



ENVR-451

PUPPETEERS FOR CHANGE: AN ARTISTIC AND PARTICIPATORY APPROACH TO ENVIRONMENTAL EDUCATION IN PANAMA



Smithsonian

| Katherine Mac Donald & Vivian Kaloxilos



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Number of equivalent full days spent on the project in Panama

We visited the ANCON offices for a total of six days with the breakdown as follows:

- Two full days for an ‘Environmental Education Day’ workshop
- Two afternoons (4 hours each) of walking along ‘El Caucho’ to discover the flora of the area.
- Two afternoons (4 hours each) giving our puppet show presentations
- Two afternoons discussing the project with supervisors

As for creating the puppet show, we separated the task into three parts: the script, the puppets and the theater.

- Six full days compiling research and writing the script
- Six full days of individual work for puppets
- Nine full days working on the construction of the theater

In total, we spent a total amount of 27 days working on the project in Panama.

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Executive Summary

Puppeteers for Change: An artistic and participatory approach to environmental education in Panama

By: Katherine Mac Donald & Vivian Kaloxilos

Introduction

Environmental education was created in response to the growing concerns about climate issues around the world and the socially constructed divide between humans and nature. The goal is to re-connect humans with nature again. One of the biggest criticisms of environmental education to date is that it is too focused on scientific knowledge, technology and the economy. Social and political dimensions of the ecological problems should be a large part of the focus in environmental education. This gives children the tools they need to analyze problems critically and systemically and gives them the ability to get down to the root causes of ecological issues. It also gives children the starting point and ability to act.

Problem

Too much science is also problematic because it leads to an over focus on topics like pollution and climate change, and a lack of celebrating and being in awe about the wonders of the earth. Science is important but there needs to be a balance between the negative and positive focus. Children need inspiration and to spark their passion and creativity, and bring out their sensibility to the environment and the desire to take care of the world around them. This is not going to happen if they are in a state of shock and frightened about the range of ecological problems we face. A good way to introduce environmental themes is through the use of art education. This allows children to learn about nature in a much more engaged way, and allows them to tap into their deep observational skills and creativity. It allows them to explore concepts about nature in more depth, as children are much better at expressing themselves and digesting complex new thoughts through drawing, painting, song, dance, and play as opposed to language, numbers and writing.

Objectives

Our overall goal was to create a puppet show to add to ANCON's existing environmental education program. The most important messages to be transmitted via the puppets was one of a mutualistic relationship between humans and their environment. We hoped to promote a sense of connection with nature through a more participatory and artistic approach.

Methodology

The creation of a puppet show has three main components, the script, the puppets and the theater. With respect to the idea of fostering a connection with children's local environments, representing species, both animal and plant, that could be found on Cerro Ancon was one of our methods in achieving our goals. Thus, we investigated environmental issues and ecological themes that were both representative and pertinent to ANCON. For instance, the characters of the puppet show represented animals that inhabit the park, these being the Mono Titi, the Iguana, the Toucan, the Ñeque and the Sloth. The reasons why these particular animals were chosen and not others were based on their relevance to the concepts included in the script, their current conservation status as well as their ease of recognition as puppets. We decided to make knitted hand puppets because of their ease of manipulation. As for our theater box, we used the species

identified on ANCON's 'El Caucho' path as those that would compose the background of the show, using recycled cardboard to create the actual theater box. Through these characters, we discussed the environmental themes of pollution and littering, habitat fragmentation, urbanization and deforestation as well as themes of youth empowerment, the human relationship with nature as well as their responsibility towards the environment.

As for the study of children's knowledge retention and participation in the activity, a list of questions was prepared to quiz the children on their understanding of the show, and a painting activity was prepared to complete the program, the theme being: 'Paint your relationship with nature'. In order to compare different methods of education, we had one day without either of these methods, and one day with both. We would analyze the composition of the paintings to see how children perceive of where they stand in relation to nature.

Results

When comparing the two days of presentations, it became clear that children did not show as much enthusiasm or interest in the activity when not prompted with methods such as a question period, or the painting activity. They remained quiet and did not participate actively in the activity. In contrast, the second day of presentations, which included our activities meant to encourage participation and active learning, the children answered the questions with excitement, approached us after the presentation, and became engrossed in the painting activity. The children then presented their painting to the group, explaining its components.

Discussion

These results are in accordance with studies done on how children best absorb knowledge, through more participatory forms of education. In fact, when provided with specific questions to answer and an artistic activity through which they could express themselves in different ways, the children were very much implicated in the overall activities. However one of our most interesting observations was in the analysis of the children's drawings, as none of them included people. This supports our hypothesis that society, and perhaps current environmental education programs as well, encourage and foster the human nature dichotomy which is one of the root causes of the major environmental problems we must deal with.

Recommendations

With these results in mind, we believe including more participatory and interactive activities could benefit ANCON's environmental education program greatly. In addition, introducing more activities that discuss the interconnectivity and interdependence between the social and ecological realms in order to bridge the distance that currently exists is necessary. Furthermore, we recommend continuing to include an outdoor component in order to create these experiences in nature for the children of the city. Finally, we recommend that further studies be done on the relationship children have with nature through art analysis for example, for this could help improve and develop methods for environmental education programs specifically catered to Panama.

Resumen Ejecutivo

Títeres por el Cambio: La educación ambiental en Panamá con un enfoque artística y participativa

Por: Katherine Mac Donald & Vivian Kaloxilos

Introducción

La educación ambiental se creó en respuesta a las preocupaciones sobre el cambio climático y la brecha entre el hombre y la naturaleza. El objetivo es reunir a la naturaleza y a los seres humanos de nuevo. La sensibilidad ambiental ha demostrado ser una variable significativa en el comportamiento hacia el medio ambiente y es el foco principal en la educación ambiental. Si la gente comienza a sentirse más conectada con la naturaleza, entonces será menos propensa a tener mal comportamiento y a cometer acciones que pueden dañar el medio ambiente, debido a que este daño sería como dañarse a sí mismo.

Problema

Una de las mayores críticas a la educación ambiental es que está demasiado centrada en el conocimiento científico, la tecnología y la economía. Las dimensiones sociales y políticas de nuestros problemas ambientales no están muy incorporadas, entonces es por eso que las incluimos en nuestro guion.

La ciencia es demasiado problemática, ya que conduce a un énfasis excesivo en temas como la contaminación y el cambio climático.

La ciencia es importante en la educación ambiental pero es necesario que exista un equilibrio entre el enfoque negativo y positivo. Tenemos que inspirar a los niños a llevar a cabo su pasión y creatividad, y el deseo de cuidar al medioambiente. Esto no va a pasar si tienen miedo de los problemas ecológicos que existen.

