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# ESL MiniConference

## Leading by Example *Working with the Children of Madagascar to Keep the Towns of Ranomafana National Park Clean*

*This article was written by Heather Giselle Scott, a recent anthropology graduate at Stony Brook University.*



### I. Abstract

In an effort to reform the sanitation circumstances of Ambatolahy, a town within Ranomafana National Park, measures were taken to educate and empower the children of the town. Through classroom lessons, hands-on activities, neighborhood clean-up events, and the installation of Ambatolahy's first communal

garbage cans, leaps of great progress have been made to restructure the town's attitude towards litter.

### II. Introduction

A good student absorbs from the learning environment

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everything that she can and carries it with her always; a great student projects the knowledge and promotes what has been learned so that others can become aware. Studying in a foreign land is expected to spark new thoughts, ideals, visions, and attitudes, naturally, to those open to the experience. The new surroundings will change you; but, how will you change those surroundings? Upon my arrival to Madagascar, I became instantly aware of the abundance of litter and the corresponding lack of garbage receptacles. It seemed logical to me that there would be garbage on the streets if there were no proper waste cans for people to use. And, therefore, it seemed logical to me to do something simple: install garbage cans.

Ranomafana National Park is bordered by various small to medium sized villages. The village of Ambatolahy, about two miles away from Centre ValBio, was the area I chose to focus on for my project. The goal of the project was to raise awareness about the negatives of litter and to provide an alternative to throwing waste on the ground. It has been well documented that children who are exposed to a dirty environment suffer health risks (Fotso, 2006). My

hypothesis was that education would ignite the individual students into action and towards the goal of eliminating litter. Health concerns for the children of Ranomafana drove my objective. Rutstein (2000) writes, "Removing contaminants from the living space of children is an important means of preventing the deterioration of health that may lead to death. In developed countries, much of the decline in mortality has come about through public health measures that have improved environmental health, such as...trash and garbage collection..." In an attempt to make a lasting change for the benefit and safety of the residents of Ambatolahy, my project targeted garbage management reform. Thinking globally and acting locally, this is my sanitation project in Madagascar.

### III. Subjects and Methods

#### A. Subjects

The reason Ambatolahy was chosen as the Pilot Town was because of its proximity to Centre ValBio and its long history with the Centre's efforts to better the

living conditions of local villages. Ambatolahy's neighboring school, E. P. P. Ambatolahy (E. P. P. A.), was where awareness was raised in the form of classroom lessons and activities. Starting the reform with children in a school environment would bring about more enduring results. Children are known to be a great medium for an idea to reach large amounts of people; just notice how commercials for children's toys are created to attract the attention of the child and not the parent who actually makes the purchase. Additionally, **Figs. 5** and **6** show that the majority of students surveyed at E. P. P. A. do share what they learn in school with their parents. Just as marketing professionals rely on the child as a messenger to push their product, it was my intention to reach the ears of parents and adults in Ambatolahy through the voices of the town's children. The estimated number of students exposed to the lessons is 72. All of these children were given two surveys to complete, one pre lesson and one post lesson, in order to quantify and track the lesson's influence.

## B. Setting

Classroom settings were very cramped. The average



classroom size was 34 students. It was clear that the number of students per classroom were not ideal. In classroom A, for example, about six students were seated in an area separated by a wall. Their only access into the room where the teacher and blackboard were located was through an open doorway. When I held my lessons in this room, the students in that removed section were constantly craning their necks in order to see me. Classroom B was not constructed in the same way, but the students to teacher ratio would still be considered undesirable. Despite these obstacles, the students' spirits were eager and the classroom atmosphere showed that teachers tried their best to provide a stimulating environment.

