

## Interim report on training and orientation

*Joni Beintema*

I consider my first days in Guatemala as lovely. It started with a warm welcome at the airport and a nice lunch with my colleagues Marie Jose and Raquel.



## Preparation

The first days in Guatemala City were all about preparation: collecting all the necessary equipment and getting familiar with this equipment.

I started off with a literature overview in the form of a PowerPoint presentation for Dr. Solomons, Raquel and Marie Jose about my subject: photograph imaging for the assessment of height components in Guatemalan preschoolers. The objective of this was to inform my colleagues and to discuss my findings and goals. I received some interesting feedback and additional information from Dr. Solomons. He asked me guiding questions about the things I reported. These questions let me to think more in depth about my subject.



After that Raquel and me went to 'Office' to buy all the necessary supplies for the execution of my research such as: meters, rulers, a magnifying glass and colored stickers.

Together with Marie Jose I figured out how to use the camera and how to set up the tripod.

The day after, I prepared the equipment together with Raquel. The first step was to set up the 'reference stadiometer'. The day before we discussed what the best way was to do this. Assuming that every child's height is between 78 cm and 125 cm, we attached a meter on that part of the reference stadiometer.



We colorized every centimeter in a different color (white, orange, yellow, pink and blue) and marked every five centimeters with the letter ANI. On a computer or a camera there is the possibility to zoom in, however this is not the case when a photograph is printed.

The different colors on each centimeter and the attribution of letters to each section of five centimeters help to distinguish each centimeter and in this way help to improve the accuracy of the measurement on the photograph.



After that we set up the reference stadiometer in the patio of CeSSIAM. To make sure the floor we used was straight; we used a reference with bubble level. If the bubble was between the two lines, the floor was considered straight.



Together with Marie Jose I set up the tripod and attached the camera to this. To make sure the camera was in one straight line, we used the bubble level on the tripod. The tripod has to be adjusted to child's waist level. We experimented with the distance of the tripod to the reference meter. Assumedly, we have to adjust this every time we photograph a different child. We can leave the tripod at the same spot; instead we can adjust it by using the zoom function on the camera.

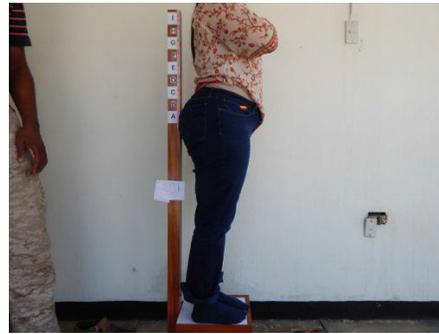


Another point of attention is the distinction between the surface of the reference stadiometer and the feet of the children in order to make correct and accurate measurements; in other words it has to be clear where the surface ends and where the child's feet start. On a photograph, dark colored socks or bare feet are assumedly hard to distinguish from the surface. If this is the case we will lay white colored paper on the surface of the reference stadiometer.





*Without paper on the surface*



*With paper on the surface*

Raquel served as a model to test our equipment. On the white note in the middle of the reference we will put child's ID number. Child's ID number will be used in our dataset to protect their anonymity.

The orange sticker in the photograph marks Raquel's hip. I will ask the children to show me the top of their hipbone (iliac crest), and then I will place a colored sticker with the arrow upwards. In this way our research stays noninvasive and ethical.

We will ask the children to give a 'saludo uno' to the Guatemalan flag in front of them (eye height). In this way they have something to do, the colored sticker is visible and the upper body is kept straight (Frankfort plane gaze).

We will ask the children to stand as near to the end of the surface (without falling off) as possible.

Since we are going to validate photographic means to determine height, we also have to measure the children in the conventional way by using a stadiometer.

We attached the meter to the wall. To make sure both the floor and the meter were straight we used the reference with bubble level.



## Rehearsal 1: photographic imaging

I tested the photographic procedure with the help of Mattias and his friends in Julisa's home. Since there was no wall to attach the flag, the children held it in their hands.



*Comment: hips and shoulders should be in one straight line.*

Based on the photographs, I will take the following points into consideration:

- Make sure their posture is straight: avoid leaning, hips and shoulders in one straight line, pelvis under buttocks.
- Align feet next to each other and as near to end of the surface as possible.
- Use colored stickers that are in contrast with the child's clothes.



*Comments: leaning should be avoided, feet more near to the end of the surface, colored sticker not sufficiently visible.*



*Comments: feet need to be aligned straight and next to each other, hips and shoulders should be in one straight line, pelvis under the buttocks.*



*Comments: shoes should be off, pelvis under the buttocks, colored sticker not sufficiently visible.*

## Rehearsal 2: photographic imaging, stadiometry, weighing

I tested the procedure as a whole with the help of Monica's children. I set up all the equipment before I started the procedure. I started with the registration of the personal data. Little Brianna was not sure about her birthdate. This was a good learning point.

The informed consent, which is filled out by one of the parents, does not ask for child's birth date. I think we should add this, in case the children themselves are not able to answer this question.



I started with the photographic procedure. It turns out that it is difficult for a 5-year old to point out her hipbone without giving her directions. It seems that we have to help them by setting them in the right direction very gently and cautiously. In addition, to reach straight posture we have to help them by gently set the feet, shoulders and head in the right direction.



Brianna's diadem was removed, since this item could disturb the measurement. Her body is more or less in the right position; however her feet should be more to the end of the surface and her head should be more faced upwards.



Weighing the children is easier. I only have to make sure their heads are faced straightforward.

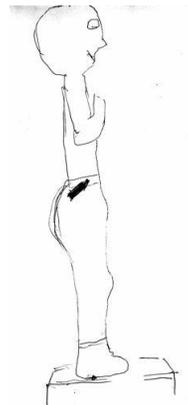


In order to make a correct measurement of total stature, the floor should be straight and the meter should be placed in one straight line. I could check this with the help of the reference with bubble level. The children should be positioned straight in front of the meter, with their heels aligned straight to the wall. Again, I helped them a bit to set them in the right position. In addition their faces should be in 'Frankfort plane gaze', I helped them by gently put their chins up.

## Data analysis

The photograph was printed using a color printer. The child should cover up most of the photograph (to reduce the risk of error). The quality of the photograph is very important; the colors should be bright and distinguishable. The numbers on the meter are hard to distinguish on the photograph. This is the reason why we colored every centimeter and attributed a letter to each section of five centimeters. However, with the help of a magnifying glass and a flashlight the numbers were more or less visible.

We will measure in mm the distance between the sole of the feet and the crown of the head. It is important that everyone does this in the same way and comes up with the same number to minimize the risk of measurement error.



To practice this, Dr. Solomons, Raquel, Marie Jose, Koko and I all measured the same doll (see picture above). We measured the distance between the sole of the foot and the crown of the head in mm and the distance between the sole of the foot and the colored sticker in mm (leg length). The trunk length was calculated by extracting the leg length from the total length. These were the results:

Participants	Joni	Noel	MaJo	Raquel	Koko
Total length in mm	230	230	230	230	230
Leg length in mm	122	122	121	121	121
Trunk length in mm	108	108	109	109	109
Trunk/leg ratio	0.885		0.900		

It seems that we all came up with the same total length; however the leg length differed with 1 mm between Dr. Solomons /myself and Koko, Raquel and Marie Jose. This equals a measurement error of 2% (0.900/0.885). This number is acceptable since it is below the arbitrary limit of 10%.