Plan for starting an OLPC project in Tanzania

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1 Introduction

Education is one of the basic human rights and is of great importance to challenge poverty. Nevertheless, more than 104 million children worldwide do not attend school, and 1 in 6 persons is illiterate.

In 2000, government leaders from 189 countries agreed to address the world's most important problems before 2015. There are eight concrete goals. One of these 8 goals is that by 2015 all children in all countries attend elementary education. This requires first of all more schools, but it is also important that there is good teaching material available for everyone.

ICT and Internet developments offer unprecedented opportunities in the field of education. Education material can be dispersed online at low cost and world-wide communication can be available for everybody at a reasonable price. Teachers can follow the progress of their students and give feedback to their students from any place. Being able to handle computers in itself is also something that improves the chances of children, as it is required for many jobs.

‘One Laptop Per Child’ (OLPC) was founded in 2005 by Nicholas Negroponte, who has been co-founder and director of the MIT media lab. The goal of this non-profit organization has been to develop an inexpensive (around $100) and user-friendly laptop suited for children in developing countries of about 6 to 16 years of age. This resulted in a cheap, robust, sustainable and energy sparing laptop, named the XO, which still provides everything that is needed for educational purposes and which is build around a well thought education concept. The project is not just a technology project, but in essence an education project and aims at helping developing countries to improve their situation in a structural way.

Several countries have already ordered the OLPC XO laptops: for example Uruguay ordered 100,000 units, Italy ordered 50,000 for Ethiopia and Peru ordered 270,000 computers. The laptops are being shipped and distributed in these countries already. A successful ‘Give One Get One’ program was organized in the US: people could order a laptops in pairs of two, one of which they would receive themselves and the other will go to a child in a developing country. Through this program some 150,000 units were sold, and many children in (amongst others) Mongolia, Rwanda and Haiti have received a laptop because of it. The project has momentum: about 55,000 laptops are shipped to children throughout the world each month!

Just selling the laptops to a country is not enough: the computers will have to be distributed and integrated in school programs in order to really help the children. It will take a lot of effort to guide this and therefore the implementation of the XO’s into the children’s life is one of the biggest challenges for the OLPC at the moment.

The children’s home in Rhotia in Tanzania provides a very good situation to meet the challenge of implementation. Recently a children’s home and a tourist lodge has been developed by a group of Dutch people. 100% of the revenue of the lodge go to the people of Tanzania. There is always Dutch supervision though. The daily costs of the children’s home are financed by the profits from the lodge, what makes the project self sustaining. Various activities for the children of the village are also offered in the children’s home.

The aim of this project is to give the children of better opportunities Rhotia by implementing the XO laptop in Rhotia in both an educational and technical effective way. The added value of the XO is that it can provide up to date and cheap education material, it can widen their communication area, it can learn them to explore more things themselves and they can learn how to use ICT. Furthermore it is of great importance that the implementation in Rhotia will provide a learning experience to help to improve the spread, the development and the expansion of the XO project. Finally, it could also be motivating for Tanzania to join the project at a country level.

To achieve these goals, a well thought-out implementation plan is essential. From this implementation plan a sensible work plan can be derived. In addition to these plans a clear financial overview is essential for the project to succeed.
Our involvement with this project followed from our student time in Delft. We (Marita, Reinier and Jannes) have all recently obtained our masters Degree at the Delft University of Technology. We know each other well from our student days. During our student days we have cooperated in a team of 7 people to organise an event for the University.

Reinier Heeres got in contact with the OLPC project while he was doing research for his Master Thesis at Harvard. He developed a very simple Calculator application for the laptop while he was there, and also worked on the more advanced Calculator that is available now. Just before returning to The Netherlands he agreed with OLPC to do an internship for OLPC and as a result he has been working for OLPC, from home in the Netherlands.

More information about OLPC and the latest news is found at the main website [1], the wiki [2] or the development resources site [3].

Marita Bijlsma and Jannes Snel got in contact with the RVTLCH as they planned to go to Africa to perform voluntary work. They were offered the opportunity to develop their own project and after an analysis of the situation and a discussion with all three of us we decided to choose to work on the implementation of XO’s in Rhotia.