The town of Ambatolahy is a town with a small population, estimated to be no more than 300. The transect of the town (see Methods) was performed on the Main Street<sup>1</sup> and ran a length of ~186 meters. The Main Street was mostly paved, but was the only paved ground in the town. On either side of Main Street was a storefront, homes, what I interpreted as recreational space, and in two certain sectors a small creek ran through. Litter of many varieties, plastics; paper; food

byproduct could be found on the paved path and in the dirt around it, and especially in the creeks as it gets caught by the rocks and other plastic bottles. The first creek is also used as a drainage tool to dispose of waste from the town's outhouse which is positioned above the body of water. As the creek runs out of the town, it carries with it the waste dropped in. The distance of this portion of the creek from the entrance of the town is estimated to be about 20 meters. It is in very close proximity to a sandy space observed to be a play spot to children, a space also peppered with litter majorly originating from the adjacent storefront's products. Beyond typical view, the edge of the town features downhill drop into a large river. Exploring this section of the town, one observes that it is a discrete dump spot. The surrounding area beyond T13 (see **Figure 1**) features a much more obvious dump site, also in close quarters with the other town creek. This location is characterized by huge piles of garbage that continue on into the greenery, and out of sight, about 10.5 meters from the center of the Main Street.

### C. Methods/ Procedures

1. The lesson plan formulated for the presentation to the school children was designed to be as clear and straightforward as possible. Seeing as how I would have to have my teachings translated simultaneously by my translator and friend, Franck Rabenahy, I wanted to be as clear as possible.
2. I composed two surveys which were distributed to students who were in my classes. One was given prior to my lesson and another was given about a week after my lesson. The purpose of this was to record the awareness of the students to garbage related issues before my interaction with them. This would determine whether my lesson was effective upon review of the post lesson survey data. Many of the questions from Survey One were present in Survey Two in order to quantify my data.

3. Along with speaking to the children in the classroom setting, I decided to hold two distinct activities which would personally involve the students. Activities would form a bond with the goal I proposed to them of eliminating litter.
  - a. The first required the purchase of two large metal barrels. These barrels were cut into two pieces, forming four crib-like trash cans. Since I taught two classrooms, I designated two of the four cans to each class for decorating. Using paints, paint brushes, and patience, each class got the opportunity to decorate their two cans.
  - b. The second group activity was a town clean-up day in Ambatolahy. This activity was

performed twice, on two different days. The second clean-up was held due to popular demand.

4. Before my involvement with the school children, I performed a line transect of the Main Street in Ambatolahy. The transect was divided into rectangular segments of 10m X 3m, labeled T1-T19<sup>2</sup>. From the center of the street the distance of 1.5m was measured to the left and right and the amount of litter spotted was recorded every 10m. Pieces of litter were categorized into sizes: small (6cm X 7cm), medium (16cm X 21.5cm), and large (26cm X 21.5cm); and into types: paper, plastic, candy wrapper, bottle, clothing, etc.; see **Figure 2**. The first transect was performed on October 23, 2010; the second transect was performed on November 8, 2010. During the second transect garbage cans had already been installed in the town.

5. The final method used to execute the project was the installation of garbage cans in Ambatolahy and E. P. P. A. Three of the decorated bins went into Ambatolahy town and one was installed at the entrance to the school. Garbage cans were altered to feature drain holes so that water would not accumulate and were mounted upon hand-made wooden stands.

#### D. Analysis

Data analysis was performed by the use of the program SPSS Statistical Data Analysis.

#### IV. Results

Some results can be clearly observed and interpreted by the figures included in this paper, but some results

must be elaborated.

#### A. The lesson and surveys

Based on a comparison of pre-lesson survey answers and post-lesson survey answers, the students were found to have a non-scientifically significant increase of awareness for litter management.

#### B. Trash can activity and installation

Four individual children who were not residents of Ambatolahy voiced their request for a trash can in their own town. The proper use of the trash cans in Ambatolahy and E. P. P. A. was personally observed by me.

#### C. Clean up activity

Both clean-up days resulted in very full trash bags. Participation was observed to include almost every Malagasy child present (young children stood back) and less than a handful of young adult men. **Figure 9** shows that the clean-up activity was voted most popular by the students surveyed.

