumption is actually being implemented by executing environmental sustainability initiatives based on waste reduction, recycling and the incorporation of Energy Star products (EPA, 2015).

The trend of universities to move towards a corporate model only intensifies an already bureaucratic environment. Usually, faculty leaders rely heavily on administration/ incentives to create change, while administration insists that change should come from the local community placing pressure on the local government. All the while, government officials seem only to respond to concerns voiced by university leaders. This cyclical nature of reporting ideas in academia is frustrating for all involved, however it can be avoided. Finally, faculty members should not try to simply displace themselves from the issue of understanding and implementing environmental sustainability. Rather, the key lesson here is to increase collaboration among cohorts in order to implement behavior

change, ultimately breaking down the barriers to implementing environmental sustainability.

In sum, this review of literature offers a contextual understanding of the history of sustainability, as well as a working knowledge of the ambiguity of the term itself. The central themes reflected are faculty, administration, and student collaboration, campus-wide coordination and cooperation as essential to the structure of institutions for higher education. History illustrates that collegiate reform consistently evolves through various social, economic and political movements; and these movements affect the way that academics contextualize the work they do. The research will now demonstrate how moving from theory to practice becomes a central challenge for universities; offering numerous proposed solutions through data to dispute the perceived barriers to implementing a more engaging culture of sustainability on campus.

Chapter III - Methodology

Organizational Culture: Adapting a Theory

The University of Kentucky's hierarchy for decision making reflects a pyramid structure; with administration/stakeholders at the top, followed by faculty and university staff and finally students (University Senate Rules, 2015). Exploring environmental sustainability research, instruction and outreach efforts between colleges provides future researchers with the framework to develop additional initiatives and programs. The inclusion of which, will continue to benefit future generations of students. How an organization perceives itself determines its culture. Ultimately, organizational leaders can benefit from perceiving organizations as cultural entities. Making tough decisions

contributes to an organizations sense of purpose and identity. Additionally, it aids in understanding and reducing organizational barriers. On the other hand, understanding an organizations culture and barriers does not automatically alleviate all problems.

However, correctly interpreting an organization's culture can provide educated insight on specific changes to implement. By utilizing this framework and improving means of self-assessment, future scholars will be in a better position to change elements within an organization that oppose its culture. Further, this framework encourages effective and orderly change without creating unnecessary conflict (Tierney, 1988).

Although there is currently no precise definition of Organizational Culture in higher education available, it is well known that an organization's culture is reflected in what is done, how it is done, and who is involved in doing it. Organizational Culture concerns decisions, actions, and communication both on an instrumental and a symbolic level. Tierney, whose theory of organizational culture states that the leader of an institution must be committed to implementing effective change in order for it to work. Desired changes are reflected in an organizations' values and norms. Organizational culture, then, is the study of particular webs of significance within an organizational setting. That is, we look at an organization as a traditional anthropologist would study a particular village or clan (Tierney, 1988). This research argues that there is a difference between what an organization says they believe in and how they operate. When an institution truly values something it is integrated little by little into its environment, mission, socialization, information, strategy and leadership. It then becomes embedded in the organizational culture. Geertz gives context to defines culture,

"Man is an animal suspended in webs of significance he himself has spun. I take culture to be those webs, and the analysis of it to be therefore not an experimental science in search of law, but an interpretive one in search of meaning (Geertz, 1973)."

The way an organization perceives itself is reflected in its vested interests. Organizations define themselves based on how well they support those vested interests. Further, the culture of an organization is grounded in the shared assumptions of participating individuals. Therefore, support and effective collaboration among employees and stakeholders is often necessary. Administrators tend to recognize their organization's culture only when they have transgressed its bounds and severe conflicts or adverse relationships ensue. As a result, we frequently find ourselves dealing with organizational culture in an atmosphere of crisis management, instead of reasoned reflection and consensual change (Tierney, 1988). Isolated, these conflicts or adverse relationships become organizational barriers. Organizational barriers are diverse and can range from tangible materials to individual and group attitudes; often they can be widely held perceptions that are not based in reality. Organizational culture by nature resists change. A central goal of understanding organizational culture is to minimize organizational barriers and help foster the development of shared goals. This research argues that organizational barriers intervene in the understanding and implementation of environmental change. Additionally, the theory of organizational culture acknowledges that institutions are often fiscally attached to other industries; a significant issue as this often contributes to larger societal problems. Sentiments and ideas are attached to practices.

