Assessing Knowledge on the Benefits Found in the Moringa Tree among Cultures of India, Pacific Islands, Sub-Saharan Africa, and the Caribbean

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Bio:

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Abstract:

The Moringa Oleifera tree has a well-established reputation throughout the world as a multipurpose tree species (MPT; Anele et al., 2008), most notably within the cultural and geographical regions of India where the Moringa tree originated. All the beneficial properties found in the Moringa tree fall into one of three categories: medicinal, nutritional, and functional. Nutritive and medicinal usages are the most common applications. This study focuses on comparing common knowledge of the benefits of the Moringa tree among cultures of India, Pacific Islands, Sub-Saharan Africa, and the Caribbean. I am seeking to establish the frequencies of use or lack of use among the participants in this case control study. I am especially interested in the functional use of the Moringa tree as a water purifier. I will assess the awareness of the flocculating properties found in the Moringa seed powder, and the intra-cultural variation and perception of the uses of the tree (Nazarea, Rhoades, Bontoyan, & Flora, 1998).

Introduction

What makes a lifestyle habit, behavior, or practice sustainable? What makes someone purchase the fair-trade coffee instead of the Folgers brand that is on sale two for one? Kermit the Frog once said, “It’s not easy being green,” but little did he know how fashionable being green would become. Environmental ethical behavior has come to be a new presence in the mind of today’s consumer. The Moringa tree, the subject of my research, has the potential for becoming a major commodity crop in the United States as it is now in Nicaragua. Ethically we have to ask ourselves to what extent and at what cost? Rolston’s notion of the “storied residence” can help to urge environmental ethicists to make the postmodern turn. And complementary to the “storied residence” is Alasdair MacIntyre’s insistence upon the central importance of narrative to ethical thought (Hinchman & Hinchman, 1997). My need to be as concise as possible with my findings and to do what I can to make sure every action is ethical was the basis for choosing the narrative approach in presenting my project.

I work for the water treatment industry. One day while sitting in the front lobby waiting for my coworkers to get ready to go to lunch, I passed the time by picking up a WET magazine, a periodical that caters to the municipal water treatment industry. The article that caught my interest was a short update on an ongoing field study that is currently being conducted by the University of Idaho. The field study was designed to test a portable water filtration system that works with the use of powdered Moringa seed as a natural flocculent for turbid water. The goal of this study was to provide a practical and sustainable technology that would enable the Maasai tribe in Africa to preserve their nomadic lifestyle in an environment were water scarcity has directly affected tribal mobility.

There were two aspects of this article that stuck in my mind. First, the studies were being conducted through the University of Idaho. I have family there. I lived there for my 6th grade year and have fond memories of that time. Secondly, the company I work for often tests bio-remedial products such as dispersants, coagulants, and flocculants. So the idea of an environmentally friendly and sustainable source for flocculants proved to be of much interest to me. This grain of knowledge was stowed away into my memory warehouse until I found an opportunity to use it. Unbeknownst to me, this grain would be the first step to my anthropological research, finding a topic of interest. As an undergraduate within the discipline of geography, I auspiciously ended up in an introductory anthropology class where I learned about the National Science Foundation summer program in anthropological research methods. Immediately, I recognized the opportunity as the second step, gaining access to delve deeper into my newfound interest.

Description of Research

My first order of business was to narrow my interest down to a specific question that would constitute a good starting point and lead to possible future research. I felt that if I were going to produce a paper and poster by the end of this summer, it would be doubly beneficial if I could expand the subject into a possible master's thesis when I cross that bridge. I knew that my specific question had to be one that would have the best potential for establishing a need for further study. My first inclination was to compile information on the useful benefits of the Moringa tree in order to increase the perception of commodity value in the world market. Fortunately for me, I was steered clear of attempting that by several faculty due to time constraints.