Objetivo

El objetivo de nuestro proyecto estaba en crear un teatro de títeres sobre el Cerro Ancon y el medioambiente. Este teatro será añadido al programa de educación ambiental que ya existe con ANCON. Teníamos que escribir el guion, crear los títeres y el teatrino. El objetivo estaba en hacer todo esto de la manera más eficiente para que los niños aprendan de una mejor manera lo que queremos enseñarles.

Metodología

La creación de un teatro de títeres tiene varias partes, el guion, los títeres y el teatrino. Para hacerlo de una manera realista, debimos conocer más sobre la composición de especies del Cerro Ancon. Entonces, hicimos una investigación para saber cuales son los animales en más peligro que viven en el Cerro. Elegimos el Mono Titi, el Tucán Pico Iris, la Iguana, El Ñeque y el Perezoso para nuestros personajes. También, descubrimos cuales son las plantas que están en el sendero 'El Caucho', donde los niños harán la primera parte de sus actividades con ANCON. Hicimos esto para intentar crear una relación entre los niños y su ambiente inmediato, el Cerro Ancon.

Después de nuestras investigaciones, tejimos los títeres y los decoramos para que se pudieran identificar. Usamos algunos materiales reciclados para los títeres, y solo cartón reciclado para el teatrino. Finalmente, descubrimos que los niños aprenden mucho mejor cuando

hay actividades artísticas en las que pueden aprender de una manera diferente, mucho mas visual e interesante que usar solo palabras.

Una de las mayores críticas a la educación ambiental es que está demasiado centrada en el conocimiento científico, la tecnología y la economía. Las dimensiones sociales y políticas de nuestros problemas ambientales no están muy incorporadas, entonces es por eso que las incluimos en nuestro guion. Por lo tanto, el guion incluye las temas de contaminación, urbanización, la destrucción de la naturaleza pero también del lado mas social, como la responsabilidad de los humanos, la relación que podrían tener con la naturaleza, también que el poder que tienen los niños.

Una buena manera de introducir temas ambientales es a través del uso de la educación artística. Esto permite a los niños a aprender sobre la naturaleza de una manera mucho más práctica, y les permite aprovechar sus habilidades de observación y creatividad. Esta es una de las razones por que hicimos el teatro de títeres y la actividad de pintura después de nuestras presentaciones. Sin embargo, también teníamos preguntas de clarificación y comprensión. El otro objetivo de estas actividades, era evaluar hasta cual punto los niños entendieron los conceptos que queríamos enseñar. También, podíamos ver cual era la relación que tenían los niños con la naturaleza interpretando sus pinturas.

Resultos

En total, hicimos cuatro presentaciones en dos días, a grupos de niños del distrito de Colon quien tienen de ocho a diez años. El primer día hicimos nada más que la presentación, y el segundo día, hicimos las preguntas preparadas y la actividad de pintura. En el primer día, los niños no estaban tan motivados de participar, no nos hicieron preguntas ni vinieron a vernos después de la presentación. El segundo día, los niños respondieron a todas nuestras preguntas, pero tenían dificultad de responder a los que estaban más abstractos.

Discusión

En el primer lugar, los niños necesitan más participación de la parte de los presentadores para que participen más y aprenden mejor. También, los conceptos abstractos no fueron bien entendidos entonces, es posible que necesitan otra manera, mas visual como un dibujo o un énfasis en estos conceptos, para entenderlos.

Por los resultados de la actividad de pintura, creemos que eso representa bien el concepto que la sociedad piensa que los humanos están separados de la naturaleza. Entonces, eso es una motivación adicional para añadir más actividades que hablen de la relación y la interdependencia de los humanos con la naturaleza.

Recomendaciones

Con esta información, recomendamos de tener más actividades para que los niños sienten que los otros seres vivos son miembros de la misma comunidad que ellos y para tratar de cerrar la distancia entre los humanos y la naturaleza. Además, incluir actividades de arte en el programa de educación ambiental para que los niños participen más para que pueden expresarse más también, y seguramente de continuar actividades a fuera.

En el fin, sea muy interesante de hacer mas investigación sobre como los niños de Panamá ven de su relación con la naturaleza a través de interpretación de arte de los niños como lo hicimos. Eso podría ayudar en el desarrollo y la mejora de las programas de educación ambiental en Panamá específicamente.

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1.0 Introduction

When we think about the problem of global climate change, naturally the question of 'how it came to be' arises. How is it that we developed a global market economy that is so destructive to the environment and how is it that we let the destruction go so far? During the cultural and economic development of an industrial society, which has been destructive to our planet, we clearly missed out on some important ecological concepts and understanding of the way the natural world works, as well as our place within that world as. For a long time the philosophy which has ultimately led to the current industrial, mechanistic worldview has seen the human world as an isolated entity from everything else- the semantic separation of culture and nature. This dualistic way of understanding the world has encouraged a general notion of self (what the self is, what the individual is) that is isolated from nature. Our society today is so individualistic and disconnected from the world that surrounds us. It is the type of mentality which says "I stop where the confines of my body stop, and whatever happens to that tree over there or the homeless guy on the street has nothing to do with my self". The culturally engrained separation of ourselves from nature has not only disconnected us from the rest of the world, but has also led to a misunderstanding of how we ought to interact with the natural world. This narrow understanding of the world has resulted in a cultural and economic ignorance of the fact that we are in fact physically and existentially dependent on and connected to the natural world.

Today, at an unimaginably grandiose scale, our industrial economic model and our ecological system do not agree with each other. Industrialism tends to see our environment as a smaller entity within our economy, as opposed to our economy as a smaller entity within our environment. In other words, the classical economic model is not rooted in reality, for it assumes

that resources are unlimited and production is not based on what is actually ecologically feasible on a finite planet. Chris Cuomo, an ecofeminist philosopher, argues that the state of human rational is expressed through the type of market economy that is practiced (Cuomo, 2005). If this statement carries any validity, then one could further analyze the impacts the human-nature dichotomy has on society, impacts aside from an industrial, disconnected market economy. The educational paradigm present today also carries many of these industrial and disconnected qualities. Education has become more and more standardized, less about what people can actually do but about how well they can do on exams and pump out work. In other words, academic success is vested in a quantitative capacity of memorizing concepts and definitions and less about a qualitative individual development of ideas. The education system is top down oriented and the educational institutions themselves have a hierarchical structure and also have a very bureaucratic way of functioning (Rost and Barker, 2000). Children in elementary school and high school are separated by age, almost like a date of manufacture, and little of this education is based on real life experience but rather on theoretical experiences in sterilized classrooms. This creates a false assumption that learning and observation only happens in school and in the classrooms, completely disconnected with real life and observations about the real world. This type of learning is also not very stimulating for children and teenagers, therefore it takes a lot for students to feel truly engaged or interested in whatever it is they are learning about.

The truth of the matter however is that humans are relational beings and that our well-being is absolutely dependent on the well-being of our environment and social interdependent realities (Cuomo, 2005). Both toxic substances in the river and every homeless person do in fact

impact each individual, and it is in a person's self-interest to be concerned for the well-being of things external to their personal physical limitations.

