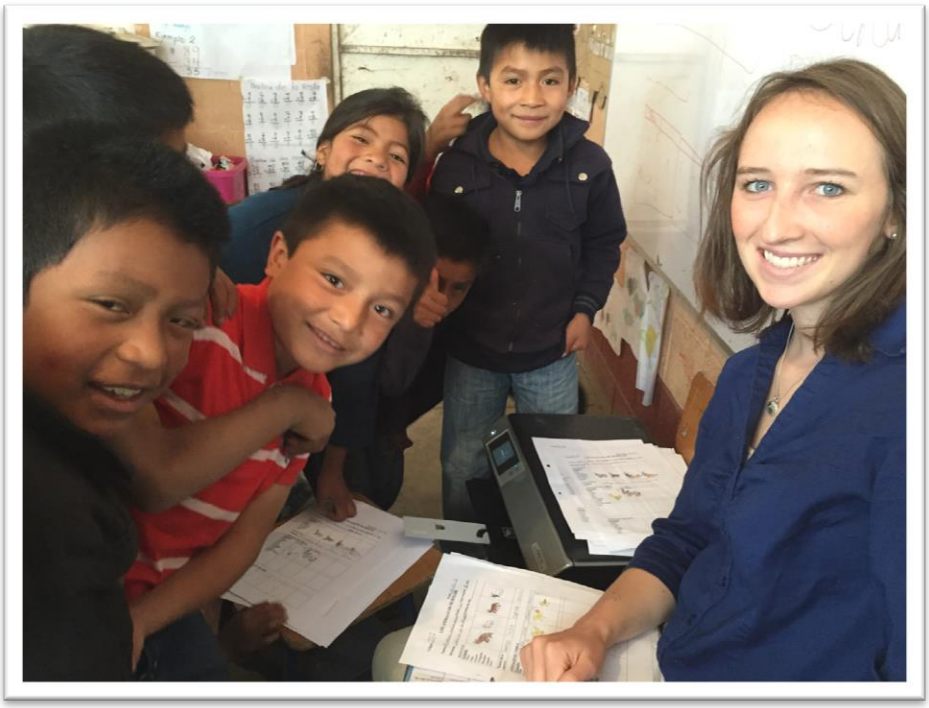
Schoolchildren, Surveys, and Spammy

2015 Borlaug-Ruan International Internship, Guatemala



Anna Barr

Kellogg, Iowa

The World Food Prize Foundation

Center for the Studies of Sensory Impairment, Aging, and Metabolism (CeSSIAM)

Hormel Foods—Project Spammy

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Personal Background

As a sophomore in high school, I knew I wanted to do something big with my life. I knew I wanted to help people, and I knew I wanted adventure. But, I didn't know how to get there or for what cause I would live. My biology teacher was blessed with a *great*-uncle—Uncle Norm. Dr. Norman E. Borlaug, that is. Norm lived his life for others. He worked to develop disease resistant, adaptive, high yielding wheat that would better sustain the world's population. Norm went on to win a Nobel Peace Prize for his wheat advancements, and establish the World Food Prize Foundation. (About Norman Borlaug)

My biology teacher, Bill Reed, introduced Norman Borlaug, The World Food Prize, the Iowa Youth Institute, Global Youth Institute, and Borlaug-Ruan International Internship to my class all in about 2 minutes. It only took that short description for me to discover exactly where I would steer the remainder of my high school career. I wanted to be a B-R intern. That would be my first step to a career of meaning, service, and adventure—a career a lot like Norman Borlaug's.

I grew up outside of Newton, Iowa on a small farm. Though agriculture was around me forever, it wasn't until I attended the World Food Prize Global Youth Institute in October of 2014 that I realized the importance of agriculture to feed our expanding world population. Not only were my eyes opened to agriculture's affects on global food security, but also global nutrition/malnutrition. As my interests unfolded, I knew my life of purpose would include nutrition education or research—topics offered through the Borlaug-Ruan international internship. Through hard work and passion, I was offered the 2015 B-R international internship in Guatemala. My newly realized passion for world hunger and malnutrition would be pursued with the internship as a grand kick-off after high school.

My Internship Assignment

I was fortunate enough to be assigned to the Borlaug-Ruan International internship in Guatemala with the Center for the Studies of Sensory Impairment, Aging, and Metabolism (CeSSIAM) and Hormel. CeSSIAM would act as the institution for which I conducted a research project, and Hormel would offer me a chance to engage in nutrition outreach to poor, rural and suburban Guatemalan children.

CeSSIAM: Background

Noel Solomons received his MD from Harvard Medical School, did Clinical training at the University of Pennsylvania, completed a fellowship of specialty and research at the University of Chicago in gastroenterology and clinical nutrition, and began working with the Institution of Nutrition in Central America and Panama (INCAP) and the Department of Nutrition and Food Science of the Massachusetts Institute of Technology. His next career move—founding the Center for the Studies of Sensory Impairment, Aging, and

Metabolism (CeSSIAM) in Guatemala City in 1985. Dr. Solomons was the student of Nevin S Scrimshaw, the 1991 recipient of the World Food Prize for his nutrition work in developing nations as the founder of INCAP. From him, Solomons learned about iron deficiencies and how to research without a narrowness of focus. (Noel W. Solomons)

After years working with Dr. Scrimshaw, Dr. Solomons opened CeSSIAM. He built the organization to encourage creative research outside institutional oversight. He wanted to give the opportunity for researchers to investigate their scientific curiosity while still abiding strictly by the scientific method. Dr. Solomons also focuses on the development of young researchers, hosting students and young professionals throughout the institution. (Hildegard Grunow Foundation)

As for facilities, CeSSIAM is modest. The buildings do not boast "we're a fancy institution," rather show that the priorities of CeSSIAM are how they should be with research at the top and facilities adequate. The main offices, including Dr. Solomon's, are in Guatemala City, but CeSSIAM has Annexes in other parts of the country. The one I worked in was located in Sololá.