According to Greider and Garkovich (1994) “The basic assumption inherent in much of this research is that humans are now the primary cause of potentially catastrophic global environmental change. Thus, humans can solve the problem only through voluntary or forced behavioral change.” Engaging students, administration, and stakeholders in promoting a true campus culture of sustainability is the most vital component to disassembling organizational barriers. By utilizing organizational culture as a theory the researcher formulated specific interview questions. Each of the questions examines the college’s individual organizational culture to identify organizational barriers. The interview questions request responses in the following areas: student connection, decision making, distinct vision and a unique definition of environmental sustainability.

Once substantive organizational barriers to incorporating effective environmental sustainability at the University of Kentucky have been identified, an improved - holistic model for environmental sustainability could be created. Theoretically, the dean of every college has a vested interest in incorporating environmental sustainability; as it is part of the university’s overall mission. However, this may not always be the case. Questions investigating this were included as part of the interview. An effective way to measure how the largest colleges at the University of Kentucky are incorporating environmental sustainability is to take a close look at the initiatives and programs. College level initiatives allow faculty to meet students at their level of comprehension in regard to environmental sustainability. It is through activities (geared toward majors) that the University of Kentucky can best incorporate environmental sustainability. A close examination of how the largest colleges are

implementing environmental sustainability reveals where the universities objectives and the actions of departments do not line up. Using the theory of organizational culture it is possible to assess if a relationship exists between the understanding of sustainability and the implementation of it. A thorough understanding of organizational culture within an institution facilitates interdisciplinary solidarity on environmental issues.

A deeper discussion of theory within this research addresses the organizational culture that exists within individual colleges. Specifically, in order to discern how adverse relationships within a college fit into larger conflicts within an organization it is necessary to understand change behaviors. Change behaviors are ways to predict and modify the adoption and maintenance of current behaviors. This research investigates change behaviors based on the existence of environmental initiatives within a college and compares this to the subject's current working knowledge of environmental sustainability. From this, broad organizational barriers are identified. Addressing these barriers ensures that the goals and actions of each college are aligned with the university's overall plan.

Often, the natural environment as a symbolic social construction is reified by the sociocultural group (Fine, 1991). In other words, over time organizations begin to think that the commercial interactions with the environment cannot be changed. Within an institution the structure of belief is deeply embedded but it is done so implicitly that it becomes almost impossible to distinguish a person's self-definition from that of the institution. (Tierney, 1988). Incorporating environmental sustainability at the college or departmental level requires making conscious decisions and the ability to rethink what is done and how it is done in regard to the needs of the global environment. In this era, it is

important to understand what a dangerous position universities are in relative to human-environmental interactions. In recent years, the essential need for alternative fuel sources has surfaced thus, this research examines sustainability through the perspective lens of climate change. It is here that many universities are found, deep inside a paradoxical well. It is difficult to promote true sustainability, while also simultaneously supporting industries that inhibit progress. This is a poignant point for the University of Kentucky because it indicates a need to adopt a rationale, socially equitable view on the use of coal. Discovering the relationship between the understanding of environmental sustainability and the implementation of it at the college level could enable the university to address such controversial issues head on.

Organizational Culture, University of Kentucky

At the University of Kentucky a formal mechanism for fostering a campus wide understanding of environmental sustainability is certainly needed. Specifically, some respondents were particularly frustrated by the divisions and singular, self-serving nature of some colleges. They faced much opposition when trying to implement progressive, collaborative environmental sustainability efforts. A formal mechanism used to measure individual sustainability efforts could further identify organizational barriers; thus ensuring that the goals and actions of each department are aligned with the university's overall plan. This research examines the University of Kentucky's vision and goals for environmental sustainability and identifies specific organizational barriers to implementing it at the departmental level. A qualitative design was devised because it allowed the researcher to understand the in-depth, holistic process surrounding environmental sustainability on campus, rather than just statistical trends. A qualitative

research design assists in understanding individual meaning given the complexity of a situation. This design involved collecting data within the participant’s college, organizing themes from data, and interpreting the meaning and the complexity of a specific themes. Specifically, the researcher tracked sustainability initiatives and programs within the eight colleges selected for the study. The study population consisted of institutional public figures or faculty members at the University of Kentucky and were selected based on the role they play in their college. As academics and leaders, each of these individuals have a moral obligation and responsibility to raise awareness and promote environmentally responsible practices within their colleges (Table 1.1)

