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OLPC Pre-Pilot Evaluation Report (Haiti)

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Contents

Executive Summary

The Haitian Ministry of Education and Vocational Training (MENFP) has introduced one-to-one computing within the context of constructivist pedagogy—or student-centered learning—in the Haitian primary school system. The XO laptop, an educational tool designed by One Laptop Per Child (OLPC, a nonprofit organization headquartered at the Massachusetts Institute of Technology), was selected as the educational device for the initial implementation of one-to-one computing, which took place during May–July 2008. MENFP carried out the initial implementation as a pre-pilot project conducted in collaboration with the Inter-American Development Bank (IDB). The purpose of the pre-pilot was to gain experience in preparation for the subsequent pilot project and to ascertain effective teacher preparation by identifying successful training methods and important content to be addressed during teacher training sessions.

A project team consisting of representatives of Teachers College, Columbia University and IDB evaluated the OLPC pre-pilot project. The purpose of the evaluation was to smooth the way for the subsequent implementation of the OLPC pilot project, which will assess the effectiveness of and determine the requirements for the nationwide implementation of one-to-one computing in Haiti.

The OLPC pre-pilot project was implemented at the Ecole Nationale Republique du Chili (ENRC), an all-female public school located in Port-au-Prince. Because the school year had ended before the OLPC pre-pilot began, the project was conducted as a summer camp entitled "XO Camp," held daily from 8:30 am to 12:00 pm beginning on June 30 and ending on July 18. The camp enrolled 116 student participants, with varying levels of student attendance throughout the evaluation. Although the original intention was to create a context of one-to-one computing by providing each student with an XO laptop, the XO Camp operated primarily with one-to-two computing owing to an unexpected shortage of XO laptops. However, the fourth-grade class received individual laptops beginning on July 7 thereby allowing one-to-one computing.

Two evaluation team members, Jessica Cruz and Scott Kipp, along with four local consultants and an interpreter, performed approximately 120 hours of daily structured observations of grades 1–5, conducted 72 structured interviews, and tracked daily usage of the XO laptop. Daily usage tracking consisted of harvesting usage data from 65 laptops during the first two weeks of the evaluation and from 76

laptops during the last week, after the fourth-grade class received individual laptops. Approximately 2,340 hours of daily student usage of the XO laptop were tracked, not including the home usage of the fourth-grade students. Interview participants included students, ENRC staff (teachers, administrators, disciplinary staff, and substitute teachers), and MENFP staff (technical support staff and pedagogical team).

Interview data from students, school staff, and MENFP staff revealed a perceived improvement in student reading and writing in Haitian Creole and French, as well as a general perception of the XO laptop as a symbol of opportunity and progress. Additionally, observational and interview data shed light on problems with one-to-two computing resulting from unequal sharing of the XO laptop. Interview data also suggest that students who are more knowledgeable about the XO laptop or have more advanced academic skills tend to dominate the use of the XO laptop. Since the XO laptop is believed to improve reading and writing in Haitian Creole and French, students in need of academic improvement may be deprived of a potential opportunity for academic improvement if the partner dominates the XO laptop.

The evaluation also found great variation in student attention span per XO Camp session, with a rising attention span from 9:00 am until approximately 10:30 am, and declining attention span thereafter. One of the explanations for this variation, as provided by observational data, was the low battery life of the XO laptops, which led to student fights over electrical outlets at approximately 10:30 am.

Based on observational and usage-tracking data, four of the 17 activities available on the XO laptop (Record, Write, Browse Internet, and Paint) represented 88 percent of laptop usage for the XO Camp participants. Moreover, student exploratory usage of the XO declined under the following circumstances: (1) When XO laptop activities were formally introduced as part of a teacher's lesson plan, (2) when interest in organized group activity increased, and (3) when student focus level was high. This was especially evident during Week 2 of the evaluation, when the fifth-grade class drastically reduced usage of the Paint and Record programs after being formally introduced to the Internet and receiving an essay-writing assignment.