Working in Sololá was my mentor Dr. Monica Orozco. Dr. Orozco received her background in bachelors degree in biochemistry from the Universidad del Valle de Guatemala (UVG) in 1999. Five years later, she obtained a master's degree in Food Science and Technology. In 2008 she completed a doctorate in Food and Nutrition Science. Ever since 2001, Dr. Orozco has worked for CeSSIAM as a researcher. She began splitting time between CeSSIAM and UVG in 2008. She currently researches for CeSSIAM, is a lecturer, researcher, and head of the masters of science in communication program of food and technology management. She is also the director of the Lake Atitlan Research Center based out of UVG. (Hildegard Grunow Foundation)

CeSSIAM: Research Project

BACKGROUND

Guatemala is a developing country. Many families still farm for sustenance. Almost all households have animals, whether they are pets, barnyard, or livestock. Dogs are prevalent in Guatemala as pets and street animals. Birds, such as parrots, may also be found as pets. Typically, the birds that families own are chickens or turkeys and they are sold at market or consumed by the families. Other common barnyard animals include ducks, rabbits, pigs, and bees. Livestock animals are more desirable by Guatemalan families, because they can produce more work, food, and money for the family. These large animals include cows, bulls, goats, sheep, horses, and donkeys. There are positives and negatives associated with animal ownership.

Animals of many kinds can have positive impacts on their owner's health and nutrition if they are treated properly. Animal products contain complete proteins, all the amino acids needed for proper human growth. As well, animal products are high in iron. By eating more animal products, people reduce their risk for diseases associated with low levels of

protein and iron. Such diseases include anemia, stunted physical and mental growth, and blindness. (Solomons) Dairy products are rich in calories, high quality protein, fatty acids, and calcium. Items like milk and cheese are good to include in diet in order to reach a day's worth of calories, promote growth, and strengthen bones. (Dror) In a less direct way than consumption, animal ownership can be positive for families. Livestock manure can be used as fertilizer to make more productive crop fields. Animals may be harvested in times of drought when plant food supplies are limited. Animal ownership has monetary benefits. Owners can sell extra products at the market or to their neighbors for a source of income. Since families may eat the products from their animals, they no longer need to allocate money for as much food. With more money available, families have more available for health care, medications, and healthy food that they don't grow. (Solomons) This way they can benefit their health and nutrition even more. A final way animal ownership impacts the health and nutrition of owners is by pet interactions. Pets have been shown to increase the heart health and immune systems of their owners, while decreasing depression, stress, and loneliness. (RSPCA Australia Knowledgebase)

There are plenty of positive impacts that animals have on their owners, but there are negatives too. Zoonoses are a type of disease transmitted from animals to people. (Solomons) They range in symptoms from a headache to death, and can be transmitted a number of ways. Toxoplasmosis is transmitted from cats and is a very common zoonosis. Cats will show discoloration in their eyes if they have the disease. Contact with infected cat feces leads to cysts on human skin. If a pregnant woman becomes infected with toxoplasmosis, the child may develop blindness or a disproportionate head size. (International Cat Care) Poultry may be infected with Clamidia Pittaci humans can contract the disease as easily as breathing the same air as the infected bird. When a human gets Clamidia Pittaci, he/she shows flu like symptoms at first but symptoms progress until they are much like pneumonia and can lead to death. (Top Zoonoses) Salmonella and Rabies are two of the most known zoonoses. All mammals are capable of contracting rabies. Street animals are more likely to have rabies than owned animals, but this is still dangerous to people in Guatemala, because street animals are highly prevalent and come in contact with owned animals. When a person gets rabies, the symptoms include nervousness, salivation, and perspiration. If not treated, Rabies will lead to death. Salmonella primarily comes from eggs. When people get the egg on them or it raw, they can become infected with salmonella. Symptoms include diarrhea, fever, and headache. (ZOONOTIC DISEASE FACT SHEET) All of the zoonoses described may be prevented by proper cleanliness and care.

In order for a researcher to study the relationship between animals and people, or any association with animals, he/she must first have a way to know what animals people are in contact with. I was given a research project that would create a means for which researchers can gather data about the animals at a child's home without needing to take the time to go to each home and witness the animals themselves. The idea was that this would create more time for researchers to focus on the core of their projects. The research project created by Dr. Solomons who gave it the title "Validation of Self-Elaborated Pictorial Descriptions of Household Animals by Schoolchildren: Accuracy as a function of age.

PURPOSE

The reason to administer the survey "The Animals of My Home" (Appendix A) was to validate if the survey is an effective way to gather data. The data in question is animals that exist at each student's home. The accuracy of the form overall and by age was determined.

HYPOTHESES

Dr. Solomons developed two hypotheses, prior to my arrival at CeSSIAM, regarding the validity of the pictorial survey to gather data. They are as follows:

1. That an accurate description of the number and species of animals directly associated with children can be obtained by pictorial description.
2. That the degree of accuracy will decrease with decreasing age from 12 year olds to 9 year olds.

METHODS

Before the experimental methods could get truly underway, work had to be done to prepare for the experiment. This work included several trips to the school, planning, as well as collecting permission slips from students and parents. My first two weeks in Guatemala were spent doing such things.

Drs. Noel Solomons and Monica Orozco had prepared assent forms for the students, and consent forms for the parents prior to my arrival in Guatemala. I worked with Rosalina Tzapinel and Maria Isabel Guinea, two local women near my age, to get a time set up with the leaders at the elementary school to get the permission slips signed. This task was not as simple as I thought it might be. In the U.S., I would have gone to the classrooms, had the children sign the assent forms, and then given each student a consent form to take home to their parents. The school leaders, Monica and Rosalina had the cultural knowledge to advise that the parents all come to a meeting and hear the project explained from us, the researchers. They also believed we would get more signatures that way, because we could provide inkpads for fingerprints for parents who could not write.