I was instructed to go broader with the scope of my research. With some deliberation and methodical brainstorming of many professors within the Department of Geography, it was decided that I would compare the salient or common knowledge about the Moringa tree between those persons from countries where the Moringa tree grows and those persons from countries that the Moringa tree does not grow. My goal was to gather data from 30 people of international origin from countries where the Moringa tree grows and compare it to data from 30 people from countries that had no ties to the Moringa tree. Unfortunately, I could only find 14 people to be in my test group of people from countries with the Moringa tree and only 10 people in my control groups of people from countries without the tree. My total number of surveyed participants of the test group and control group was only 24. Despite the small sample size, there were several patterns within the data that would provide a good starting point for a discussion of knowledge of the tree's beneficial properties.

Context of Work

Trying to incorporate concepts from the discipline of geography, I saw early on that my project definitely has a connection to the idea of geographical luck. My first introduction to this concept was through an excerpt in Jared Diamond's book *Guns, Germs, and Steel*. He wrote of an incident where a local named Yali asked him, "Why do White men have so much cargo and we New Guineans have so little?" (Diamond, 1999). *Cargo* is the term New Guineans use to refer to manufactured goods. Diamond was perplexed at the simplicity of the question and throughout his book he attempts to address it. His conclusion to explain why civilizations around the world differ greatly from one another in degrees of affluence was not that any one culture or race had genetic superiority over another culture or race. Although this was the consensus of earlier colonizers, Diamond could not accept it. Instead, he theorized that the one factor that

directly affects how affluent a people may become is geographical luck. In other words, an established civilization in a geographical location that provides all the right components, such as ample vegetation, adequate precipitation, fertile soil, biodiversity, animals of burden for farming, and storable grain crops, or any of those raw resources that humans can put to use with human ingenuity, would tilt the scale in the favor of one civilization over another that did not have these advantages..

After my discovery of the Moringa tree, I had traveled to the Philippines where the Moringa tree grows, but goes by the name Mulangi. I had also traveled to Hawaii where the Moringa tree also grows. When in those places I had to wonder why the Moringa was primarily used for food in the Philippines but seemed only to be an ornamental plant in Hawaii. Each place was graced with the geographical luck to have a multi-purpose tree species (MPTS; Anele et al., 2008) growing on location that could offer many beneficial uses, and yet the tree was underutilized. Jared Diamond had been criticized for his oversimplified view of geographical luck, not taking into consideration the effects of the human condition, culture, religion, or government, and how those things contribute to the advancing of civilization. If I could ask Dr. Diamond a question it would be: “With all the many benefits of the Moringa tree, why do those cultures geographically lucky enough to have access to Moringa not take full advantage of all the trees’ benefits?” I have written Dr. Diamond and asked him that question but I have yet to get a response from him and so I am left to my own faculties to figure out the answer to my own question.

Research Design

I got the idea of using a system of photographic recognition from the research design in the article “Defining Indicators Which Make Sense to Local People: Intra-Cultural Variation in

Perceptions of Natural Resources" (Nazarea et al., 1998). The researchers used the Thematic Apperception Test, or TAT, in their research. Introduced by Henry Murray (1943) in the 1930s, the TAT is used as a projective technique geared toward personality description and psychological assessment. A modification of this method was designed to collect stories and perceptions of the environment based on gender, age, and ethnicity. In the modified version, photographs were shown to participants and the participants are asked to tell a story about what the picture meant to them. This was how I came to include picture recognition in the design of my free-listing binder that I provided for the respondents. One concern early on in my design development was the fact that I was testing for salience or common knowledge of a tree that does not exist in Texas. I felt photo recognition was the best tool available to me as acquiring an actual Moringa tree was not possible. In constructing the photographic portion of my binder, I not only included pictures of the Moringa Oleifera tree, but also took care to include pictures of the many stages of growth in the tree's lifecycle—pictures of full height, shrub form, leaf configuration, root systems, flowers, pods, fresh and dried seed images. Many of the images were available through the Website of the Trees for Life Organization.

The next section of my free-listing binder pertained to name recognition. I chose to add this element because of the lesson taught in the potato story. The potato story tells of a person who has eaten, purchased, prepared potatoes often enough to know a potato when he or she saw one. However, when that person decided to grow potatoes he or she could not understand why the healthy and leafy plant they grew had no potatoes hanging from its branches! There is a big difference between recognizing a potato plant and a box of Hungry Jack potato flakes. Therefore, I thought that it was likely that Moringa products may only be recognizable to a person who is from urban surroundings in the form of something in a jar. This is why I felt name recognition

should be included in my binder. Initially I had the species name page precede the common name page to follow suit taxonomically. With additional feedback from Dr. Beverly Davenport, I was convinced to switch the order, placing common name section before species name section. This was good advice as it helped to streamline the exercise by saving the participant from attempting recognition in three parts rather than two.