College	Participant*
Education	Administrator (P1)
Public Health	Adminstrator (P2)
Agriculture, Food, and Environment	Administrator (P3)
Engineering	Administrator (P4)
Design	Administrator (P5)
Arts & Sciences	Administrator (P6)
Medicine	Administrator (P7)
Business and Economics	Administrator (P8)
*Titles ommited to preserve anonymity	

Table 1.1: Participant Data Table

In the ever present battle to preserve the global environment it is often necessary to assess whether or not a relationship exists between the understanding of environmental sustainability and the implementation of it. Although the coal mining industry is considered the most valuable asset to Eastern Kentucky the process of mountaintop removal devastates the land and exposes residents to a plethora of health risks. This is an example of a stool with only one leg. Specifically, to combat this an open dialogue and an exchange of ideas could enable universities to monitor implementation. Thus promoting an individualized, program based approach to help students to understand all the ways in which they can help the environment.

For the University of Kentucky, incorporating environmental sustainability at the departmental level is a multi-dimensional process that requires cooperation and compliance in order to be successful. Vucetich and Nelson (2010) offer further insight into the various ethical and environmental definitions of sustainability, “One manifestation of this contention is the exclusive manner in which various academic quarters sometimes portray the nature of sustainability: Too many environmental scientists think sustainability is primarily about documenting and protecting eco-system health, whereas to many engineers think sustainability is primarily about efficiently meeting human needs” (Vucetich & Nelson, 2010).”. This is why it is necessary to engage students in open discussion and foster a holistic understanding of environmental sustainability.

In sum, by continuing to build on the primary principles of sustainability and dismantling the misconceptions associated with environmental sustainability universities can better equip future generation leaders for success. The University of Kentucky is in a

prime position to influence major change in promoting environmental sustainability on both a local and global scale. Academics are at best, innovators; offering solutions to unsolvable problems as well as a wide range of insight. It is important to promote environmental sustainability as mainstream issue on campus. Before this can occur it is necessary to address the environmental sustainability value-action gap present in the student body. Specifically, campus curricular activities promote a sense of “actively caring” about creating a more sustainable future in order to be effective. There exists a gap in the literature on campus environmental sustainability; as much of it focuses on establishing sustainability on college campuses and not on specific environmental initiatives and programs that have been successfully monitored and implemented. Nor does much research investigate the link between understanding and implementation.

Setting

This case study took place at the University of Kentucky in Lexington, Kentucky. It analyzes how the eight largest colleges at the University of Kentucky are facilitating the understanding of environmental sustainability and the implementation of it. There are 16 total colleges at the University of Kentucky. The researcher evaluates half of these; specifically those with the highest student enrollment. Personal, semi-structured interviews with qualified personnel in these eight colleges were conducted. The word ‘environment’ was purposely omitted from interview protocol in order to encourage breadth and depth in participant responses. The interview questions for this qualitative study were:

RQ1: How does your college define sustainability? How is it related to the university sustainability statement?

RQ2: As the Dean, what is your vision for sustainability?

- Does your college have any sustainability initiatives or programs in place?
- Does your college have a Sustainability Report? Specifically, what is tracked?
- Does your college have a specific sustainability strategy or goal?
- Aside from yourself, who is accountable and/or empowered to implement change?
- Do you have systems in place for incorporating sustainability in decision-making?
- Can students in your college articulate your point of view on sustainability?

The researcher initially contacted the dean of each selected college. If the dean was not available, the next qualified person (i.e. associate dean, academic coordinator, professor, etc.) was contacted. Interviews were conducted in the office of each participant and lasted approximately 30 minutes. During the interview the researcher recorded the audio, took detailed field notes and asked for verbal clarification when needed. The audio of each interview was recorded using a Sony digital voice recorder. The researcher was the only one with access to the data and secured the voice recorder and transcriptions when not in use.