Based on the possibility that our environmental problems stem from our understanding of ourselves in relation to all other things on this planet, the solution therefore lies within our ability to widen this perspective and change our attitude towards nature. In the context of a rapidly changing world which faces dilemmas that range from the ecological, social, political and economic realms, the necessity for a paradigm shift in the way in which humans feel related to their natural and social surroundings is primordial. People only act upon what they know, what they have seen and been taught throughout their lives. It is thus within this context that a change in our educational system is required, to include a strong emphasis on environmental education and the reality that we live in a highly interconnected and interdependent world.

2.0 Objectives

Our assigned task was to create an educational puppet show for children from the ages of eight to ten, pertaining to environmental problems of the Cerro Ancon as well as the rest of Panama. This activity was to be incorporated with the existing environmental education program at ANCON, which consists of a walk through their trail named 'El Caucho'. One of the themes which was suggested for the puppet show was the anthropogenic impacts on the flora and fauna on the hill, such as road kill, hunting and poaching, litter left behind from visitors as well as noise and light disturbances from the city. More general problems associated with human development and overall activities were also significant enough to mention, such as pollution of resources, deforestation, urbanization and habitat fragmentation, as well as the importance for conservation and why people ought to care about conserving their local environments. By contrasting the invasive and destructive habits humans have on ecosystems with a few examples

of mutualistic relationships seen in nature, we hoped to both convey the message that there are alternative ways of interacting with our environments in less harmful ways and spark a sense of responsibility, reciprocity and interconnectivity between the children and the natural habitats that surround them. Lastly, the theme of empowerment was one we wished to address in order to inspire children into believing in their abilities in bringing positive change to their communities.

3.0 Study Area



Image 1: Map of Cerro Ancon

Source: <http://www.two-friends-travels.com/panama/panama-city-map.html>

inspiration for artists and others for both its historical value and the vegetation itself. It was used as a planning site in the construction of the canal, the first establishment of US military camps, as well as the main scene of struggles for sovereignty (Dames & Moore, 1998). In fact, part of the Cerro was used as a quarry for the construction of the canal, which can still be seen today within the 'El Caucho' interpretive path. It is now an urban national landmark, known for its scenic, landscape and historical attributes. After the Americans left Panama, the Autoridad de la Región Interoceánica, decided to revert the Cerro to its previous condition, replanting the forest.

From an ecological perspective, Cerro is covered with premontane humid forest and tropical humid forest, mostly young secondary growth in the areas which have been most

Our puppet show will focus on one of ANCON's many parks, one which is located in the very center of the city and has enormous local significance: Cerro Ancon. For one, Cerro Ancon is very appreciated as a symbol of Panamanian nationality and it has been a great source of

developed for the construction of the canal (Dames & Moore, 1998). Now a protected park, a relatively recent inventory of the fauna and flora of the hill has found: 212 species of plants from 74 families and 68 species of vertebrates, including mammals, birds, reptiles and amphibians (Dames & Moore, 1998). This alone is impressive given its previous use as a rock quarry and yet still there is a sense that what can be seen as safe haven for certain species is also an island in the middle of an urban jungle, where there is no ecological corridor. As Margaret Bryant discusses in her article, these corridors would play key roles in maintaining biodiversity (Bryant, 2006). We believe that people tend to neglect places like Cerro Ancon as nature because of their location in a city, just as some have difficulty in perceiving the tree in their backyard as nature. Many feel as if they must travel a certain distance, away from their urban homes, in order to ‘find’ nature. In turn, less attention is given to protecting places like Cerro Ancon or the tree in your backyard. However, this park has potential to inspire, educate and hopefully teach the children of Panama City about the role nature plays in all of our lives. In fact, some argue that urban centers should be the main areas of focus for environmental education for “[f]rom there, the news is broadcast, there the parliaments convene, governments take decisions, courts rule, and new cultural trends arise. It is there that we will begin to win the cause for protected areas” (Ferreira, 2012). Thus, Ancon hill is of extreme significance for environmental education if this is the case. Moreover, cities are where a large portion of pollution originates from, as well as where green space is being lost at alarming rates (Jakowska, 2003). Given its location in the center of the city, this small yet significant park can allow city-dwelling children to have an experience in nature. In fact, ANCON, our host organization, has their offices on Cerro Ancon, where they have created an environmental education program for children of the larger area of Panama.

4.0 Problem

4.1 Reconnecting humans to nature through environmental education

Environmental education began in response to the growing concerns about climate issues around the world, where teachers, school board workers, government programs and grassroots organizations began to push for a reformation of the educational curriculum in order to include more time for classes geared towards the environment. There was a large agreement that the scale of environmental problems called for an intervention whose goal was to change the cultural cosmological lens in attempt to re-connect humans with nature again (Erdogan, 2011). As mentioned previously, there is a false notion of division between humans and nature which has allowed human culture to develop in such an unnatural and destructive manner. Therefore, in order to foster a sense of responsible behavior towards the environment, we must teach ourselves and our children to expand our sense of self to include the natural world around us. Widening our sense of self leads to a more empathetic and philanthropic behavior towards other people and other living things due to the understanding of the complex interconnected reality of interdependence. Thus, if people begin to feel more connected to nature, they will be less likely to have behaviors and do actions which harm it, because harming it would essentially be like harming themselves (Ernst and Theimer, 2011). Studies demonstrate a relatively strong positive relationship between feelings of connectedness to nature and ecofriendly and environmentally protective actions. Such environmental sensitivity has been found to be a significant predictor variable for environmental behavior (Erdogan, 2011). This is why environmental educators have decided to focus on fostering environmental sensitivity.

While environmental sensitivity appeared to be an important component in the human-nature dichotomy, one of the issues with teaching it was that it was not an easy variable to

measure. However, a psychological study was conducted on scientists and conservationists pertaining to their memories as children, and this helped shed light on how environmental sensitivity is fostered and could be assessed. From this study, environmental sensitivity seems to be a cross between memories of outdoor experiences, knowledge about the natural environment and positive human interactions (Ernst and Theimer, 2011). Though environmental sensitivity seems to be rooted in childhood experiences in nature, this is an immense obstacle to overcome for environmental educators today when children are spending less and less time outdoors and more time inside in front of screens. The question remains, where will future environmentalists come from if the physical and psychological distance separating children and nature continues to expand? Numerous studies have demonstrated that participation in outdoor and out-of-school activities helps individuals gain observational skills about relationships that occur in the natural environment (Erdogan, 2011). Data from these studies confirmed that engaging students in outdoor activities enables them to gain a deeper understanding of the realities of the natural world and helps them observe and gain their own knowledge about the environment. As a result, new environmental education programs have been created that focus on getting children outdoors to interact with nature first-hand. For example, the US Forest Service launched a public service campaign called 'Discover the Forest' which was created to inspire children and their parents to get outside and re-connect with nature. Many workers from these programs have noted that environmental sensitivity could be measured by the extent in which people view themselves as egalitarian members of the broader natural community, feel a sense of kinship with it, and view their welfare as related to the welfare of the natural world. This is in line with Aldo Leopold's philosophy that humans must change "from conqueror of the land community to plain member and citizen of it" and insists that our obligations as members of

the land community require us to act so as to “preserve the integrity, stability and beauty of the biotic community” (Leopold, 1948). Therefore, it is suggested that these indicators could be used to evaluate whether interventions aimed at increasing the contact of children or adults with nature actually improved their connectedness to nature (Ernst and Theimer, 2011).