Observational data on teacher engagement and student usage of the XO laptop suggest that greater teacher engagement decreases student distraction. Accordingly, the data indicated a ceiling effect for constructivist pedagogy. It appears that students and teachers would benefit from additional guidance during the early stages of constructivist pedagogy to ensure a smooth transition from teacher-centered

learning to student-centered learning. Although constructivist pedagogy is grounded in individual and social creation of knowledge through exploration, many OLPC pre-pilot participants (students, ENRC staff, and MENFP staff) reported an increased need for help in learning to use the XO and transitioning from teacher-centered to student-centered learning.

All interviews with ENRC and MENFP staff revealed the need for an in-depth technical and pedagogical training session prior to the implementation of the OLPC pilot, as well as continued support over the course of the project. Lastly, the majority of interviewed participants of the OLPC pre-pilot spoke of the benefits of allowing students to take the XO laptops home. However, more than half of the fourth-grade students interviewed reported feeling afraid to take the XO laptop home because they might be robbed.

1 Background

1.1 Time Frame

May 13–21, 2008: Preliminary Assessment

Members of the evaluation team (Jessica Cruz, Scott Kipp, and Emma Näslund-Hadley) traveled to Port-au-Prince, Haiti, to test evaluation instruments and evaluation design. The team:

- Visited an orphanage that was conducting a pilot project on the XO laptop in collaboration with a nonprofit organization. Though the pilot project was limited due to its small number of XO laptops, it provided an excellent opportunity to test interview guides and the observation roster to be used during the OLPC pre-pilot project evaluation.
- Visited the Ecole Nationale Republique du Chili (ENRC), the girls' school in which the OLPC pre-pilot project would soon be implemented, allowing the team to gain a better understanding of the context in which the pre-pilot project would be realized.
- Attended OLPC training sessions conducted by technical support staff and a pedagogical team from the Haitian Ministry of Education and Vocational Training (MENFP). The training occurred in after-school sessions in which the school teachers and administrators became familiar with certain XO laptop activities. The training explained how to use the XO laptop as a means of implementing constructivist, student-centered pedagogy as opposed to more traditional teaching methods, which emphasizes the transfer of knowledge from the teacher to the student through memorization. (See sections 2.1 and 4.4 for short discussions of student-centered pedagogy.)
- Conducted initial interviews of ENRC teachers, the school administrator, and the technical support staff associated with the OLPC pre-pilot project.

June 28–July 2, 2008: Evaluation Preparation

Jessica Cruz and Scott Kipp made the necessary preparations for conducting the OLPC evaluation. They:

- Trained four local consultants for the OLPC project on data collection for the evaluation.
- Formally presented the evaluation plan to the MENFP.

July 3–July 18, 2008: Evaluation

Jessica Cruz and Scott Kipp, together with four local consultants, carried out the following tasks during the OLPC evaluation:

- Observed teacher and student behavior in grades 1–5 from 9:30 am to 12:00 pm daily during the period from June 30 to July 18, 2008.
- Tracked daily student usage of the XO laptop.
- Conducted interviews with students, teachers, administrators, disciplinary staff, technical support staff, and the pedagogical team.

1.2 Human Resources

OLPC Pre-Pilot Evaluation Team

The OLPC pre-pilot evaluation team consisted of two IDB staff members (Emma Näslund-Hadley and Pablo Ibarrarán) and two graduate students of Teachers College, Columbia University (Jessica Cruz and Scott Kipp). The team also received guidance from Gita Steiner-Khamsi, PhD, professor of education at Teachers College, Columbia University.

In-Country

The OLPC pre-pilot project coordinator, Guy Serge Pompilus, was the evaluation team's primary MENFP counterpart. The team also had the assistance of a local interpreter and translator who spoke Haitian Creole, French, and English. This person translated documents and interpreted during observations, interviews, and meetings. Additionally, the OLPC pre-pilot evaluation team had the assistance of four local consultants who spoke Haitian Creole, French, and English. Two consultants were primarily responsible for observing specific grades, while the other two tracked student usage of the XO laptop.

1.3 Features of the OLPC Pre-Pilot Context

The OLPC pre-pilot evaluation began with a period of preliminary assessment from May 13 to May 21 and continued from July 3 to July 18. The complete evaluation was thus conducted over the span of five weeks. During this time, members of the evaluation team in Port-au-Prince communicated with other members in the United States via email and via telephone.