Illustration 1: OLPC project in Khairat, India
2 Objectives

The main aim of the project is to help the children in Rhotia by implementing the XO laptop in Rhotia in both an educational and technical effective way.

As described before, the children can enormously benefit from the XO. It can provide up to date and cheap education material, it can widen their communication area, it can learn them to explore more things themselves and it helps them to learn how to use ICT.

It is vital to have a clear plan about which steps need to be taken and what the order of these steps should be, to be able to guide the project to its goal.

A final objective of this project is to provide feedback and information for following projects about how to successfully implement XO's in countries like Tanzania.
3 Context

In order to achieve the objective, it is vital to first consider the context of Rhotia, the Rhotia Valley Tented Lodge and Children’s Home and the traditional Tanzania pedagogical framework and its relation to the model that the XO aims to foster.

3.1 Rhotia

Rhotia is located in one of the most beautiful areas of Tanzania at the border of the Ngoro Ngoro Conservation Area - Crater Forests. Rhotia is a town with 40,000 inhabitants. The conditions of the village are very basic, but are improving step by step. People live in very simple houses build up by branches and clay with a grass roof or by stone and a corrugated roof. The houses which are located outside of the centre, in the area near the RVTLC, are without electricity or running water. There is a water pipe to the village though and there are specific points were the people have access to it. Also there are places with electricity in the village, one of which is a school. There are three primary schools in the village and there is one secondary school. Internet is available by prepaid mobile cards, which works all the time.

3.2 Rhotia Valley Tented Lodge and Children’s Home

In Rhotia there are quite a lot of orphans, there are many children who are infected by HIV (15%) and there are also a lot of children whose social circumstances are not good. All these children need help for shorter or longer time.

In order to help these children, a children’s home has been started by a group of Dutch people. In order to make the children’s home independent of charity and gifts, a tented lodge for tourist is built close to the children’s home and 70% of the profit goes to the children’s home, which means that all the day to day costs of the children’s home are covered by the profits of the lodge. This makes it a very sustainable project.

The area is very popular by tourists. There are therefore already many other tourist lodges, and these are mostly fully booked during the high season. The Rhotia lodge distinguishes itself from other lodges by its 100% African style, of which there is a shortage. There is no other lodge that combines basic nature, high quality accommodation and Tanzanian local materials and encourages direct contact with the local people, including the local staff. The quality of the lodge is good, the prices low and there is place to house seminars.

In order to make this project a success the involvement of the villagers is very important. The villagers are very much involved in the whole project. The staff of the lodge and children’s home is 100% Tanzanian, mostly from the village Rhotia. They are proud of their own natural and cultural materials and tradition, and therefore also of the lodge and children’s home which are build with local materials by themselves.

The children’s home is built close to the home village of the children, which helps them to stay in their own environment. This place is also closely to the lodge, on the opposite hill, not directly visible, but easy to reach from the lodge. This gives the guests the opportunity to be directly involved with the children’s home, if they want. They can visit or donate, and the result is directly visible for them.

From the first of September, 12 children took their entry in the children’s home. It is planned that in the nearby future this number will grow step by step till around 40. These orphans get adequate care, education, healthcare, clothes, food and of course a loving and warm family life. This all on a Tanzanian level, so the children will be able to “return” in their own society as some children only need a short time out, and return to their families after this.
A local "mother" and “aunty", trained by 'SOS kinderdorpen', will take care of 10 children in one house, similar to the normal family circumstances in that region. She receives a salary for her work. The age of the orphans is between 6 and 16 years. They will attend school and will also learn a skill to raise their own income. To accomplish this, there is good contact with the local villagers and the primary school. The primary school is also supported by the RVTLCH project, by arranging support and donations from Dutch companies for the school.

The children's home is also a warm place for all other children from Rhotia village. There are educational programs for them to join. For example they can join theatre-classes, handcraft workshops, English tutoring, tourism education and textile workshops. The RVTLCH project organises these activities and again arranges support and donations from Dutch companies for this.

More information about RVTLCH and the latest news is found at the main website [4] or the bid network plan site [5].