Environmental educators have pointed out the importance of starting environmental education in early childhood for at those earliest years life experiences play a vital role in shaping life-lasting attitudes, values, and behavioral patterns (Wilson, 1996). According to Chief Gail Kimbell of the US Forest Service, children require a direct relationship with the outdoors for their health and personal growth (Ernst and Theimer, 2011). Kids who have more experience in nature tend to be more aware of its marvels and more able to relate to it with a sense of wonder and sublimity, “Their spirits are nurtured by nature and they discover through it sources of human sensibility” (Wilson, 1996). Wilson also alludes to how Plato refers to the sense of wonder as a source of knowledge and how Cobb similarly relates wonder to imagination, and she states that it is wonder that provides the spark for wanting to learn about the environment in children- not books, lectures or movies about nature.

4.2 Criticisms of Environmental Education in Schools

One of the biggest criticisms of environmental education to date is that it is taught in such an impersonal and detached manner that it is fundamentally problematic (Song, 2008). The unemotional manner in which students are often being taught about their environment is ineffective because children do not gain a sense of connectivity or attachment to their environment as they should. One of the key reasons why environmental education is important today is that we have become detached from our surroundings and have lost sight of how to live in a non-destructive manner on this earth. In classrooms, education is focused on scientific knowledge, technology and the economy, which seems to be an unexciting thing for children,

leading to many having a hard time relating to it (Tsevreni, 2010). In retort, teachers in classrooms are now coming up with ways to make environmental education much more stimulating and personal for students so that they are able to gain more of a connection to nature and a feeling of responsibility to protect nature as well.

The focus on only a few aspects of environmental issues prevents children from developing their critical thought, their ability to take action, and their motivation and willingness to be active. Having too much focus on scientific knowledge does not give children the opportunity to focus on action. The absence of both critical thought and of social and political dimensions of the ecological problems we have are the limiting factors, and thus should be a large part of the focus in environmental education (Tsevreni, 2010). This would give children the tools they need to analyze problems critically and systemically, thus giving them the ability to get down to the root causes of environmental issues. Furthermore, it gives children the starting point and ability to act. An incomplete evaluation of environmental problems reinforces feelings of powerlessness.

When too much emphasis is on science, the education children are receiving becomes impersonal and detached which is fundamentally problematic for the children when they attempt to express themselves about what they are learning (Song, 2008). This style of teaching makes it very hard for kids to express their perceptions, their experiences and emotions, and also does not appeal to building sensitivity towards their environment nor their communities (Tsevreni, 2010). Emphasis on scientific facts can lead to a focus on topics like pollution and climate change, instead of celebrating and being in awe about the wonders of the earth. This problem based approach to environmental education can bring a negative atmosphere into the classroom. Not to say that it should not be included, but there needs to be a balance between the negative and a

positive focus. Children need to be inspired and encouraged to act, while instilling fear about the range of ecological problems we face might not have this effect. Instead, we need to light their spark and bring out their passion and creativity, and bring out their sense of care and desire to take care of the world around them (Song, 2008). Therefore, one way to introduce environmental issues in a less overwhelming manner is to explore them through the use of art education. This allows children to learn about nature in a much more engaged way, and allows them to tap into their deep observational skills and creativity. It also allows them to explore concepts about nature in more depth, as children are much better at expressing themselves and digesting complex new thoughts through drawing, painting, song, dance, and play as opposed to language, numbers and writing (Song, 2008). They are children after all, and children have wild imaginations, education should be about bringing those imaginations out instead of suppressing them away.

5.0 Methodology

5.1 Ecological Themes

In order to create a realistic and pertinent puppet show for ANCON, much research had to be done about the specific local issues and natural processes we wanted to mention in order to get our message across. Given that using local examples helps foster a connection between the children and their immediate environment, this is how we chose to approach the writing of the script; using ecological processes that can be found on the Cerro Ancon to support our ideas. Below are the two main concepts we discuss in the script which can be found in its entirety in Annex 1.

5.1.1 *Azteca ants and the Cecropia*

To demonstrate an example of what a mutualistic relationship is, we decided to focus on the relationship between certain species of *Azteca* ants and the *Cecropia*, otherwise identified as the

‘Guarumo’ by our ANCON guides. This tree is present on the ‘El Caucho’ walk that the animators take with groups of students and so is relevant to ANCON’s own environmental education program. In short, *Cecropia* trees have evolved in a way that allows for this strong relationship with *Azteca* ants to exist. For instance, a hollow internode is created during development, creating a space in which the ants can live (Longino, 1991). In addition, a food source in the form of Müllerian bodies is produced by the tree and harvested by the ants (Longino, 1991). While much is still not completely understood about the entire process, it is known that six species require this tree to live, meaning they are completely dependent on it for the survival of their species. From the perspective of the tree, one must ask how such a relationship evolved to benefit the *Cecropia*. According to optimal defense theory, such a mechanism would arise in situations of high herbivory (Gianoli, 2007). Indeed, a positive relationship was found between ant defense mechanisms and herbivory, of old leaves mostly (Gianoli, 2007). The different species of *Azteca* ants have different defense behaviors, some patrol the leaves heavily, will emerge from their nests if the branches are prodded, while others do not (Gianoli, 2007). Overall, the relationship between these two organisms is complex, which gives more reason to use it as an example of how humans can interact with nature, for every group will do so differently. Yet, the idea we would like to convey is that of promoting a mutualistic instead of parasitic relationship between humans and nature. Just as the ants are dependent on the *Cecropia* to survive, humans are dependent on their environment as well.

“Un buen ejemplo es el Guarumo y las hormigas. El Guarumo es la casa de las hormigas, produce comida para las hormigas y ellas protegen al árbol. Ese es un buen ejemplo de como los humanos pueden interactuar con el bosque, y la naturaleza en general.” (Annex 1)

“A good example is the Guarumo and the ants. The Guarumo is the ants’ house, it produces food for the ants and in exchange they protect the tree. This is a good example of how humans can interact with the forest and nature in general.”