The parent meeting was an important first step to getting the project underway. The school leaders were able to talk to the parents in a way that informed them of the nature of the experiment. They were informed that no animals would be harmed or helped throughout the experiment and that the only objective in regards to the families was to verify the animals at the home visits. Thanks to the information provided, nearly all of the parents at the meeting agreed to let their children participate in the research. I collected about half of the total consent forms at that meeting, and gained the other half by sending them home with the students who's parents did not come to the meeting. The assent forms were collected from students on the first day of working in their respective classrooms and before they were given the survey.

A three-step approach was planned and utilized to best test the validity of "The Animals of My Home" survey to collect data. The first step was recall. Students attempted to remember and document all the animals at their homes from memory at school. The second phase was verification at home. Students took their surveys home and made changes to them according to what animals they saw. Finally, stage three consisted of home visits for validation. In this phase, Rosalina Tzapinel and Maria Isabel Guinea conducted home visits to be certain the animals the students claimed to have truly existed in their homes. The grade levels were completed in segments (fifth and sixth, fourth, second and third) to minimize the amount of work required at one specific time, complete the home visits sooner after the first two phases were complete, and adequately use the four weeks of research time.

Maria Isabel, Rosalina and I went to the elementary school for the first phase of each grade segment—recall. We would walk from the office located alongside the highway on a dirt path through a cornfield to reach the school. Upon arrival in the classroom, Rosalina began to give instructions about the assent form, while Maria Isabel passed it out, and set up the technology required for the project. This did of course happen after the entire class welcomed us with a roaring "Buenos Dias Pase Adelante," meaning Good morning, come in. Once the students had signed and completed the assent form, they were given instructions on how to fill out the survey. They were told to draw one of each pet that they owned and write the name of the pet. For the barnyard and livestock animals, the students were instructed to draw one of each species they owned, write the species name, and indicate the number of that species their family owned. If they needed more space, students could continue on to the back of the form. After instructions, students were given a packet containing colored pencils and the forms "The Animals of my Home" and another to draw their favorite characters if they did not own any animals. Every student in the project had animals. When they were done, students brought their survey to me. I scanned a copy of it and gave them back the original. The students loved helping me use the scanner. Rosalina gave final instructions to make corrections to the form overnight, and phase one was completed.

Overnight, students made corrections to their survey from class based on the animals they actually saw at home. This was phase two. Rosalina, Maria Isabel and I went back to the school the next day to collect the improved forms. We had little meeting with each student to be sure that what he or she had documented on the paper was readable. I then collected all of the forms. The students got to keep the envelopes, colored pencils, and form for not owning animals as a thank you for participating in the project. Rosalina informed the students that half of them would receive home visits and told them what to expect when that happened.

After phase two was completed, work for phase three—home visits—began. According to the procedure set forth by Dr. Solomons, only half of the students were to receive home visits, and the half selected should be random. So, in the CeSSIAM office, Rosalina, Maria Isabel and I wrote down the number associated to each student eligible for a home visit on a slip of paper, stuck them in a plastic sack, shook it up, and drew

each number. The drawing served as a pecking order for home visits. If not all the students in the first half could be contacted, then the first student from below the half way mark was selected for a visit and so forth.

Rosalina and Maria Isabel did the home visits. I was not involved in this part of the procedure, because it would have been uncomfortable for the families to have someone from the U.S. looking at the animals in their homes. During the home visits, Rosalina and Maria Isabel found the homes by approximate address, verbal directions, or following a student. Once at the home, they pulled out the student's survey and consulted with the mother or available homeowner about the animals that truly exist in the homes. If the mothers allowed for Rosalina and Maria Isabel to look at the animals, then they did so. If the mother did not invite this to occur, then a verbal consultation about animal ownership was trusted as the accurate animals at the home. Rosalina and Maria Isabel wrote the changes to the form or wrote "no change" in the top corner of the paper so as to be noticeable in documentation.

Throughout all three phases, I was responsible for documenting the animals reported by each student and separating the students who had permission to be included in the study from students who did not have both the assent and consent forms turned in. Every student was given colored pencils and filled out the survey so as to avoid any student feeling left out. Only the students with full permission got their surveys inputted into my documentation system. I recorded the exact animals reported in each phase. I then was able to count the number of omissions and insertions of the animals reported by each student and age level. This data was used to determine the results of the project.

RESULTS

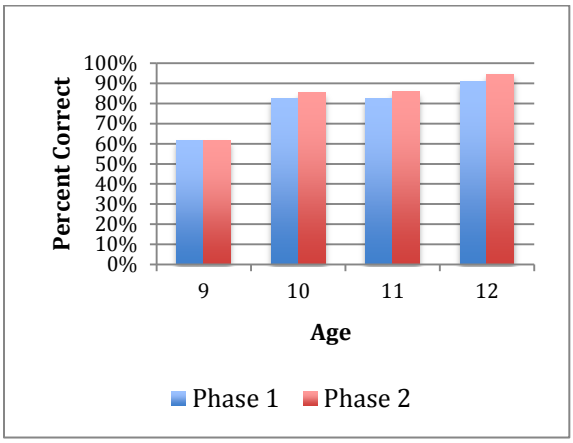

Figure 1. Percentage of correct animals per phase by age group.

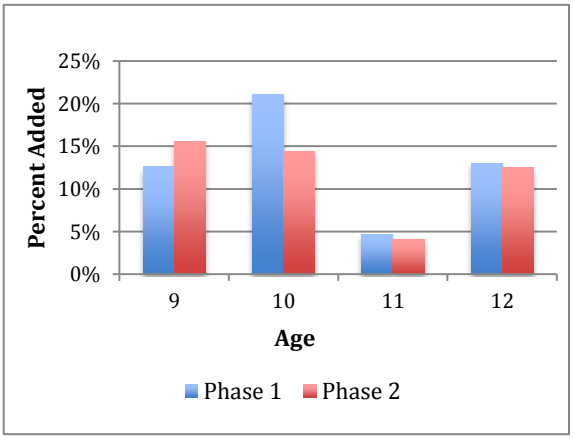

Figure 2. Percentage of Animal Additions per phase by age.