3.3 Pedagogical context

Tanzania has a population of around 38 million and is the fourth poorest country in Africa. Still already in 1970 education has become compulsory. It therefore used to be the least illiterate country in Africa. Due to funding cut and a shortage of teachers illiteracy is growing since 1986 again; it grew from 9,6% in 1986 till 27,2% in 1997. In 1997 less than half the children finished primary school and only one out of ten children finished secondary education. Especially many girls from the country side do not finish their education. This is because families do not have much money for education and prefer to educate their sons.

The structure of the formal education and training system in Tanzania constitutes 2 years of pre-primary education, 7 years of primary education, 4 years of junior secondary (ordinary level), 2 years of senior secondary (Advanced Level) and up to 3 or more years of tertiary education.

In the pre-school, children learn to write letters and play the rest of the day. When a child has the level of an average 8 year old it will start to go to primary school. Children have to wear school uniforms from then on in most cases, and thus some simply do not go to school as they can not afford these. In many schools the subjects are spread out by teachers, this means the children see 3 or 4 teachers a day, who often do not know the average students name. Many children go to primary school till the age of 14, 15 or 16. The children in primary school do not learn English, however in most secondary schools all classes are given in English.
The classes in primary school have a very traditional character and are influenced by both cultural and religious traditions. The teachers are, on the whole, teaching in the way they themselves have been taught and perpetuating a rote-based, repeating what the teacher says, approach to learning. Within such a system, politeness and obedience are the main qualities that a teacher wishes to instil in their students. There is exceptionally high importance placed on the established hierarchy of authority from the teacher and subordination of the student. The notion of a student discovering information or teaching themselves is perceived to be connected with the idea of teachers failing to do their job properly. Subsequently, there is a reluctance for students to say or do anything more than what is asked of them, not necessarily due to ignorance or lack of interest but out of politeness and respect towards the teacher.

The model that XO aims to foster does not work in this way. OLPC’s pedagogical stance is known as constructivism. Constructivism holds that students should learn by doing as well as learn to learn in their own way. It is an approach that is highly student-centric with the teacher expected to adopt the role of facilitator. This approach is evident in the OLPC applications which are tailored to activity-based projects that a child completes either on their own or in a small group environment. [5]
Plan

One of the main focus points of the project is a solid implementation plan. From this implementation plan the work plan is derived.

Earlier attempts to simply deposit a constructivist model of education into a educational system which is firmly rooted in rote learning faced significant challenges. The conceptual pedagogical shift is too radical to be implemented effectively without time and attention given to gradual transition and contextualisation. The Sugar-based applications that OLPC uses are challenging to incorporate into a class without compromising the standardized school curriculum.

In order to achieve a smooth implementation, first after-school XO club’s will be started to introduce the teachers comfortably, outside the formal classroom context, to working with the XO's. In this way, teachers get more time to get used to the XO and not the whole school program has to be altered, which often results in a loss of quality.

4.1 Implementation plan

The first step is to find and select teachers in Tanzania, that want to contribute to the project. The selected teachers will be trained in using the laptops. After this basic training a discussion will follow how the XO could be effectively integrated into student programs. It is very important that the teachers will understand that the children understand the XO’s better and quicker than they will do. The most effective way of using the XO in a class program is therefore by letting the children actively using the XO and letting the children do a lot of exploration by themselves. The teacher has thus to learn to take fulfil more the role of a coach than teacher.

After these steps are completed a voluntary after-school computer ‘club’ will be created with a selected group of older students outside the formal classroom context in the Children’s Home. A primary goal of this ‘club’ is to foster a closer relationship with students than normally would be possible in a school environment and, in doing so, progress beyond culturally assumed correct answers and establish a rapport that would facilitate a more open and honest dialogue. After this is achieved the teachers can teach the ‘club’ to work with the XO’s in after-school classes. During these classes there will be an observer who observes the teacher and the student’s behaviour. Throughout the life of the ‘club’, students will be asked continuously to provide general feedback on the use of computers in the classes.

Illustration 3: Education room at the Children’s Home
Directly after the classes there will be support for the teachers. From earlier projects it appears that after class support is the most productive training method. This will consist of guiding the teacher through the class they had just conducted, asking what the difficulties were and troubleshooting these difficulties. Directly after class is also the most effective moment to discuss pedagogical issues, as the teachers can remember exact incidences and examples. Also project group meetings with all the teachers will be organised, as this has proved to be a vital tool for teachers to share their experiences of the XO laptop with one another.