5.1.2 Marine Pollution and its Effect on the Ecosystem

While our goal was to present the specific environmental problems of the Cerro Ancon, we decided to mention the problem of littering on a larger scale. The Cerro Ancon does not have a big problem with littering due to the nature of people's visits being short for the most part (Personal communication with Environmental Education Director at ANCON). Also, people working at ANCON help keep the area clear of litter, and the fences protecting the forest do not allow for people to walk through the forest, explaining why it is rare to find garbage on the hill. Nevertheless, given that Panama's streets, alleyways, and many beaches find themselves overwhelmed with trash, we found this to be a problem worth mentioning as a direct anthropogenic impact on wildlife (Garrity & Levings, 1993). The impacts of marine debris, consisting mostly of plastics, range from ingestion to entanglement, and are present at many levels of the food chain, from the albatross to the filter feeders (Moore, 2008). Given that most of the debris come from Panama, one estimate stating 43% for the beaches, we believe it is an important topic to be covered when discussing environmental issues in Panama.

"Mono Titi: ... Mira las playas, son llenos de basura. Los animales marinos sufren a cosa de eso.

Niño: ¿Como sufren?

Mono Titi: La contaminación del agua, y hacen la misma cosa que este ñeque, cómanlo." (Annex 1)

"Mono Titi: ...Look at the beaches, they are full of garbage. Marine animals suffer because of this.

Child: How do they suffer?

Mono Titi: Because of the water pollution, and they do the same as ñeque, they eat the plastic."

5.2 Puppet Characters

As with the above-mentioned processes and examples, we thought it best to use local species as our characters in the puppet show in order to foster a certain level of relativity between the children and their immediate environment. In order to determine which species should be represented we first verified which species were actually present at the Cerro Ancon. There are a total of 15 species of mammals, 39 species of birds, 9 species of reptiles and 5 species of amphibians. Once we knew our options, we decided to have as much of a variety of animals to represent the diversity of the forest without overwhelming the children with too many characters. We decided on the following five species for the reasons provided.

5.2.1 Sloth

There are two species of sloths that can be found at Cerro Ancon, the three-toed brown-throated sloth, *Bradypus variegatus*, and Hoffman's two-toed sloth, *Choloepus hoffmanni* (Dames & Moore, 1998). While both of these species are considered of 'least concern' in terms of endangerment, the International Union for the Conservation of Nature (IUCN) still mentions threats to their population, mostly habitat loss and fragmentation, as well as hunting from indigenous peoples (IUCN, 2011). However, for threats in Central America, which is pertinent to our project, *Choloepus hoffmanni* seems to be the species with most local pressures. In our script, we mention how the slow locomotion of the sloth is a defense mechanism against predators which is supported by Voirin et al. (2009). This extract is a way of explaining how many animals adapt to their environment in different ways in order to survive.

"Niño (sorprendido): ¡De donde vienes! ¡No te vi!

Perezoso: Es normal, no te preocupes. Es la manera que me protejo de mis depredadores." (Annex 1)

"Child (surprised): Where did you come from? I didn't see you!

Sloth: This is normal, don't worry. This is my way of protecting myself from predators."

5.2.2 Iguana

We decided to include the iguana, *Iguana iguana*, in our presentation for it is a species that can be seen around ANCON hill and has faced certain conservation pressures in the past. One of their main threats is habitat lost, as the urban and agricultural centers spread, more and more forest is lost. However, an interesting project was launched in the 1980's in three Panamanian villages, one being Llano Grande de Ocu, in order to up their numbers (Cohn, 1989). This project consisted of farming iguanas and releasing them in the wild, as both an effort at maintaining a wild population as well as to create a food source for 'campesinos'. This is an excellent example of how conservation efforts can include the people living in the same area and creating a mutualistic relation between the two. As the people wish to maintain the iguana population thriving, they must maintain their habitat. As of now the iguana is listed on CITES as an appendix II species, so not currently endangered but still under a certain level of trade protection (UNEP-WCMC, 2012).

5.2.3 Toucan *Pico Iris*

Although the species is listed as 'least concern' on the IUCN red list, it is still mentioned that the population of *Ramphastos sulfuratus* has been in decline, the reasons including habitat loss (IUCN, 2008). This bird is one of the highlighted species of the 'El Caucho' interactive walk that ANCON's environmental education department presents to visiting groups of children, one of the reasons being their call is quite distinctive. By including the toucan, we were hoping to create a link with what the children learnt during their walk with the Ancon guides and our puppet show. By having the same names and concepts repeated, we hope to get our message across and have a lasting impression on the children.

5.2.4 Mono Titi

The Mono Titi, or Geoffrey's Tamarin, *Saguinus geoffroyi* is closely related to Colombia's critically endangered Cotton-topped Tamarin, *Saguinus Oedipus*. The Panamanian species is not

in as precarious a situation yet is still suffering a population decline according to IUCN's red list with the main threats to their numbers being mostly habitat destruction yet hunting for the pet trade seems to be a factor (IUCN, 2011). Geoffrey's Tamarin is also listed as an appendix I species on CITES, meaning they cannot be traded, thus they are under protection for conservation purposes (UNEP-WCMC, 2012). The threats mentioned above, habitat destruction and hunting, are in fact the same for most neotropical primates and are leading to the decline of twenty-eight of the species according to 1989 statistics (Mittermeier, 1989). This particular idea was transmitted in how the Mono Titi explains how human development is occurring, leading to a balancing act between the needs of the people and those of the inhabitants of the forest. The message we wanted to portray was that of a mutualistic relationship between the two, one of give and take, between human development and habitat conservation for the many species which require the tropical forest for the survival.

“Si amigo, pero los humanos necesitan vivir en un lado y necesitan materiales para construir cosas y alimentos para comer. Es lo mismo para los animales, entonces, todos deben hacerlo. Todos deben usar el bosque, y dar al bosque también.” (Annex 1)

“Yes friend, but humans need to live somewhere and require materials to build things and food to eat. It is the same for animals, so, everyone must do it. Everyone must use the forest, but also give to the forest.”

5.2.5 Ñeque

This particular character is extremely common throughout the city and can be spotted quite easily. In fact the ñeque, or Central American Agouti, *Dasyprocta punctata* is listed as least concern on IUCN's red list given its large distribution and stable population trend (IUCN, 2011). We decided to include the ñeque in our puppet show as a tribute to the concept of ‘finding nature in your own backyard’. Actually, the ñeque is the only species that was recorded in the area

surrounding the hill, Quarry Heights, during a particular study, representative of its abundance (Dames & Moore, 1998). While this species is not seem to be in any danger from a conservation point of view, one must not forget the importance of the complex interconnectivity of nature and how every component

5.3 Flora of 'El Caucho'

We compiled a list of species that are found and identified on the 'El Caucho' path that is taken by the group of children. We used these species to inspire the scene for our theater in order to best represent the location of the puppet show's story.