## V. Discussion

### A. Lesson plan, surveys, and activities

Throughout this project it is likely a language barrier was up whenever I needed English to be translated into Malagasy and vice versa. This would include the lesson presentation as well as the surveys, both of which had to be translated in order to be useful. The major point I chose to address was the definition of garbage. Garbage may not mean the same thing to everybody. Especially considering that most of these children were used to the sight of litter on the ground, perhaps they had no understanding that a street without litter was ideal. I brought examples of garbage I had seen in Ambatolahy and on the road to the school; I wanted to make sure they knew what I was targeting when I spoke of reducing garbage. I defined garbage as any debris of plastic, paper, candy wrappers, or other non-biodegradable discarded objects as well as banana peels, chewed sugar cane, and other food byproducts. The garbage being targeted was the garbage present on the streets and public places; it was not my intent to lecture on how to



manage waste in the private home setting, but rather to promote the cleanliness of public space. Other topics covered were the negative health effects of a dirty environment. I informed the children that a clean environment promotes better health, and so by cleaning up their town they would be keeping themselves, their siblings, and their friends healthy. Fotso (2006) cites that, "unhygienic environmental conditions (e.g. uncollected garbage, unsafe water, poor drainage and open sewers)...worsen the susceptibility of residents to various health problems." Although the main reason for inciting a change in attitudes towards garbage was for the better health of the citizens, I was fully aware that my audience of children (whose ages ranged from 7-14) would not respond positively to my lesson if I scared them with all the potential hazards that come with living among waste. The lesson plan construction was always influenced by this notion; I wanted to stimulate change through education, not fear. One particular survey question (**Figs. 7 & 8**) highlighted the urgency of enacting the project. An overwhelming amount of children claim to have suffered a foot injury caused by garbage left exposed on the streets. It is important to know these children do not wear shoes, at best a few

may own sandals. In an environment of unsanitary conditions, germs and bacteria thrive easily and are present on all surfaces. To be injured by an object containing this number of microscopic threats is extremely dangerous to a child, especially in such a rural location as Ambatolahy. A miniscule cut, the best case scenario of a potential wound, could get bombarded by germs and quickly develop into an infection. Unattended infections present a threat of severe potential harm to a child. The frequency of this type of injury is avoidable by implementing proper garbage disposal practices (Rutstein, 2000).

Upon reviewing the surveys I noticed that students had been previously informed that they should not litter (**Figs. 3 & 4**). The fact that they knew the behavior was objectionable and that garbage still covered the streets of their town showed me that a lesson on litter was not enough. Being told to perform an act seems to have little effect on the habits of the children and town's adults. This survey question effectively shattered my hypothesis and prediction that educating the masses would result in a positive change of behavior. Words alone lack the force of action. Perhaps if the lesson portion were to have been executed over a course of

consecutive days in which I presented the idea repetitively then that would have resulted in data that supported my hypothesis, but this is not how my project was planned. Unaware of this information before designing the project, I am lucky to have included hands-on activities to involve the school children. It was through the activities that students were able to step out of the classroom environment and apply the ideas directly in a fun kid-friendly manner.

During the first class activity of painting the metal garbage cans, the students took turns coming up and getting the paint from my activity assistants and me. Students then made individual marks on their class trash cans in any form they wished using the color they chose. The end result was, with both classes, a group of grinning children admiring their artsy trash cans. Throughout the activity, although I speak no Malagasy and could not tell what was being said, the school children seemed thrilled to be involved in this project. Among themselves they pointed out their marks on the metal and giggled excitedly and proudly. My reason for choosing this particular project was based on a

CHOOSING THIS PARTICULAR PROJECT WAS BASED ON A

personal experience with my former university, SUNY Stony Brook Southampton, in which the Student Activities board organized a recycling can decoration day. The event left such a positive impression on me that I decided to mimic it in Madagascar. The purpose of this specific activity was to create a connection to the garbage cans between the children. They can now proclaim these cans as their own work because of the personalization each individual child was able to create. The moment the children put their mark on the metal, the bins stopped being garbage cans and turned into a project that directly involved them. Additionally, the painted trash cans now serve as constant reminders of the lesson.