The next step is to evaluate the after-school course when finished, in order to gain useful information about the value of the project, about how this can be improved and what steps need to be taken in order to achieve this improvement. This evaluation will be done by interviewing teachers and students and by analysing the written short reports. A report will be written that will be used to improve and guide the following part of the plan. The plans for implementing the XO into school programs will be discussed as well with the teachers and improved according to the findings from the evaluation.

If after this period, the situation is prepared enough to implement the XO in the educational program of the schools, which means the extra value of the XO is proven and there is a good plan how to use the XO in the classes which the teachers agree about, the XO can be implemented in the school program. However if through the evaluation it appears to be still a too big step to implement the XO into the school program, the first period of the implementation plan will have to be repeated.

If the XO can be implemented into the school program, similar steps have to be taken as before but on a different scale, with people taking different positions, and with a different time span as well. This is based on the current understanding, but will be changed if the findings of the evaluation lead to changes.

4.2 Workplan in phases

To be able to accomplish the implementation plan, a work plan has been made. This is done by discerning phases and appointing time and location to them. In this OLPC project we discern 7 phases. Note that the phases 5-7 are depending on the progress and the outcome of phase 1-4. Their description is based on the current understanding, but these phases will be re-assessed once the project is running. The 7 phases are:

1. Preparation phase (2 months, Netherlands):
   - Gain funds to operate project
   - Arrange a small number of XO’s for the introductions phase part 1
   - Perform a deeper analysis of the general and the educational context of Rhotia
   - Develop a start up plan for the content of the after-school courses with the XO’s with Dutch teachers
   - Order XO’s from OLPC
   - Arrange transport
   - Try to translate the XO in Swahili

2. Introduction phase part 1 (1 month, Tanzania):
   - Create a school-server, which is used, for example, for backups
   - Install the small number of laptops
   - Find a project team of teachers
   - Introduce the project team to the XO
   - Instruct the project team on the XO
   - Fine tune the content of the after school courses on the XO’s with the project team
   - Select children for the after school XO course
   - Try to translate the XO in Swahili (if not succeeded before)
3. Operation phase part 1 (3 months, Tanzania):
   • Introduce selected children to the XO
   • Use the XO in the after school course
   • Observe the classes, discuss them with the teachers afterwards and write short reports
   • Have meetings with the project team to be able to exchange and discuss experiences

4. Evaluation phase part 1 (1 month, Tanzania):
   • Project evaluation for which teachers and students will be interviewed
   • Evaluation of the usefulness of the XO compared to the normal situation
   • Report the results in order to improve and guide following plans

5. Introduction phase part 2 (1 month, Tanzania):
   • Install the ordered laptops
   • Fine tune with the project team the way the XO will be implemented into the school program
   • Introduce the laptops in the class

6. Operation phase part 2 (school year, Tanzania and Netherlands):
   • Use XO’s in educational program of the schools
   • Periodical meetings with the project team to be able to exchange and discuss experiences
   • Regular rapportation by the internet

7. Evaluation phase part 2 (1 month, Tanzania and Netherlands):
   • Project evaluation in which teachers and students will be interviewed
   • Evaluation of the usefulness of the XO compared to the normal situation
   • Report the results in order to improve and guide following plans
5 **Budget**

5.1 **Finance control**

The project will have a transparent administration, managed by someone who will be appointed financial manager.

5.2 **Essential funding**

Costs of a typical OLPC Project

<table>
<thead>
<tr>
<th>Activity</th>
<th>#</th>
<th>Euro/unit</th>
<th>Subtotal</th>
</tr>
</thead>
<tbody>
<tr>
<td>Supplying XO laptop</td>
<td>40</td>
<td>280</td>
<td>11.200</td>
</tr>
<tr>
<td>Schoolserver etc.</td>
<td>1</td>
<td>900</td>
<td>900</td>
</tr>
</tbody>
</table>

Subtotal (BTW excluded) 12.100
Contingency (10%) 1.210
Total (contingency included) 13.310
Bibliography

[8] Stichting OpenWijs.nl, Projectplan, One Laptop Per Child, Opzet “OLPC” twinning projecten tussen basisscholen in Nederland en in ontwikkelingslanden