Common Name	<i>Scientific Name</i>
Barrigón	<i>Pseudobombax septenatum</i>
Higueron	<i>Ficus Tonduzii</i>
Espavé	<i>Anacardium Excelsum</i>
Guarumo	<i>Cecropia insignis or eximia</i>
Arból Panama	<i>Sterculia Apetala</i>
Palma Real	<i>Roystonea regia</i>
Estrangulador	<i>Ficus obtusifolia</i>
Jobo	<i>Spondias mombin</i>
Otoe Lagarto	<i>Dieffenbachia longispaths</i>
Filodendro	<i>Philodendron hederaceum</i>
Caña Brava	<i>Bactris major</i>
Caucho	<i>Castilla elastic</i>
Membrillo	<i>Gustavia superba</i>

5.4 Puppets

Once we had determined which species were adequate as characters in the puppet show, we had to create the puppets. The main characteristics that we thought most important was the ability of recognizing the animal represented, ease of manipulation during the presentation, as well as minimal use of materials.



Image 2: Iguana puppet

Thus, we decided to knit hand-puppets with the same basic design, that of a glove. We chose this format because it made the puppets very easy to manipulate and so we would not have trouble working two puppets at the same time. The design is also compatible for both right and left hands interchangeably. We used a variety of methods such as stitching, painting and collage to adorn the puppets with the necessary details to make them recognizable.

5.5 Theater

After making an inventory of the different tree and plant species that populate the ‘El Caucho’ interactive path, we were able to create the background to our puppet show. We wanted to make sure we were remaining true to the context of Cerro Ancon in order to get the children familiar to the local composition of species, both plant and animal. At first, we created an outline of the



Image 3: Theater and puppets

scene, in order to plan out the different dimensions of the different plants. Afterwards, we painted in the different individuals, attempting to maintain realistic characteristics. Once the background was finished, we needed to construct the actual theater. We used a recycled box and cut out the necessary portions to create an empty space for our arms. We used a minimalistic design that can be placed on any table.

5.6 Knowledge retention

According to one study, there are five different steps to complete in order for children to fully comprehend and retain a concept: “excite, listening, visualize, extend, and savour” (Akkoyun, 2008). Our activity, paired with ANCON’s environmental education program, follows these steps in the following ways. For one, the children begin by walking the ‘El Caucho’ path, which is meant to excite their interest in nature. Afterwards, our puppet show is a combination of listening and visualizing as the different characters act out certain lessons and concepts pertaining to environmental stewardship. In order to extend their learning experience, a brief question period is intended to insist on the important concepts, as well as to get the children to begin questioning further. The final step, savouring, is meant to give time for the children to fully absorb the information that they have received. Thus, we coordinated a painting activity meant to give the children an outlet to their creativity, and hopefully allow for them to express their thoughts in a different manner. In fact, it has been shown that painting or drawing activities allow for children to assess the information at an individual level instead of as a group, such as is the case with question periods (Kalvaitis, 2012). Also, once the children had completed their painting, we asked them to present to the group what their painting represented to them. Further, the children could take their paintings home as a reminder of what they learnt that day as well as hopefully, start a conversation with their parents on the matter.

6.0 Results

All in all, we gave four presentations of the puppet show over a span of two days. The show itself lasted approximately twelve minutes and was given to groups of children from Colon, from the ages of ten to twelve, which is older than was planned. Nonetheless we continued as planned, with each presentation followed by a short question period. Unfortunately, due to a miscommunication, there lacked enough time to go through with the painting activity on the first day. However, this gave us the opportunity to compare how the participation and overall involvement of the groups varied with more and less encouragement on our part.

For the first of two presentations on our first day, we did not ask any questions or give any information before or during the puppet show. As for the final question period, we only opened the floor to questions from the children and did not provide any of our own. These presentations served the purpose of noting the reaction of the children when a more participatory approach is not insisted upon. The results were a seeming lack of interest in the activity; the children did not approach us after the presentation nor did they ask any questions. However, in the second presentation of the day, we made some efforts to engage the children by asking certain questions after the show, instead of leaving it open to them and already, the children were more involved in the activity and answered the questions and certain came to see us at the end to look at the puppets and ask us questions.

For the second day of presentations, we increased the level of interactivity on our part in order to directly encourage participation. For one, we directed questions to the children during the puppet show, such as the Toucan asking: '*Y tu, como piensas que me llamo? (And you, what do you think my name is?)*'. In addition, we had prepared a list of basic comprehension questions following the show (Annexe 2).

Unlike the previous day, we were allotted the necessary time for the painting activity. The children were asked to paint what they believed their relationship with nature was. During this art activity, the children were engrossed in the task at hand and worked in pairs. They could be heard exchanging ideas and suggestions about what to include in their painting. After approximately 20 minutes, the children were asked to explain to the group what they had painted. Most children listed the different components of their painting, none of which contained people surprisingly.

7.0 Discussion

When we compared the two sets of presentations, there was a noticeable difference in the amount of engagement and participation the kids had between the first and second days. On the first day, when we did not ask them questions before and during the presentation, the kids had relatively nothing to say at the end, and did not have too many questions for us. On the second day, when we asked specific questions and had the puppets interacting with our child audience, the kids were much more engaged in the activity. Their level of comprehension increased significantly, as they were able to answer all the questions we asked. Their level of participation also improved as after we were done our activity, they had more questions for us and even wanted to try re-enacting things the puppets said during the presentation while playing with our puppets.

Some of the questions we asked included the following: when asked '*Qué estaba comiendo el ñeque?* (What was the ñeque eating?)', the children were quick to exclaim '*Plástico!* (Plastic!)'. On the other hand, the more complex questions such as '*Porqué el Cerro Ancon es como una isla?* (How is Ancon hill like an island?)' prompted no answers from the group. When provided with follow-up questions with the intent of clarifying the original, '*Qué podemos*

encontrar a la redonda de una isla? (What can we find surrounding an island?) Y qué podemos encontrar a la redonda del Cerro Ancon? (And, what can we find surrounding Ancon hill?)’, the children did not make the intended connection between an island being surrounded by water and the Cerro Ancon being surrounded by the city. One explanation for why certain questions were more easily answered than others is in the way in which those topics were presented in the puppet show. Both the Ñeque choking on plastic and the Iguana being scared of vehicles were both visually expressive and animated scenes, perhaps captivating the children’s attention more than the Sloth’s short monologue explaining habitat fragmentation and how it compares to the island concept previously mentioned. Thus, perhaps more visual, interactive and expressive representations of complex concepts should be provided in order to increase children’s conception of them.