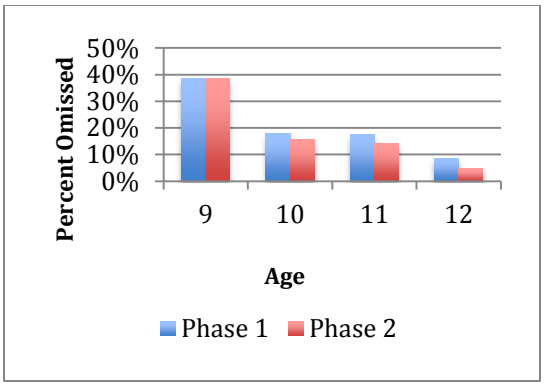

Figure 3. Percent of animal omissions per phase by age.

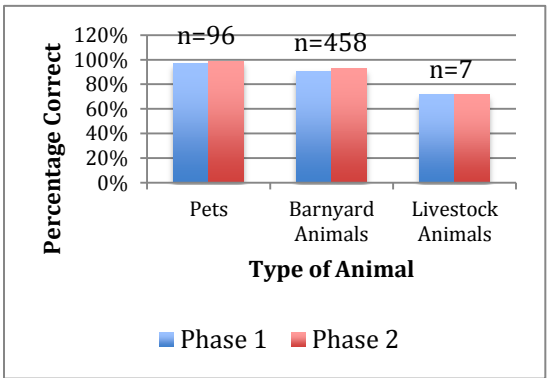

Figure 4. Percentage of correct animals by type per phase.

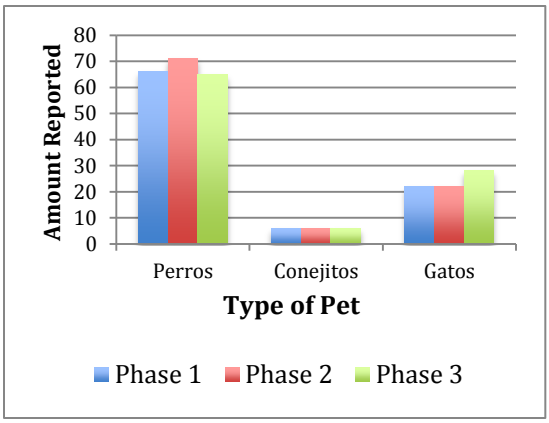

Figure 5. Amount of pets reported in each phase.

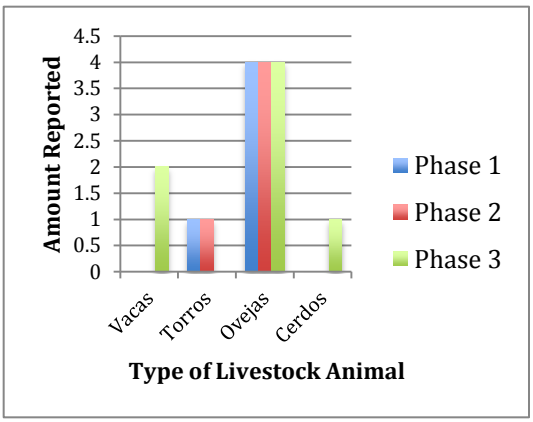

Figure 6. Amount of livestock animals reported in each phase.

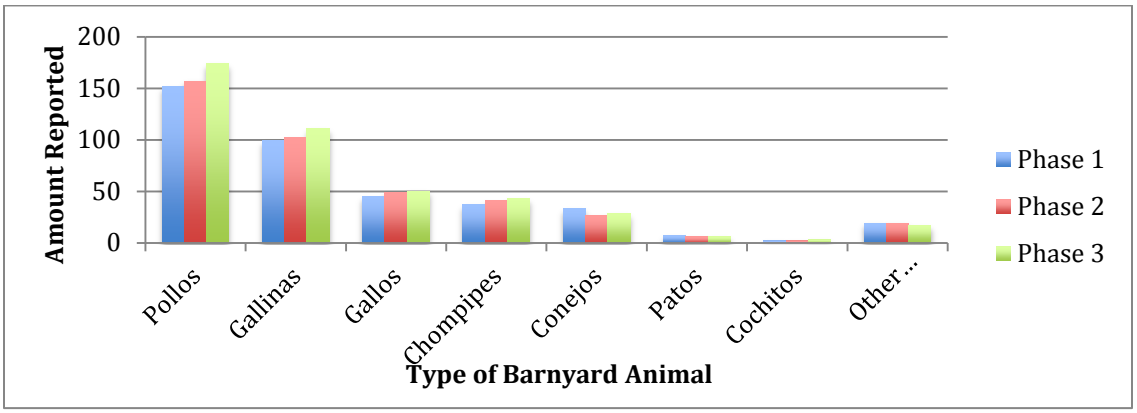

Figure 7. Amount of barnyard animals reported in each phase.

From the reports of animal ownership given by the students in phases one and two and the observed animals from phase three, Figures 1 through 7 were created. Figure 1 represents the percentage of correct animals per phase by age group. The blue bars show the data from phase one (recall) and the red bars show data from phase two (verification at home). Phase one and phase two were each compared to phase three (home visit) to

find the percent correct, because the home visit determined the actual animals present in the homes. Figures 2 and 3 are breakdowns of Figure 1. Where Figure 1 shows the percentage of animals documented correctly in each phase, Figures 2 and 3 show what percentage of the animals were additions and omissions from the truth, respectively.

Figure 4 details the percentage of correct animals per phase by type. Phase one is shown in blue, and phase two is shown in red. The two phases were once again compared to the known animals from the home visit. The n value represents the number of animals reported in each animal category.

Figures 5 through 7 show the number of each animal reported in each phase across all the age brackets. Phases one, two, and three are represented by blue, red, and green, respectively.