The second activity, cleaning up Ambatolahy, was designed to show the children a live contrast of before and after in which they were the direct cause of a cleaner environment. I travelled to the school and declared that any student interested in participating was invited to join me in a collaborative town clean-up session after school. At 3 o'clock that afternoon I arrived in Ambatolahy with two 5' tall empty rice sacks and some self-made litter-picking sticks (a wooden branch with a nail taped to the end). Heritiana

Animatrice, a member of the Centre ValBio Education team, rallied the children together at the mouth of the Main Street. She gave them a pep talk, reinforcing what I had taught them in the lesson at school, and also sharing this information with the adults of the town that had come to see what was going on. When the clean-up began, the children seemed confused as to what they were supposed to retrieve from the ground to put in the rice bags. I actively picked up various pieces of litter and held them up for the children to see and they then watched me put these candy wrappers, plastic bags, banana peels, playing cards, bottle caps, bottles, cloth scraps, and many more things into the sacks. Very quickly they mimicked my behavior and soon all the children present were collecting litter off the ground and from the creeks. We did not reach the end of Main Street before our two sacks were filled to the brim, yet the children were still eagerly collecting. Heritiana gathered the cleaning mob up at the entrance to the town and praised the children for their involvement. Again, she reinforced the messages of my lessons. It occurred to me while Heritiana was speaking that there was still work to be done in regards to cleaning up the town, so I asked the

children if they would take part in a second clean-up day and they all animatedly and unilaterally shouted that they would. A second clean-up day was held, this time with more activity volunteers from ValBio, one local Peace Corps volunteer, and with more rice sacks. It was on this day that the trash cans were installed. The clean-up activity was an undeniable success, evident by the participation and enthusiasm shown by the children. On both occasions I spoke to the children after our activity. I commended them on their work, pointing out how easy it was to clean up when we all worked together. I encouraged them to continue cleaning up, and to use the trash cans now that they were set up. I made it a point to comment on the great difference they had made as pioneers of a great movement to make Ranomafana cleaner. They were now models to others in their community, they were great influences. I asked them to continue their efforts and to encourage each other to keep the surrounding spaces clean. We would lead this movement by being grand examples for others to follow.

The activities drove my message home, I am positive of it. Upon my performance of the second transect I noticed that the work the children and I had done had

HOUSED AND THE WORK THE CHILDREN AND I HAD DONE HAD

been kept up. The installed garbage cans were being used. The children were picking up the garbage after I counted it on my data sheet. And although there was still garbage present, it was far less (**Figs. 1 & 2**). If a lesson plan alone was able to render these kinds of results, the town of Ambatolahy would not have needed my intervention in the first place. It was clearly a matter of enacting proactive activities for the children. Ideally, this sort of approach can be successful when applied towards adults. But, based on my experience and observation, children are much quicker to join in on these types of things. It would be wise to benefit from this natural enthusiasm of youth in order to lay the tracks for proper garbage management on a larger scale.

#### B. Transects one and two

Unaware of my project and what it involved, the citizens of the town could not have skewed my data collections during the first transect. This helped me gather an accurate account of debris along the Main Street. The data collected through this transect was used to formulate a map of garbage concentration in Ambatolahy. The biggest obstacle to my collection of

exact amounts of garbage was lack of visibility. Some garbage was very well hidden under dirt and between crevices. It was impossible for me to record all possible rubbish. These transects provided a clear picture of the before and after effects of my influence on the school children and the towns people. **Figures 1 & 2** reflect the data.

### C. Garbage cans

The project would have easily faded away if I had not provided an alternative to the litter lifestyle I was trying to alter. Garbage cans in Ambatolahy were placed at the following locations, see **Fig. 1** for reference: Can A is between T1 and T2; Can B is between T6 and T7; Can C is in T15. It is important to supply a replacement to the habit one is attempting to correct; otherwise the convenience of resorting back to old ways will overcome any progress. The project has had such positive reaction including that of Dr. Ingrid Daubechies, a mathematician involved in work at the Centre ValBio, who donated funds to hire a garbage person for a two year period. This has allowed for an even bigger step forward because now these garbage cans are scheduled to be emptied on a regular



basis. This permits for structured maintenance of the project's pillars.