With regards to the painting activity, the proposed theme of painting their relationship with nature was possibly too abstract for the children to achieve, especially in such a short time frame. Due to our focus on the importance of the connectivity and relation between children and their local environment, a theme pertaining to this might have been more pertinent. For instance, when attempting to determine children’s relationship with nature, one particular study asked the children to draw themselves doing an activity in nature (Kalvaitis, 2012). This theme attempted to get children to include themselves in the drawings, unlike our theme. Thus, questions more like that one would have been a more appropriate for the painting activity. On the other hand, does the fact that none of the children included themselves in the paintings indicate that they do not feel they belong in a depiction of ‘nature’? While one must not exclude the possibility that the theme of the painting was not well understood, the fact that none of the paintings included people is an interesting point and should not be completely discarded. Excluding themselves in

their own depictions of nature could signify that their local communities and Panamanian society still believes that humans are separate from nature and that this belief is still being taught to the children.

8.0 Recommendations

Following both the investigation into the existing problems in environmental education as well as the results from this project, we believe including more participatory and interactive activities could benefit ANCON's own program greatly. This is due to the increased capacity of children to process information through participation and ability to express their thoughts and understanding of the material. In addition, we suggest introducing more activities that discuss the interconnectivity and interdependence that exists between the social and ecological realms in order to bridge the distance that currently separates them in children's perception of the world. For instance, ANCON's interactive 'El Caucho' path should include an explanation of people's role in the history of the hill as well as how they are part of the natural world that is around them. At the moment, ANCON's environmental education program lacks an artistic component which would allow children to have a more active role in their learning experience, instead of being passive recipients of information. Therefore, the inclusion of artistic and participatory activities would be a more efficient way to foster environmental sensitivity in urban-dwelling children, who are both the most important demographic to focus on, as well as those who participate in ANCON's program.

Given that children had difficulties in understanding some of the more abstract concepts such as habitat fragmentation, we feel that more visual explanations could be of great aid in transmitting this type of information, including more artistic activities. Furthermore, we

recommend continuing to include an outdoor component in order to create these experiences in nature that are vital for the children of the city to develop environmental sensitivity.

Finally, we recommend that further studies be done on the relationship children have with nature through art analysis. Such studies should expand on examining the differences that exist in children's conceptions of nature at different ages, in order to better understand the development of the culture nature dichotomy through a child's own growth. This could help improve and develop new methods for environmental education programs specifically catered to Panama.

9.0 Conclusion

In this report, the importance of environmental education has been discussed. The necessity to reconnect humans with nature is vital if we are to overcome the challenges of global climate change. The goal of environmental education is to achieve this reconnection by fostering environmental sensitivity among children. An increase in outdoor experiences, scientific knowledge and positive human interactions are associated with increasing environmental sensitivity. Children are able to comprehend new complicated concepts better through the form of artistic rather than scientific education. The expansion of environmental education curriculums to include social, political, historical, ecological, scientific, economic, and technological perspectives of ecological problems give children a holistic understanding of these problems, allowing them to gain critical and systemic thinking skills. These skills will provide the ability for children to understand the root cause of ecological issues, as well as gear them towards a starting point in which they can take action. Introducing ecological knowledge through the arts instead of through the sciences fosters a positive and wonderful connection to environmental knowledge as opposed a negative knowledge which can frighten the children and

paralyse their ability to take action. When children are actively engaged through the arts, they are able to understand and develop a deeper understanding of ecological problems, as well as develop their observation and creative skills. Our painting activity allowed the children to express their current understanding of their place in the environment. The analysis of this exercise allowed us to conclude these children still have not made the connection between their being and the being of the environment. The environmental education program they have been exposed to has not yet allowed them to realize the interconnected and interdependent reality in which they share with the natural world. Further studies should investigate how our recommended artistic activities and how other teaching methods perform in effectively fostering environmental sensitivity among children.

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Annexes

Annex 1: Script

Un día en el Cerro ANCON

Vivimos en un tiempo de cambios importantes. El clima esta cambiando y Panamá se esta desarrollando rápidamente. Si pensamos en esos dos fenómenos juntos, una transformación de mentalidad, es una necesidad un mundo más informado sobre el ambiente. ¿Y cual es la situación en Panamá? ¿Que puede hacer la gente para ayudar en la lucha por un mundo mejor? ¿Más específicamente, que pueden hacer los niños, quienes representan el futuro? Todas esas preguntas son lo que vamos a intentar de responder.

En esta historia, vamos a ver, el punto de vista de los animales del bosque, cuales son las cosas que afectan el ambiente en Panamá. Además, vamos a ver un poco sobre la historia del Cerro Ancón y por qué es un lugar muy importante para el pueblo de Panamá, y para los animales que viven allí. La historia empieza con un niño que estaba jugando en la calle con sus amigos cuando de repente, su pelota cayo del otro lado de la valla. Entonces, el niño entra en el bosque...

Mono: ¿Quien eres?

Niño: (*con sorpresa*) ¡Ah! ¿Quien es?

Mono: ¡Lo pregunté primero!

Niño: Me llamo José ¿y tú?

Mono: ¡El Mono Titi! Vivo aquí, en el Cerro ANCON.

Niño: ¿Hay monos aquí, en la ciudad? No sabía que era posible.

Mono: ¡Sí! El Cerro ANCON es un lugar muy especial con una historia muy rica... ¡Oh, qué alivio, me estoy escondiendo de Tucán ... de todos modos, ¿qué estás haciendo en el bosque?

Niño: Mis amigos y yo estábamos jugando con la pelota y ésta entró en el bosque, ¿la has visto?

Mono: ¡No! Yo no la tengo, pero puedo ayudarte a encontrarla.

De repente, un tucán vuela hacia abajo desde el cielo y se posa en la rama del árbol, enfrente del niño y el mono.

Tucán: ¡Ajá! ahí estás, a dónde fuiste? ¿Quién es tu amigo? No termine de contarte la historia del Cerro Ancón!

Mono: ¡Oh no! pensé que te habías perdido!

Tucán: ¿Quién es tu amigo?

Niño: mi nombre es José. ¿y tú?

Tucán: Mi nombre es el tucán, ¡y yo estaba a punto de terminar mi historia sobre el Cerro Ancón!

Mono: ¡No!

Tucán ¡Sí!

Mono: ¡Corre!, ¡Rápido!

Niño: ¡Espera mono! Nunca he oído la historia del Cerro Ancón, por favor Tucán, ¿puedes continuar?

Tucán: ¡Si! Bien, ¿dónde estaba? oh, sí. Cerro Ancón es el símbolo de la nacionalidad panameña por la libertad. Fue aquí que los primeros americanos hicieron su campamento militar y se utilizó para ayudar a planificar la construcción del canal. El bosque fue deforestado con el fin de encontrar rocas para ayudar a construir el canal. ¡Pobres mis antepasados! ¡Ellos perdieron su hogar!

Mono: *(Con tristeza)* Aaaah si, ¡mis antepasados también!

Tucán: Pero fue también el lugar donde los panameños lucharon por su libertad! *(Mono haciendo ruidos karate en el fondo)* Y desde entonces, el pueblo de Ancón han plantado los árboles y se mejoro la vida en el Cerro.

Mono: ¡Viva el Cerro!