The second half of my research design incorporates data gathered by free-listing methods. I asked the participants to list all the possible uses that they are aware of for the Moringa tree. I was influenced in the use of this method by the research methods used in *From the Bush: The Front Line of Health Care in a Caribbean Village* (Quinlan, 2004). I chose the free-listing methods for three reasons. Logistically it would free me from the complications of transcriptions; it was a portable, low-tech design; and I felt that a participant would be more willing to participate if the exercise did not demand too much time. What I tried to accomplish in the combination of the two methods of photographic/name recognition and free-listing was a way to qualify frequency or lack of frequency in the type of benefits listed by participants that would yield possible patterns in perception variation. By asking carefully framed questions for the free-listing portion instead of a large number of questions, I hoped that less would reveal more.

Results

Data were collected from the control group of 10 persons from regions where the Moringa tree did not exist. Of the 10, there was only 1 picture recognition. This I attributed to the discovery that the one participant is well traveled and recognized the tree shown to her within the free-listing binder; she named the tree as the Jacinto tree, which is the common name for the Moringa tree in Panama. In spite of positive recognition of the tree, she was unable to list any of

its known benefits. Other than this one participant, no one else in the control group recognized the tree or had any knowledge pertaining to any benefits of the Moringa tree. This outcome was as I expected.

Data collection with the test-group participants yielded results that are far more interesting. The breakdown of represented cultures that made up the 14 were as follows: 1 from Jamaica, representative of the Caribbean; 1 from Vietnam and 2 from the Philippines, representative of the South Pacific and Pacific Islands; 1 participant from Ghana, 1 from Kenya, 1 from Nigeria, and 1 from Zimbabwe, representing Sub-Saharan Africa; and, lastly, 6 participants from India. I collected a grand total of 14 participants for my test group. Of the 14, there were only 2 respondents in my test group who failed to have any recognition. I admit it was a surprise for me that there was not 100% recognition.

I estimated the time needed for the free-listing exercises at no more than 20 minutes per person. Twenty-four people multiplied by 20 minutes each would put time spent for data collection at 8 hours. Needless to say, 8 hours was extremely conservative compared to the actual time spent. The major reason for the length of time for this exercise was a reciprocated genuine interest on the subject of the Moringa in both the control group and test group that lengthened time spent with each participant by at least 1 hour. I believe this is a positive response to the need for greater awareness about the useful benefits of the Moringa tree. I examined intra-cultural variations and perceptions found among the participants within each cultural group beginning with Pacific Island participants. Of the 2 participants from countries where the tree grows who did not recognize the tree, 1 was from the participant from Vietnam. I noted that she was surprised that she did not identify the name for Moringa tree in Vietnamese called Ch`um Ngay. She then asked me how I knew the other participants were not lying about knowing this

tree. I am not sure if she was embarrassed by not knowing the tree but her question was a valid one. Until that moment, I took for granted that everyone would be telling the truth. One possible explanation for her not identifying the tree is that she grew up in the city, and so, may not have been exposed to the Moringa tree. The 2 participants from the Philippines both made positive identifications and both grew up in the country. Both had knowledge of nutritive benefits and medicinal benefits of the tree. Yunju, 1 of the 2 participants from the Philippines, was the only 1 of all 14 that listed the functional water purification use of the Moringa tree. One out of 14 indicates the need for promotion of greater awareness of the tree's benefits. Free-lists gathered from Jamaica yielded a positive photo identity and a new common name, as the name she gave was not on my list of common names for Moringa in Jamaica. She listed the tree by the common name of wild bean tree. Her listing did not include any mention of nutritive or medicinal uses. She listed functional use in agriculture for "mulching." I asked her to explain mulching as I immediately thought of composting. She said that branches stripped from the trees are laid over newly planted crops to shade the soil from intensive heat in the manner of a ground cover. The Sub-Saharan Africa free-lists gathered brought to light a pattern of strong cultural relativity. All 4 participants from Ghana, Kenya, Nigeria, and Zimbabwe had positive picture recognition. Participants from Ghana and Kenya listed species recognition instead of the common name. However, the exciting find is that all 4 participants listed benefits of the Moringa as a source of shade and animal fodder and fuel for burning. This pattern demanded further examination. I found within the article "Early growth and seasonal chemical composition of three indigenous multipurpose tree species (MPTS) in Abeokuta, Nigeria" (Anele et al., 2008) reports of extensive studies measuring leaf content during drought season in 3 different MPTS. The purpose of this study was to assess which of the three tree species (*M. oleiferia, M. griffoniana,* or *P.*