What struck me as slightly absurd was the fact that these garbage cans were the first ones installed in Ambatolahy. As mentioned, it is hardly realistic to expect litter free streets when there are no garbage receptacles. Providing a basic necessity, one so basic that its lack of presence may not even register to most, for a clean environment is as easy as converting old oil barrels into bins. The methods and techniques of this project can be applied to other towns and schools within Ranomafana National Park, and the installation of garbage receptacles will cement the reform. As mentioned, editing is recommended when it comes to the presentation and frequency of the in-class lessons but the basic blueprint is evident here. This change of attitude must be stimulated by action and supported by the practical addition of usable and monitored trash cans.

## VI. Conclusion

## No child should be forced to endure unsanitary

conditions. By empowering these children with an education about garbage management and then practicing proper garbage management alongside them, the project has helped them acquire a means of changing their future. No longer will they be at a disadvantage because of the negligence of the adults in the town to enforce proper waste techniques. Centre ValBio has tried to reform the litter habit of Ambatolahy before, working with the adults, and has not had very many permanent successes to show for their efforts. This time, for the sake of the future generations, I have shown the power of improvement to the children. The project has been commended and hailed as groundbreaking by the ValBio education staff. But, constant development must continue in order to push the goals of this project forward. The generosity of Dr. Daubechies added invaluable time for further expansion and improvement. Much more must be done in order to promote and develop the growth of this goal for a litter-free environment in Ranomafana. Reaching out for support with the help of Dr. Patricia Wright, this project has gained the approval and alliance of Mayor Leon of Ranomafana and of

Ambatolahy's chief Mr. Talatapierre. Talks of possible garbage pits for the area have risen from these influences. Now that a new audience is aware of the importance of garbage management, including policy makers, I recommend that Centre ValBio commence work on sanitation projects with Ambatolahy once more. A focus on recycling, composting, and eco-friendly disposal techniques can be built upon the base of this project. There is much room left for improvement, and a great opportunity to continue expanding this litter revolution. It is my personal goal to ensure this endeavor does not fade away, but rather gathers more and more support from citizens of the world; citizens who can recognize the changes being made by these pioneers, these children of E. P. P. Ambatolahy.

## VII. Acknowledgements

I would like to humbly thank the following people for their great contribution to this mission. It would be impossible to have succeeded without the influence and participation of the following people: Franck

Rabenahy; Heritiana Animatrice; The children of Ambatolahy and E. P. P. Ambatolahy; Dr. Patricia Wright; Dr. Ingrid Daubechies; Eileen Larney; Mayor Leon; Chief Talatapierre; Dede Randrianarisata; Dr. Sylvia Atsalis; Florent Ravoavy; Tiff Shao; Natalie Monte-Santos; Tim Enright; Michela Mastellone-Schottman; Glen Keeton; Mike Westendorp; Rio Heriniaina; Hannah Thomas; Madame Mariette – Head of E. P. P. Ambatolahy; Pascal Rabeson; Xavier Rafanomezantsoa; Tom Rakotomalala; Toky Rakotoarinivo; Adolphe Rafidiarison; Anselme Andrianmamonjy ; Martial Randrianandrasana ; the CVB Education Team; and the Study Abroad 2010 Students who provided camaraderie and encouragement.

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## IX. Footnotes

<sup>1</sup> Not the actual name of the street.

<sup>2</sup> T19 was 6m X 3m.

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**Fig. 1: Amount of Garbage Found in Ambatolahy**

Blue = Oct. 23, 2010; Red = Nov. 8, 2010

**Fig. 2: Types of Garbage Found in Ambatolahy**

$T = 2.449$  ;  $DF = 11$  ;  $Sig. (2-tailed) = .032$

**Figs. 3&4: Survey Question and Answer**

Light color = Before; Dark color = After

Blue = Class 1; Green = Class 2

**Figs. 5&6: Survey Question and Answer**

Light color = Before; Dark color = After

Blue = Class 1; Green = Class 2

**Figs. 7&8: Survey Question and Answer**

Light color = Before; Dark color = After

Blue = Class 1; Green = Class 2

**Fig. 9: Activity Feedback from Participants**