DISCUSSION

There are important trends to be noted from Figures 1 through 7. In Figure 1, the percentage of correct animals shows an increase from ages nine through twelve. Nine year olds had only a 60% accuracy rate over all the animal categories, where twelve year olds showed near a 90% accuracy rate for both phases. Ten, eleven, and twelve year olds showed slightly more correct responses in phase two than in phase one, but accuracy was good enough in phase one to be considered a valid way of gathering data.

Figures 2 and 3 show the make up of additions and omissions of animals in student surveys at each age level. Animal additions in Figure 2 do not show a trend across the ages. Nine and twelve year olds added nearly the same percent of animals. Ten year olds added the most, while eleven year olds barely had any additions of animals on their surveys. However, ten, eleven, and twelve year olds did prove better than nine year olds at improving the amount of additions during phase two. Figure three shows a nice decline in animal omissions from grades nine through twelve. Nine year olds forgot to mention nearly 40% of all their animals in the first and second phases. Ten and eleven year olds forgot nearly 18% during phase one and 13% during phase two. Twelve year olds had the best percentage of omissions with only 8% forgotten in phase one, and 4% forgotten in phase two.

The percentage of animals by type per phase are shown in Figure 4 without regards to age divisions. It is important to note the size of each sample to understand the reliability of the results. There were 96 pets reported, a respectable number. Barnyard animals reported numbered 458, allowing for very reliable statistics. On the other hand, only seven livestock were reported across all the ages. Students as a whole were able to document 96% of the true pets in phase one and nearly 100% in phase two. For barnyard animals, the results in phase two were slightly better than phase one. Both phases showed near 95% accuracy. Livestock animals were reported poorly with only 70% correctly identified in phase one and no improvement in phase two.

Figures 5, 6, and 7 show the amount of each species of animal reported in each of the phases. The largest role these charts play is to give an idea of what encompasses the pet, barnyard animal, and livestock categories, but they also show what species get reported with the most accurately within the animal categories. There are some results that are more significant than others in these charts. In Figure 5, it is obvious that perros (dogs) make up the majority of the pet category. Precision in pet identification is also shown in Figure 5, which supports the high percentage of correct pets in Figure 4. No significant amount of a certain species of livestock is evident. There are the most oveja (sheep) reported, but still this number is only four. Also, students could not be responsible for reporting the livestock species correctly, as the three phases show little consistency in Figure 6. For barnyard animals, Pollos (chicks) and gallinas (chickens) were reported the most followed by gallos (roosters) and chompipes (turkey). Every species reported showed good accuracy and consistency throughout all the phases, even with the high number of animals.

CONCLUSION

The survey "The Animals of My Home" shows validity to gather data from ten, eleven, and twelve year olds and for asking about pets and barnyard animals. This conclusion supports hypothesis one partially. The 9 year olds showed below 80% success in documenting animals, so they should not be trusted in filling out the form correctly. The number of barnyard animals owned by students was so small (7) that accuracy of barnyard animal documentation could not be reliably defined. Ten, eleven, and twelve year olds showed above 80% accuracy in depicting the number of animals around them. Though Figures 1-3 do not prove that accurate species were reported by students. Figures 5 and 7 show that students were able to accurately identify pets and barnyard animals. In support of hypothesis two, accuracy showed a general decrease with decreasing age from 12 to 9 years old.

The conclusion of this project is important for future animal-human relationship studies. As discussed earlier, there are quite a few dangerous diseases associated with contact with animals. The survey "The Animals of My Home" offers a tool for researchers to use when studying such relationships. Rural poor populations, such as that where the research was conducted, are at increased risk for animal associated diseases, because they typically own animals—as the study proved—and are uneducated about proper animal care. With the use of this survey, at-risk individuals may be identified and helped from consuming animal products, which they have raised and are contaminated with disease. In the same regard, the disease would not get the chance to be passed on to humans, because it would not exist in the food or animals if proper measures were taken to decrease risk of the transfer of diseases from animals to humans.

WHILE IN PANAJACHEL, SOLOLA

Thanks to my internship placement, I had some great experiences in Panajachel, Sololá. For clarification, Guatemala is broken into districts. The district I lived and worked in was Sololá, named after it's biggest city—Sololá—where I worked. I lived twenty

minutes away in Panajachel, but still in the Sololá district. Panajachel sits at the bottom of the highlands on lake Atitlan. Visible from the shore at the edge of town are three volcanoes across the lake. They were not active while I was there, just gorgeous. Panajachel wasn't the only city on the lake. Over ten communities call the lake Atitlan shores home, and most people travel from town to town by boat. Panajachel seemed to be the main hub for tourists along Lake Atitlan. It was a very culturally diverse, travelled town with tourist attractions, hundreds of street vendors, and international cuisine. The main roads of Panajachel felt much like the Iowa State fair with food and craft vendors, and lots of people. The shops were exciting to explore. Café Loco (Crazy coffee) was next to a handmade hammock store, next to a fried chicken chain, next to an 'American' clothes store, next to a German bakery. The diversity in Panajachel was divine. I experienced more cultures and met more people from around the world than I ever have before.

My research advisor, Monica Orozco and her two young children welcomed me into their home in Panajachel for the duration of my internship. Their hospitality made my experience worthwhile. With the family, I got to learn about Guatemalan culture. Monica took the kids and me to cultural restaurants, across the lake to visit the other towns, to hot springs, to a nature preserve, and more. She taught me about Guatemalan culture, and shared insights and stories from when she was my age or a beginning researcher. Monica not only was the advisor for my internship, but a role model for how to live a life of purpose once the internship was over.