Sample Population

This research utilized purposive sampling; this is a technique that involves deliberately selecting settings, people, or activities that provide information relevant to research goals and questions (Maxwell, 2004). The study population consisted of top administrators at the University of Kentucky and were selected based on the role they play within their college because as administrators they set priorities and allocate responsibilities to other immediate faculty. The researcher interviewed administrators from the eight colleges: College of Agriculture, Food and Environment, College of Arts & Sciences, College of

Business, College of Design (School of Interiors), College of Education, College of Engineering, College of Medicine, and finally the College of Public Health. Participant titles were purposefully omitted to maintain confidentiality. Various levels of maturity and understanding of sustainability were expressed among the participants. Knowledge expressed by participants on environmental sustainability is considered only to the extent which the administrator represents the entire college. Administrators have personal views and also views shaped by the organizational culture of the university. The study population often expressed personal views as well as views shaped by the organizational culture of the University of Kentucky.

Chapter IV – Findings

The overarching organizational barrier identified in this research is a lack of interest or knowledge of environmental sustainability. Reflecting back to the research question: Is there a relationship between the understanding of environmental sustainability and the implementation of it; the data reflect that of the eight colleges assessed, two have no existing environmental sustainability programs or initiatives and are making no strides to implement environmentally sound practices. The first interviews were conducted with participants from 1 (P1) the College of Education and 2 (P2) College of Public Health at the University of Kentucky. Both colleges exhibit the greatest lack of understanding and therefore implementation of environmentally sustainable practices. Specifically, the participant from the College of Education (P1) did not understand the meaning of sustainability. His responses to the interview questions reflected a fragmental, superficial conceptualization of the term. He spoke of the importance of maintaining the integrity of the buildings; for example the Taylor Education building is older structure and was

originally designed with plaster moldings. P1 explained how when he first came in it was suggested that because it was an older building all the ceilings should be dropped in order to give it a more up to date look. Here the participant was attempting to make a connection between sustainable development and the environment but could not. He also mentioned that the courtyards surrounding the college were being revitalized in order to provide students and faculty with a more enjoyable outside space. P1 also mentioned that the college considered reconstructing the corridors between buildings to include an atrium. However, this proposal was negated because it would have cost the college approximately \$30 million dollars. Again, what was intended to be an interview aimed toward understanding environmental sustainability initiatives and programs within the College of Education transformed into a discussion on how physically reconstructing the appearance of the college creates a more enjoyable atmosphere for students and administration. Not once during this interview were the three legs of sustainability mentioned. Therefore, the data reflect that there is a relationship between the understanding of sustainability and the implementation of it.

Moving forward, the data from the College of Public Health interview reflects a very minimal understanding of sustainability. The representative from this college views sustainability from a programmatic standpoint in the sense that the continued existence of the major is top priority. P2 expressed the difficulty of integrating environmentally sustainable practices in the face of such uncertainty. For the College of Public Health sustaining students as well as faculty trumps the goals set by the university. P2 expressed this survival mentality,

“We are just getting on board to get our first bachelors program approved. And we feel like that is going to be a huge sustainability effort for our college as we enter into this new budget model. For us to be here period we’re going to have to have more resources, sustain faculty, etc. Environmentally we haven’t been so focused on that, individual offices have... we are going paperless in Admissions. We are making some strides in that direction, faculty recruiting and appointment, what we do now instead of sending materials out via Fed Ex we package everything electronically at once and send it out. So we’re making headway into reducing our paper usage” (P2).

Departmental limitations imposed by University of Kentucky’s new budget model surfaced numerous times throughout the eight interviews. In this case, a new bachelors program cannot fiscally afford to implement environmentally sustainable practices, even with a basic understanding of the three pillars. This is where the University’s overall goals fail to align with the needs of the departments. However, some forms of implementation such as the creation of a departmental sustainability mission statement do not require the use of funds. This creates individualized parameters to guide growth. It is the colleges’ way of reflecting on environmental shortcomings and collectively devising a solution. Like the College of Education, long term goals such as going paperless and integrating environmental sustainability into the curriculum are also necessary. The failure of these colleges to establish a relationship between the understanding of sustainability and its implementation in everyday student life is the single greatest organizational barrier facing the University of Kentucky.