Tucán: ¡Viva el Cerro!

Niño: Yo no tenía idea de que este lugar era tan importante.

Hay un ruido de algo que se asfixia

Ñeque: Ayúdame... (*cough, cough*)

Tucán: Voy a ayudarte...

El tucán intento de ayudarlo pero no pudo

Mono: ¡No puedes! Voy a hacerlo.

Hace el 'Heimlich maneuver

Tucán: ¡Ahhh!

El Tucán se va

Ñeque: ¡Oh gracias! No sé que estaba comiendo...

Mono: (*Tiene plástico es su mano*) Plástico.

Ñeque: ¿Ah sí?

Mono: Sí. Y es muy raro porque no hay mucha basura en este bosque, por suerte. La gente quien trabaja aquí recoge la basura. Pero, no es la situación en muchos otros lugares. Mira las playas, son llenos de basura. Los animales marinos sufren a causa de eso.

Niño: ¿Como sufren?

Mono: La contaminación del agua, y hacen la misma cosa que este ñeque, cómanlo.

Ñeque: Sí, cada vez que salgo de este bosque, encuentro basura, en el suelo.. en el agua... basura, basura, basura! Y no es todo! Cada vez que voy a la ciudad debo cruzar calles, y es muy peligroso!

Una iguana verde aparece y es muy nerviosa

Iguana: (*respira muy rápidamente*): ¿Calle? ¿Con autos? No me gusta, ¡NO ME GUSTA!

Mono: Amiga, ¡cálmate! Todo está bien, hablamos simplemente de eso, no hay autos.

Hace un ejercicio de respiración

Niño: ¿Que hacen los autos?

Iguana: ¡AHH UN HUMANO! (*respira rápidamente otra vez y se desmaya. El Mono Titi lo despierta*)

Mono: Iguana, por favor, es un amigo, no va hacerte daño. Buscamos su pelota, la perdió en el bosque.

Iguana: Seguro? Entonces, niño, no sabes que los autos atropellan a los animales?

Niño: No, no manejo, entonces no sabia...

Iguana: ¡Ahhh entiendo! Pero si, es muy peligroso para nosotros. Antes, de todo eso había bosque y podíamos caminar con libertad, pero ahora, es la ciudad. Es como una isla, pero en lugar del mar, esta la ciudad. Es seguro en el bosque pero, cuando salimos del bosque, tenemos miedo de los autos y las maquinas de los hombres. ¡Nunca podría ir a otro bosque!

Niño: Pero, ¿porque salen del bosque?

Ñeque y Iguana: Para buscar agua.

Niño: ¿No hay agua en el bosque?

Ñeque: Desafortunadamente no, había antes, es lo que me dijo mi abuelito. Pero ahora, no hay, se seco.

Mono: Si, por suerte, la gente que vive al lado del Cerro ANCON pone agua afuera para los animales. No es bueno que falte una fuente de agua natural aquí. Por suerte la gente nos ayuda en eso.

Iguana: Me gustaría mucho tener un rio! Debo irme ahora, ojala que encuentres tu pelota!

Niño: Pero, con todas esas cosas malas que hacen los humanos, es claro que nunca podemos entrar o usar el bosque. Ahora los animales son dependientes sobre nosotros para beber pero los matan con sus autos. No entiendo si somos buenos o malos... ¿Que debemos hacer?

Un perezoso aparece lentamente

Perezoso (*Hablando muy lentamente*): Escúchame niño...

Niño (*sorprendido*): De donde vienes! ¡No te vi!

Perezoso: Es normal, no te preocupes. Es la manera que me protejo de mis depredadores.

Niño: Ah! Es muy inteligente!

Perezoso: Si. Hay muchos animales que se protegen de maneras diferentes para sobrevivir. Un buen ejemplo es el Guarumo y las hormigas. El Guarumo es la casa de las hormigas, produce

comida para las hormigas y ellas protegen al árbol. Ese es un buen ejemplo de como los humanos pueden interactuar con el bosque, y la naturaleza en general.

Niño: Como...¿ayudar, el bosque nos da la comida?

Perezoso: No solamente la comida. El bosque nos da muchas cosas, como el aire que respiras. ¿Sabias que el Cerro ANCON te proteja de los fuertes vientos? Hay muchos recursos naturales en el bosque como madera para construir y comida para tu familia.

Niño: Entonces, debemos ayudar a mantener la salud del bosque y los animales para mantener nuestra salud también!

Iguana: Si! De todas maneras, no me gusta la ciudad, prefería solo el bosque!

Mono: Si amigo, pero los humanos necesitan vivir en un lado y necesitan materiales para construir cosas y alimentos para comer. Es lo mismo para los animales, entonces, todos deben hacerlo. Todos deben usar el bosque, y dar al bosque también. Hay humanos que quieren vivir en el campo y otros en la ciudad. No importa.

Niño: Si, pero como el perezoso dijo, es la manera que interactúas con la naturaleza, entonces podemos vivir en la ciudad pero con cuidado con el bosque, y los animales por supuesto!

Perezoso: Exactamente! Nos alegra a los animales y las plantas ayudar a los humanos, pero solamente si ellos nos ayudan para crecer también.

Mono: Ah, niño, aprendiste mucho hoy, ¿es verdad?

Niño: Si, pero, no puedo cambiar nada, soy solamente un niño, solo!

Mono: Ah, no tienes razón! Puedes hacerlo si quieres, si empiezas a hacer cosas para proteger el bosque, y tus amigos ven eso, es posible que van a empezar a hacerlo también! Todos empiezan jóvenes, no? Entonces, debes creer en el poder que tienes. No olvides que la creatividad es muy importante, y si eres siempre positivo y nunca abandonas tus ideas, podrías cambiar el mundo poco a poco, y crear el mundo en que deseas vivir.

Niño: Imagino que si, ahora voy a decir todo eso a mis amigos. Y cambiar como interactúo con la naturaleza. Ah, mira, mi pelota!

Mono: Buenas suerte niño!

En este día, el niño aprendió muchas cosas, como algunas maneras de interactuar con la naturaleza sin dañarla. Este es el inicio del movimiento para cambiar la mente de la gente. Y tu, ¿quieres cambiar tu mundo?

Annex 2: Questions

1. Que estaba comiendo el ñeque? (*What was the ñeque eating?*)
 - 1.1 Porqué hay plástico en el bosque? (*Why is there plastic in the forest?*)
 - 1.2 Porqué es malo? (*Why is it bad?*)
2. Hay agua en el Cerro Ancon? (*Is there water on Ancon Hill?*)
 - 2.1 Cómo los animales buscan agua entonces? (*How do the animals find water then?*)
 - 2.2 Porqué es peligroso? (*Why is this dangerous?*)
3. Porqué el Cerro Ancon es como una isla? (*How is Ancon Hill like an island?*)
4. Cómo los niños pueden ayudar? (*How can the children help?*)