Rosalina did more than work with me on the project. She was my friend. As a student of tourism, Rosalina is good at showing people around. I owe her the credit for a lot of the things I got to see and do near Panajachel and Sololá. On of my first weekend, Rosalina called Andres, the driver, and picked me up for some sight seeing. We made stops along the side of the hill on the drive from Panajachel to Sololá. We parked outside the tall, gorgeous waterfall and watched it cascade down in beauty. We parked at a look out pint and viewed Panajachel from 200 meters above. We purchased some souvenirs from a roadside mall, saw three gorgeous catholic churches, the town center park of Sololá, and finished off at the market in Sololá. I loved Guatemalan markets. They were dirty and crowded and smelled gross, but something about them screamed "come back." Guatemala is rich in what it can grow, so the markets were fruitful. I loved the produce sections, so colorful with reds, purples, oranges, greens, and yellows of familiar and new fruits and vegetables all piled high on a tarp on the ground. Mixed in with the bright colors of the delicious, healthy foods were the brilliant and colorful designs on the Guatemalan women's indigenous attire. If I could go back to one place in Guatemala, it would be a hard toss up between the Panajachel shore looking out at the volcanoes and one of many beautiful markets. Thanks to Rosalina, I got to know all these locations as intimately as I did.

I had a few enlightening service moments while living in Panajachel. One day, Monica was gone, but she left me a bag of old toys and asked that I give them to children who were working on the streets. Rather than going to school or having a normal childhood, these kids sell items to tourists with their parents. I approached two young girls. One was

probably fourteen years old, the other around seven. They were selling woven hats in a vendors stand and looked very bored and tired. I opened the bag up in front of them and informed them they could have one. Their eyes began to glow as they picked around the bag for the perfect toy. The fourteen year old was just as excited as the seven year old to have gained a toy and child I know probably would have tossed on the ground. With my bag still nearly full, I walked around the corner to a busy vendor area on the shore. Two girls again were helping their moms sell knick-knacks. When I set the bag down for the to look, it caught their mothers' attention. They too began to search through the bad. They even teared up and thanked me many times. I ended up giving them the rest of the toys. They deserved it. They sell knick-knacks for a living, yet seemed far to overjoyed to believe they actually own any of their own. My other most notable day happened while I was in Solola. The World Food Prize Foundation purchased clean water filters for the school I did my research project for. Prior to obtaining these, they had no source of clean drinking water for the students. I was honored with the opportunity to deliver the filters to the school. I will never forget giving the school principle these two water filters. She was so happy. I could see the passion in her eyes for the well-being of her students. She knew she could treat them better with clean water. These two days in which I could do good for others go down as the two best and most memorable from my internship. On these days, I believe, the only person more happy than the people I gave to was me.

HORMEL: PROJECT SPAMMY

BACKGROUND AND MISSIONS

Hormel Foods Corporation's Project Spammy is what I spent the second part of my internship working with. Hormel is a global corporation based out of Austin Minnesota—not so far away from my home in Iowa. Hormel manufactures and markets meat products and other foods. The company specializes in branded, value added pork and turkey products. It's biggest claim to fame is SPAM, a shelf stable ham product developed around the time of World War Two and popular ever since. Hormel products are known for having high quality, taste, nutrition, convenience, and value. (Hormel Foods and USDA)

Within the global distribution measures of Hormel Foods Corporation is the exportation of Spammy. Named after the company's most famous product—Spam—Spammy is a fortified turkey product uniquely developed to meet the nutritional needs of children in Guatemala. Project Spammy began in 2008 and is a non-profitable partnership between Hormel, the USDA, Food for the Poor, and Caritas-Guatemala. (Hormel Foods and USDA)

The Spammy product helps to resolve malnutrition issues in children of Guatemala, a country where levels of stunting, premature death, chronic under nutrition, and protein-energy malnutrition are extremely high. Spammy is a shelf stable, high quality turkey product fortified with vitamins D and B12 among others. Said vitamins were found to be lacking in the diets of Guatemalan children, and the extent to their need was found out by the success of children eating Spammy. Children eating a diet with Spammy were found

to have improved scores on cognitive tests, and higher levels of vitamins B12 and D. Children eating Spammy show height and weight gain compared to students not on the program. Parents claim that their children are more energetic from eating Spammy as well. Schools and institutions with a high population of students eating Spammy have seen a 44% reduction in days missed for illness. It is no question that Spammy helps improve the lives of Guatemalan children. In fact, mothers have even become healthier by eating their children's leftover Spammy. (Hormel Foods and USDA)

Hormel and its partners have distributed millions of cans of Spammy since the beginning of the program. Hormel donated all of which. Over 30,000 children making up 8,300 families receive Spammy. In 2013 alone, 2.3 million cans were distributed to the Guatemalan poor. (Hormel Foods and USDA) Though nutrition is a main and important aspect of Project Spammy, it is not the only one. Education and Leadership are also important components. Hormel employees set up Chispa Centers four times a year at different community buildings around Guatemala. The centers are equipped with donated items that may accompany a grade-school curriculum that is easy to teach. In addition, Mothers get educated on clean, healthy food and life practices when they receive Spammy at monthly meetings. Student participants and Hormel employees gain valuable leadership experience by extending themselves beyond their normal lives. Hormel also sponsors eight children a year to attend Villa de Los Niños boarding high school in Guatemala City so that they may become leaders in their communities one day. (Changing Lives)

MY INVOLVEMENT

My involvement in Project Spammy included participating in employee engagement trips. These trips have happened four times every year when Hormel employees, families, and retirees brought supplies from the States and immersed themselves wholeheartedly into understanding and bettering the lives of Guatemalans, especially children. I felt extremely blessed to get to experience not just one, but two Project Spammy Employee Engagement Trips. Each trip was a week long and outlined the same way with roughly the same experiences.