The data reflect an outstanding to moderate understanding of environmental sustainability within the remaining six colleges. Numerous environmentally based research, instruction and outreach efforts surfaced; thus supporting the existence of a relationship between the understanding and implementation of environmental sustainability. For example, the College of Agriculture, Food and Environment exemplifies the economic, environmental and social principles of sustainability. Through water, composting, and food research efforts the curriculum is centered on agricultural, nutritional, and environmental sustainability. Specifically, outreach efforts focus on food service, water quality and water quantity and reducing university carbon emissions. P3 was well versed on the three legs of sustainability and several responses reflected candid suggestions for areas of improvement,

“I think it’s interesting because the {university sustainability} statement says we will be an *exemplar* in the community. I’m not so sure we are with all things. We have a climate change... or climate action plan and I think we have had some food programs –Sustainable Ag has some food service food programs but I don’t know if it will continue. Composting food waste would be a good addition. We do some composting on our farms. We could encourage people to use china...In the buildings and at events. Facilities management has done a good job with water stations, the low flow toilets, energy efficiency (but they are doing studies on energy efficiency in those buildings) but in an old building like this it’s really, really hard” (P3).

Ultimately, she suggests that each college at the University of Kentucky should have a few sustainability ambassadors, or a people to designate the implementation of sustainability efforts. P3 states, “In a college as big as this, you’d have to have maybe some department people or maybe even people per building. Because think of all the things you have. So you have water you could look at, you have energy then you have events, is there a policy for events? Does every event have {to use} china only or {use} local food only...so those kinds of things.” The implementation of sustainability ambassadors at the college level enables the university to better address some of the tougher issues (i.e. waste, transportation, budget, etc.).

Fourth, the researcher a participant from the College of Engineering (P4). The data show that this college falls directly in line with the university goal of being an exemplar in sustainability. P4 was extremely knowledgeable on the current research, instruction and outreach efforts within the college. The College of Engineering invests research efforts primarily in energy, manufacturing, and sustainable processes, while instruction covers multiple areas related to sustainable development. P4 states “For four or five weeks I talk about life cycles, sustainability, how to make products and processes... how to make products toxic free, harmless and environmentally benign... they learn all of these things.” The College of Engineering is the only college included in this research with a specific sustainability plan, created by the Dean. This further supports the existence of a relationship between an understanding of environmental sustainability and the implementation of it. Sustainability outreach efforts within this college manifest in numerous ways, most notably in the Sustainability Manufacturing Forum. This is a forum in which academics, students and nationwide researchers showcase and promote

sustainability. The College of Engineering has been speaking loud in the field of sustainability for years and it seems they are finally gaining the attention of stakeholders.

Fifth, the researcher interviewed an individual from the School of Interiors from the College of Design. This research finds the College of Design the most unique in their approach to understanding and implementing environmental sustainability. The theory of design and/or architecture instinctively carries a notion of sustainability because physical structures typically exist considerably longer than the architects who constructed them. P5 states, “In the design profession there is an emphasis on (though it’s not exclusive to) the physical piece of sustainability because something like 85% of the resources in the world are spent on buildings. So it means that sustainability has to be at the forefront of what we do as educators, to help our students understand that.” The College of Design conducts sustainability research in interiors, architecture, and historic preservation. Instruction also covers product design and design history. Interestingly, outreach efforts also contain aspects of social equity. These implementation efforts are reflected in studio projects and through a remarkable initiative, House Boat Energy Efficiency Residency or HBEER. This is a project about reusing shipping containers in the houseboat industry. The idea is that there are a lot of houseboat factories and craftspeople in Kentucky and that the industry in a way, dried up with the economic recession. Therefore HBEER conceptualizes how to use the talents and abilities of those that know how to craft such beautiful things and turn their energy loose on something like a house. HBEER intellectualizes other forms this might take, independent of crafting a yacht for the incredibly wealthy. P5 continues,

“So far I have talked about the physical and social. Physical may extend to the environment, not only considering what resources are extracted to make a building but also thinking about the environmental aspect of having that building on line. How do people use it? What does it mean for people? Is it equitable in terms of the population of people who will be using it? Those sorts of things. And wants or needs... and sort of balance those worlds.”