santalinoides) would perform best as an animal fodder alternative that could be used to as a supplement during the dry season when all grazing grasses become sparse. This finding shows the value placed on livestock as a source of food in pastoral cultures. Nowhere in the article was the nutritive value of the tree for humans mentioned, which at least 1 of the trees possess—Moringa Oleifera. It is possible that in Sub-Saharan Africa, shade and food for animals takes precedence over human vegetative consumption. This would be my first guess as to why this pattern surfaced. Hopefully, with further study and a larger sample of participants from Sub-Saharan Africa, my speculation may be supported in an extended study of knowledge assessment of the Moringa tree.

One of the 6 participants from India was the other non-recognition participant in the test group. My guess would be that he was the youngest of the participants and that may explain the negative recognition. The source of many of the participants' knowledge stems from enculturation of the uses of benefits passed down generationally. Being the youngest placed this participant at the bottom of the knowledge heap. The other 5 participants listed a combination of nutritive and medicinal uses. The second interesting finding occurred within the Indian participant group; of the 6 Indian participants, 66% listed one of the benefits as increased semen production in men. This was more than half of this group. This particular benefit was not listed by any other cultural group and, thus, was grounds for a possible variation of cultural perception.

Among South Pacific and Pacific Island participants, 33% did not recognize the tree, 66% listed nutritional benefits and half of the 66% also listed functional water benefits. Among Caribbean participants, 100% listed functional nonwater benefits. Among Sub-Saharan participants, 100% listed functional nonwater benefits, and 25% of the 100% also listed medicinal benefits. Among the Indians, 16% did not recognize the tree; of those who did

recognize the tree, 83% listed a combination of nutritive and medicinal uses. Of the 83%, 80% listed semen production specifically in the medicinal category. My last speculation to explain the perception of my Indian participants and this is just shooting from the hip. The benefit in question is of the context pertaining to male virility. Semen production or the treatment for erectile dysfunction can be associated with procreation. However, two precedents that exist that make me think of reasons other than procreation. First, India is the home of the well-known sexual instruction book, the *Kama Sutra*, and second, the majority of the population of India is Hindu. Within the Hindu beliefs, there are indications of the importance of sexual intercourse seen as a healthy activity for the physical body and the soul. Thus, a healthy sex life assisted by the use of Moringa would help attain balance. These are my findings thus far; further study is needed to solidify my speculations on the two patterns that have been addressed.

Discussion

Anthropological reflection on this summer practicum, I feel, will be valuable to me in my further endeavors of higher education. In the beginning of the program, we all had checked out to us a complete set of the Ethnographers' Tool Kit. This consisted of 6 books. During this summer, I have trudged along through the adversity of juggling a child, her father, and my employment, while conducting my fieldwork driving in a un-air conditioned truck in 106-degree Texas temperatures, and still maintaining a cool head. The Tool Kit was not so helpful. Respectfully, I can say, to believe that any Tool Kit can be compiled that would fully encompass all an applied anthropologist may need to design, conduct, and see through to the finish a project while keeping in check their ethical and value judgments, is erroneous. The one tool that is so much more integral than all the rest is a tool that cannot be placed into any kit, nor found in any book, cannot be manufactured by any hand, cannot be synthesized by any calculation. This tool needs to be

inherent in the ethnographer herself, and those tools are passion and inquisitiveness. Without these tools, all points are moot.

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