On Saturday, Dan Hernandez—the leader of Spammy trips—the trip's co-coordinator, and I went shopping for the week's supplies. Guatemala City has stores very similar to the United States and some of the same chain stores. We first went to a store much like Sam's Club to buy food for the employees for the week and snacks for the students participating in our chispa center. It was a great learning moment for me to see just how much food it takes to feed a group of 25 people lunch for one week. The amount was larger than I thought it would be, and it was interesting to see the bulk-sized items that are available for purchase when the amount needed is so high. Three full grocery carts later, we headed to a Best Buy. Yes, there is a Best Buy in Guatemala. This stop was to get supplies for the Chispa Center rather than for the employees. We bought lots of paper for the computers and crafts, name badges for students, totes for the equipment we were leaving at the school, and various generous items for the school dependent on observed need. With everything purchased, we tried to fit it all in small crossover vehicle. Maybe

needless to say, fitting everything was not easy. I remember looking at everything in the car and thinking how great of a problem it was that some of us had to walk due to limited car space. The items in the car were to be used and donated for a good cause. In that case, the more the better.

When Sunday rolled around, the flights came in with Hormel Employees. Hormel has locations all across the U.S. Flights came in all day due to the different starting points. It was a neat experience to meet everyone for the first time. Employee families would come in on the same flight, but not realize they were both from Hormel until they met up with the group in the airport. Most of the people on the trips had never met each other before. They came from from Minnesota, Iowa, Arkansas, California, North Dakota, Indiana, Georgia, Wisconsin, North Carolina, and Arizona. This added a great dynamic to the group, and made it easier for me to fit in. When all the participants arrived from the airport, about 25 people, we met up in Dan's room of the hotel to officially get the Project Spammy trip kicked off and meet everyone. This first night was a bit quiet, but, as the week progressed, we all grew to know and like each other more. The rest of the week was not nearly as quiet.

Sunday night was a tour of the Caritas Complex. Caritas distributes Spammy and oversees previously established Chispa Centers among other responsibilities as a Non-Profit children's hospital. First, we got a tour of the warehouse. They had row after row of food to be served and delivered to families in need. Rice and beans took up plenty of space. There were pallets of Spammy as well as packaged relief meals, such as the ones put together at the World Food Prize Global Youth Institute every year. We then got to see parts of the hospital. The building was painted up nicely with cartoons and bright colors making it a nice atmosphere given the conditions of most of the children staying in the facility. The rooms were small and old. Mattresses worn, and equipment overused. Though the facilities weren't great, it was obvious the staff at Caritas cared about the work being done and used every resource available for the success of the hospital. Seeing the institution made me realize the conditions in which people in third world countries must seek medical attention, and the Caritas facility was good compared to many in the country. I realized how blessed I am to have grown up with a strong medical society.

Monday, in the project Spammy trips, meant doing repair work at the sight of the next Project Spammy trip's Chispa center. This additionally offered a second opportunity to visit and tour a school, daycare, or community center. In June the group did repairs at a preschool/daycare outside the city. The town it was in had a reputation for gangs and violence. Boys as young as five were getting recruited into gangs in this community. The daycare acted as a safe place for children to learn, play, and grow. Upon arrival, the Sister who runs the institution greeted our group. She was happy to be receiving our support and gave us a tour of the facility. The building was two stories with a gym and preschool classroom on the first floor and classrooms upstairs, but the portion of the facility we did repairs on was outside. Encompassed with the building by tall firm gates and fences were jungle gym equipment and a small soccer field. For our repair work, we gave the jungle gym equipment a clean, fresh coat of paint. As happy a place the daycare was already, the paint gave it a clean, cheerful look.

In July, our Spammy group did repair work at a girls' orphanage near the edge of Guatemala City. They boarded girls aged three to eighteen and gave them a great life. Each child got to attend a good school and receive love from the Sisters operating the institution. In the bedrooms, all the young girls had stuffed animals on their beds to snuggle and give their love to until they had a family to do such activities with. For our repair project, we painted an old grungy wall in the courtyard of the facilities. After this repair, our group visited a Spammy distribution center on the one day of the month when mothers come from around to receive Spammy for their families. Children got weighed and measured to see how their growth was improving. Mothers received an informational session about proper hygiene and cooking practices to ensure health in their families. Lastly, our group got to give rice, beans, and Spammy to the mothers. This was a magical moment to be the final step in a long process of aid for these families. It was very meaningful to give a struggling mother with malnourished children the food she needs to better her family—just what I'd learned about through World Food Prize events.

The next logical step after doing repair work for the proceeding trip's Chispa Center was to set up our own, so that is what we spent Tuesday doing. In June, we set up a center at a public school in a rural community. It was the first public-ran school to get a Chispa center, and obvious that it did not get the upkeep of a private or religious oriented institution. Because of this, we spent a good deal of the day painting, cleaning, and improving the safety of the facility. In the July trip, I got to go back to the center I had done repair work on in June to run the Chispa Center. At both facilities, the group set up six stations. These included technology, imagination, creativity, dreams, physical education, and English. The following day would be when the students came through the Chispa center.

Wednesday mornings started with excitement of the day to come. Wednesday's activities were really the purpose of the entire week. Around 10:00 in the morning, students from the community came to the facility and were put into one of six groups. They were fed Domino's pizza—a luxury to them—and juice. After lunch and getting to know the group, the rotations began. Examples of activities for each of the stations include computer games in technology, Legos and Lincoln Logs at imagination, jewelry making at creativity, soccer and bubble blowing at P.E, and a story book translation at English. The dream station was particularly special and important. At this station, children created dream books that included the job they dreamt of having when they got older. Hormel provided rectangular cut outs of the Spammy distribution boxes to act as the book covers. There were even costumes for the students to dress up like the profession they wished to be. The importance of this was that these students come from parents who, like their parents, tended small farms, made tortillas, or drove a taxi for money. It is not ordinary for children to grow up thinking they can be anything they want to be in poor families like these. Dream book creation is an important 20 minutes when kids are inspired to be whatever they want to be. All day Wednesday was a blessing. The kids participating in the Chispa Center were shy at first, but so happy, loving, and joyful by the end of the day. Since the school's get to keep all the supplies, the day's activities may be set up again

and the children may continue to grow from them. I think I speak for everyone involved when I say I felt like I gained more than the children did.