HBEER is program that supports the talents of local Kentucky residents while also justly contributing to the social equity portion of sustainability. This type of implementation was very uncommon in this research and therefore, strictly unique to the College of Design. In response to RQ2 (can students in your college articulate your point of view on sustainability) P5 replied,

“...back to that accreditation thing-they have to. For us to be able to check that box off, it needs to show up in their work in some way. {The College of Design curriculum} includes 8 studios, architecture is 7. One each semester, at least half if not more (like 3 quarters) deal with sustainability in some aspect that’s put forth for that studio. So just thinking back to some of the projects from last year...or maybe it’s more interesting to think about the ones that are coming...one is a funeral home, one is a school, and the third one is a pavilion for a world’s fair. In third year, first semester explicitly in this accreditation there is a requirement on global culture and sustainability.”

Also to RQ2, P4 replied, “Not yet fully, but some students at senior level will take those classes. But it is engrained in the curriculum... They write papers and feel good about it, they go to conferences but it doesn’t get disseminated to the public.” Here, we can see a clear lack of correlation in understanding among the departments. When environmental sustainability is embedded into the curriculum all students are familiar with the pillars and principles of sustainability as well as the position the university has chosen to take on such topics.

Next, the researcher interviewed an administrator from the College of Arts and Sciences (P6). This college does an excellent job of fostering an understanding and implementation of environmental sustainability practices. P6 was extremely knowledgeable on the current research, instruction and outreach efforts within the College of Arts & Sciences; having piloted the university’s new Environmental and Sustainability Studies (ENSEA) major. The Environmental and Sustainability Studies B.A. Program (ENSEA) requires that students take ENS 395 (an independent study). In this course students create projects like solar panels for Patterson Office Tower, use wind energy to create electricity, or even experiment with native plants. The primary goal of this new major is to have students drive projects and actually use the physical world to turn the University of Kentucky campus into a living laboratory.

P6 discusses a number of highly publicized environmental sustainability issues, “So there is a vested interest for universities to be strong in areas related to sustainability. And like you say, it could be changing out the coal fired plants, it could be economic...it could be a farmers market... There’s so many different ways you can do it.” He also spoke highly

of the University of Kentucky's Sustainability Coordinator, "Though we have an advantage, we've got our office of sustainability and the coordinator- what a miracle it was that we made that position, and how lucky we are to have him- we've got so many people here who are loyal to Kentucky." Expanding on those same principles the interview discussion moved toward an exploration on the cost of coal in Kentucky. The interviewee expressed a considerable amount of knowledge on the topic, "

"UK does 40,000 lbs. of coal per hour. 175,000 tons per year, that generates 36 pounds of mercury per year and 2,631 lbs. of arsenic (that's the hidden danger) and it's blowing straight downtown from coal fired power plants."

Here the data illustrate a symbiotic relationship between the understanding of environmental sustainability and the implementation of it. Sustainability improvements in the College of Arts and Sciences manifest in the creation of new programs and initiatives, like the ENSEA major. Finally, P6 expressed immense gratitude toward the Dean in his support of the ENSEA major. "This Environmental Program would not have existed without his fight, because it was a bloodbath trying to get it through. I wrote it in about 3 months, spent day and night. And it took me 2 years to fight it through the approval process with everybody taking shots at it."

Next, the researcher interviewed a participant from the College of Medicine (P7). This college largely falls in line with the university goal of being an exemplar. P7 alluded to the irony of sustainability in medicine by indicating that as long as there is disease there is sustainability. P7 stated, "The ironic thing is if we cure everything we would undo

ourselves.” The College of Medicine conducts sustainability research medicinally and clinically. The college has gone completely paperless; lectures, exams, and notes are all available online or via PowerPoint. The rationale for which was explained, “You can’t keep a textbook up to date, especially medicine textbooks. So they are becoming obsolete.” this age, disease and infection are ever-resistant to bacteria; doctors go in to check on a patient (for any reason) and have to completely discard every gown each time. Interestingly, P7 also notes, “ties for example are the worst possible garment {thing} for doctors or surgeons to wear solely because they hoard bacteria.” Here is a small example of how the university can resist even the smallest changes that go against societal norms. This led us to the conclusion that environmental sustainability will inexorably affect the style and [trend] of doctor clothing in the future. Leading by example, doctors and clinicians at the University of Kentucky have an opportunity to advance the understanding and implementation of environmental sustainability in the healthcare industry.

Finally, the researcher interviewed an individual from the College of Business (P8). This college falls justifiably in line with facilitating the understanding and implementation of environmental sustainability. Initially, the representative from this college was a bit unfamiliar with contextualizing sustainability independent of economy. P8 responded, “The general idea is that you are building an organization or a system that has the ability to function on its own for a long time. A notion of efficiency is there as well as a wise use of all of our resources.” Sustainability is embedded into the curriculum, as it relates to how businesses operate. The College of Business is also in the process of developing a major for specialized corporate strategic sustainability, which will exist in the context of social enterprise. This major will also provide courses on developing and operating organizations

that exist to solve a social issue but at the same time generate a profit. A departmental barrier that surfaced from this interview is that there are no explicit sustainability research efforts currently in existence within the college; thus highlighting at least one direct opportunity for improvement.

Chapter V - Conclusions and Recommendations for UK

To conclude, the resulting data found strong evidence of a relationship between the understanding of environmental sustainability and the implementation of it. The evidence of which is found in the various levels of maturity and understanding expresses among University of Kentucky college administrators. Throughout the interviews four organizational barriers were consistently present: lack of knowledge or concern, lack of funds, lack of communication, and lack of collaboration among the departments. Using the theory of Organizational Culture it is possible to discern the difference between what an organization says they believe in and how they actually operate. Using this theory it is possible to begin fostering a relationship between the understanding of sustainability and the implementation of it at a departmental level. The data show environmental sustainability is incorporated at the college level through curriculum development as well as college processes and structure. Ultimately, enforcing the relationship between the understanding of environmental sustainability and the implementation of its practices can bridge operation, academic and administrative efforts at the University of Kentucky.

Discussion and Limitations

This study found that a lack of interest or knowledge of environmental sustainability from participants does affect the individual's understanding of sustainability. If an individual understands the Three Pillars of Sustainability then they are more likely to implement environmentally sustainable practices. Currently, of the eight colleges assessed, two have no existing sustainability programs or initiatives. Further, these colleges can be seen as the University of Kentucky's chief organizational barriers to achieving sustainability goals. In order to aid in the development of environmental sustainability the researcher proposes that short fact based materials on environmental sustainability be disseminated throughout the College of Education. UK Greenthumb group is an excellent resource in which this process could germinate. The remaining six colleges showed remarkable environmental sustainability research, instruction, and outreach efforts. The desire for collaborative efforts among all eight colleges was expressed; however, the ideal opportunity for such collaboration has not yet been realized. The data show diversity in understanding, planning, and implementation of environmental sustainability. Based on the four organizational barriers presented in this research it is possible to begin devising a formal mechanism for the colleges to self-assess and situate themselves firmly within the University of Kentucky's overall vision for sustainability. The researcher acknowledges the number of colleges assessed as a limitation of this study. The University of Kentucky has 16 total colleges; this research analyzes 8. Additionally, participant responses are based on personal experiences and are uniquely shaped based on organizational culture.

Recommendations for Future Research

This research enables those within and outside of higher education to understand that there are complexities around moving from goals to implementation. Additionally, this research contributes to the existing pool of environmental sustainability and organizational culture literature. Finally, it contributes to higher education concepts of adaptation and cultural advancement. Within any institution there are vested interests that struggle amongst themselves to manage organizational outcomes. Moving forward, the researcher proposes that short fact based materials on environmental sustainability be disseminated throughout the College of Education. Additionally, the creation of a distinct sustainability mission statement in the College of Public Health might create parameters to guide growth. The researcher acknowledges that this research is limited in that the data only assess the understanding and implementation of programs and initiatives. Further research is needed in order to assess the viability of implementing environmental sustainability initiatives at the college level.

The University of Kentucky recognizes that in its mission to improve the lives of Kentuckians, its greatest challenge in our time is to engage the University community to create policies and programs that will simultaneously advance economic vitality, ecological integrity and social equity, now and into the future. As such, it calls upon all levels and constituencies of the University to participate in a continuous and on-going effort to institute the teaching, research, and practice of sustainability and to establish an institutional culture of sustainability (University of Kentucky Sustainability Statement).