On Thursday and Friday, the group got to see the first and second established Chispa Centers, and on Thursday we visited Villa de los Niños in the city. Tabacal was the first Chispa Center sight and San Jeronimo was the second. Tabacal is a very rural village for which we traveled by bus through creaks and rough dirt paths to reach. During Guatemalan civil wars, the people of Tabacal were uprooted from their original village and found new land to call their own where they currently exist. After the move, community members had to come up with a way to build their town from nothing. Long story short, they established a Tilapia farm that produces enough money for their community and even surrounding villages. Tabacal citizens now have a strong building for school and community activities, chicken farms, homes, and a place to sell tapestries to people like us. When visiting Tabacal, the students and teachers put on a Chispa center rotation for us. It was a neat observation to see the students who once were given the activities come full circle and administer them—only one of the great accomplishments of Tabacal.

At San Jeronimo, students put on shows for our group. They danced traditional indigenous dances, and performed skits about environmental sustainability and love. The Sisters at the community center in San Jeronimo have done an excellent job of teaching values similar to the World Food Prize's about the environment to students. Mothers work once a week in the center's kitchen to prepare lunch for all the kids. They were polite and offered us the chance to make tortillas. It was remarkable how fast and easily the mothers could make tortillas with their bare hands. Us from the States, on the other hand, struggled to even get the dough from sticking to our hands when we attempted flattening it. I learned to admire the art of tortilla making. It takes a lot of practice to get it down. I need to value where my food comes from and the convenience of what I typically eat.

Hormel and Project Spammy sponsor children to attend high school at Villa de Los Niños boarding school in Guatemala. All of the students at the institution come from poor backgrounds like that of the families in San Jeronimo. On Thursday evening in June, our group visited the girl's school. In July, we visited the boy's school. Similar experiences came from both; I will never forget either. The students and sisters at the facility are extremely grateful to donors, because they supply tuition. Each school put on an incredible show for our group and made us feel very special. We got to see dance, song, and instrumental acts. One student was even Master of Ceremonies in English for us. At the end of the shows, they had us come on to the stage as the entire student body sang us a song from the crowd—a huge gym with about 1,000 students. The girls sang us "God Bless America," and the boys same "You are my Sunshine." These moments were absolute tearjerkers and moments of hope and belief in the World. The students at Villa de Los Niños are inspiration and role models of overcoming poverty to live a better life. Most students return to their villages and help improve them.

My two weeks on Project Spammy were unforgettable. I learned so many life lessons and was inspired by the children, religious people, and mothers on how to be a hard worker and grateful. Throughout the week, we got to visit homes of such inspiring families. The homes typically were constructed of tin siding and roofs with no windows. The floors were dirt. In some cases houses would collapse in the rain or wind. I noticed religious alters in many homes. Even in the poverty and hardship that they face, more families I met in Guatemala seemed to put faith at the forefront of their lives than I have met in the States. At some homes, we were shown a bag full of empty Spammy cans. They truly get eaten in the homes, and the mothers all made testimony to their positive affects on children.

OVERALL REFLECTION

When I decided sophomore year of high school that I wanted to be a Borlaug-Ruan intern, I did not realize the impression it would leave on me. In fact, I never could have guessed the amount of learning and growth I would attain from my internship. My internship was more than validating a survey so another researcher could use it. I gained the ability to conduct a research project, to manage a small group of people, to do a project with human subjects. I learned to respect the culture of another country, to not consider mine as the best. I learned that the people in developing nations are hard workers and they care about their families, farms, and faiths more passionately than anyone I have met. I was shown opportunities that exist for my future that I never would have thought of before. I was taught about nutrition in the developing world. I got to see the hardships people face, and I now better understand my responsibility to not take what I have for granted. I saw farmers working hard just to get by, and how small their fields were, yet they pressed on. I learned the importance of relief, education, farming, and social justice on food security. I learned that I love service and mission work so much that I am minoring in Leadership and Management of Non-Profit Organizations. I learned how to be a hunger fighter; and most of all, I left my Borlaug-Ruan International Internship in Guatemala feeling equipped. I was equipped to enter adulthood, head held high, ready take more steps towards a life of purpose, a life of fighting hunger.

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ACKNOWLEDGEMENTS

Thank you to the following people for the work they did to make my internship possible and unforgettable.

To Ambassador Kenneth Quinn, World Food Prize Foundation President, thank you for all the work you do to keep the World Food Prize and its youth programs held to the caliper they are.

To Lisa Fleming, thank you for all the hours of hard work you put in to making my internship possible Thank you for looking out for my safety and well-being at all times.

To Melissa Bonordon, Dan Hernandez, and the staff at Hormel, thank you for organizing my internship and allowing me to participate in the Hormel Employee Engagement trips.

To Dr. Noel Solomons, thank you for providing me with a research project and preparing me to conduct it.

To Dr. Monica Orozco, thank you for advising my project and letting me live in your home with your family over the summer.

To Rosalina Tzapinel and Maria Isabel Guinea, thank you for working with me on the procedure of the project and conducting home visits.

To Andres Iboy, thank you for getting me to and from research destinations swiftly and safely.

APPENDIX A: Survey

Código#_____ **Fecha_____**

LOS ANIMALES DE MI HOGAR

Nombre_____Grado_____Edad cumplida____años

Dirrecion_____Telefono de casa_____

MASCOTAS

Ejemplos **Perro** **Gato** **Pajarito** **Tortuguita** **Pescadito** **Conejito** **Otros**				
Nombre de tu mascota				

ANIMALES DE CORRAL

Ejemplos				
Pollo **Gallina** **Gallo** **Pato** **Ganso** **Chompipe** **Cochito** **Conejo** **Panal de abejas** **Otro**				

ANIMALES GRANDES

Ejemplos				
Cabra **Oveja** **Vaca** **Burro** **Caballo** **Toro** **Otro**				

APPENDIX B: Photos