As other universities begin to compete to shrink their mark on the environment, the need for social equity will only become greater; and the difficulty in maintaining the three legs of sustainability will become more apparent. In regard to the greening of America's campuses, Timothy Egan of the New York Times has written, "It's one thing to put up a trophy of recycled glass and brick that relies on the sun, the wind or other renewable resources for power. It's another to build a curriculum – and get students to look at the world differently..." Naturally, campus sustainability stemmed from academics who saw the value of environmental sustainability and worked hard toward creating a campus culture dedicated to protecting its principles. Further, Corvalan and Wals (2004) assert the importance of implementing environmental sustainability initiatives in universities,

"Never has the opportunity to create the foundation for a sustainable future been greater. Higher education can play a pivotal role in turning society toward sustainability. We must rediscover and teach indigenous and ancient truths, generate new concepts and ways of thinking, and we must inspire students with a hopeful vision (Corcoran and Walls 2004)."

Rediscovering indigenous truths could refer to such concepts as "earthing"; or as it is more commonly known, "grounding". The theory of grounding is a simple, yet profound concept that could revolutionize healthcare. The basic idea behind earthing is that connecting ones bare skin to the earth has a number of medicinal benefits; because the earth itself possesses a negative charge, by contacting it humans can receive physically restorative benefits by way of electrons. When people are in physical pain they tend to look more closely at their options for relief, especially when modern medicine has failed them.

Ergo, the 2012 independent film Grounded, in which Clint Ober and his colleagues conduct research on the principles of grounding. The film surveys 15 years of scientific studies conducted in Haines, Alaska, population 1,700. All of the studies conducted support the theory of grounding. The theory is also endorsed by public figures such as Charlie Duke, the 10th man to walk on the moon (April 16, 1972) and David Suzuki one of the most well-known, eminent ecologists of our age. However, even with such solid backing modern medicine remains unwilling to recognize earthing as a legitimate medicinal practice. Ober and his colleagues have also published over a dozen peer-reviewed studies on the effects of grounding on human physiology. Thought to be one of the most significant discoveries of all time, grounding has the potential to heal the world. Sceptics attempting to debunk the science behind grounding, cite the research as “purely anecdotal”; therefore it requires the support of university researchers and scientists within the context of environmental sustainability. Thus, providing an opportunity to engage students and collaborate on research.

History teaches us that innovative, forward thinking often faces much scrutiny. However, it is vital to future generations that millennials understand the imminent impact of environmental sustainability on mankind. A notion perhaps best expressed in this anonymous quotation, “We do not inherit the earth from our ancestors; we borrow it from our children.”

APPENDIX A: IRB EXEMPTION CERTIFICATION FORM

SUBJECT: Exemption Certification for Protocol No. 14-0517-X4B

DATE: July 31, 2014

On July 30, 2014, it was determined that your project entitled, *Helping UK Green-Up*, meets federal criteria to qualify as an exempt study.

Because the study has been certified as exempt, you will not be required to complete continuation or final review reports. However, it is your responsibility to notify the IRB prior to making any changes to the study. Please note that changes made to an exempt protocol may disqualify it from exempt status and may require an expedited or full review.

The Office of Research Integrity will hold your exemption application for six years. Before the end of the sixth year, you will be notified that your file will be closed and the application destroyed. If your project is still ongoing, you will need to contact the Office of Research Integrity upon receipt of that letter and follow the instructions for completing a new exemption application. It is, therefore, important that you keep your address current with the Office of Research Integrity.

For information describing investigator responsibilities after obtaining IRB approval, download and read the document "PI Guidance to Responsibilities, Qualifications, Records and Documentation of Human Subjects Research" from the Office of Research Integrity's IRB Survival Handbook web page [<http://www.research.uky.edu/ori/IRB-Survival-Handbook.html#PIresponsibilities>]. Additional information regarding IRB review, federal regulations, and institutional policies may be found through ORI's web site [<http://www.research.uky.edu/ori>]. If you have questions, need additional information, or would like a paper copy of the above mentioned document, contact the Office of Research Integrity at (859) 257-9428.

APPENDIX B: INTERVIEW QUESTIONS

1. How does your college define sustainability? How is it related to the university sustainability statement?
2. As the Dean, what is your vision for sustainability?
3. Does your college have any sustainability initiatives or programs in place?
4. Does your college have a Sustainability Report? Specifically, what is tracked?
5. Does your college have a specific sustainability strategy or goal?
6. Aside from yourself, who is accountable and/or empowered to implement change?
7. Do you have systems in place for incorporating sustainability in decision-making?
8. Can students in your college articulate your point of view on sustainability?

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