The pre-pilot project was implemented in ENRC, an all-female public school located in Port-au-Prince. Because the academic school year had ended when the OLPC pre-pilot project began, the project was implemented as a summer session entitled the "XO Camp." The camp ran from June 30 through July 18, 2008.

Due to an unforeseen shortage of XO laptops, the XO Camp did not begin with one-to-one computing, as originally intended. Instead, two students shared one XO laptop, creating a context of one-to-two computing. The OLPC pre-pilot evaluation began during the third week of the XO Camp, after participating students had been given basic exposure to the laptop and its use.

From June 30 to July 4, all students were in an open area of the main foyer of the building and seated at separate tables arranged by grade. Beginning on July 7, however, students in the fourth grade were separated from the rest of the XO Camp and began working in a separate classroom. At this time, fourth-grade students received an individual laptop that they were free to take home. The second- and third-grade classes were also placed in separate classrooms later in the week, although they continued to share laptops. The XO Camp administrators were hesitant to place grades in separate classrooms, believing that keeping students together in a larger space ensured that student interest was maintained. Unlike the fourth-grade class, therefore, the second and third-grade classes intermittently returned to the main open area of the building.

The pre-pilot included incentives to attract students to the XO Camp. Incentives consisted of games and singing as well as daily lunch and occasional breakfast. Classroom procedures and routines are described in more detail in section 2.5.2.

2 Project Description

2.1 Child-Centered Technology in Haiti

The Haitian government's education strategy covers myriad aspects of an educational system in dire need of assistance. A key component of the strategy is the support for programs that successfully integrate technology into the educational process. Such initiatives promote the use of information and communication technology, while also supporting the identification of alternative investments for the education sector. The increased integration of technology into the education system will be accompanied by reforms in governance that provide institutional mechanisms

for quality control, thus ensuring a thorough review of alternative investments as they are deployed.

Given the context and urgency of educational development in modern-day Haiti, one of the alternative investments that will be explored is the implementation of child-centered learning technologies. Studies have shown that child-centered learning can be at least as effective as teacher-centered instruction, if not more so, particularly for young children[1]. By improving critical thinking skills, child-centered learning has been found to raise academic achievement and improve overall intellectual performance. Particularly in settings of extreme poverty, where educational materials and resources are scant and teacher quality is lacking, the implementation of child-centered learning can increase students' ability to think independently and to develop problem-solving skills more rapidly. Technology that is explicitly child-centered and designed for individual use has the potential of accelerating educational development in the short term.

2.2 One-to-One Computing

The Haitian government's education strategy for the next decade calls for the introduction of one-to-one computing in the primary school system. As an educational practice, one-to-one computing, is particularly child-centered and potentially capable of inducing rapid improvement in student achievement. If effectively implemented and integrated with the rest of the curriculum, one-to-one computing has the potential to raise literacy rates and cognitive skill levels. It is conceivable that it could also increase children's motivation and interest in school. Because increased levels of motivation and school interest have been noted in evaluations of one-to-many computing projects, one-to-one computing should have an even greater effect, given that each child is afforded far more time and interaction with the computer.[2]

The long-term effects and positive externalities of one-to-one computing are still unknown. Although copious observations and evaluations have been conducted concerning the integration of one-to-many computing (as in computer labs in schools), a thorough evaluation of one-to-one computing has yet to be conducted.

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1 J. Schweinhart and D. Weikart. 1988. Education for young children living in poverty: Child-initiated learning or teacher-directed instruction? *Elementary School Journal* 89 (2): 212–225.

2 S. Butzin. 2001. Using instructional technology in transformed learning environments: An evaluation of Project CHILD. *Journal of Research on Technology in Education* 33(4): 367–373.

Evaluations of OLPC test pilots are currently underway in Nepal, Peru, and in Birmingham, Alabama (United States).

One-to-many computing projects have been successful in raising digital and media literacy by virtue of the digital familiarization process undergone by the participating children. If the implementation of one-to-one computing is similarly successful in raising digital and media literacy, it may also build up the practical skills needed for continued education and future employment, concomitantly increasing the perceived benefits of schooling. By increasing the perceived benefits to schooling, computers also have the potential to raise attendance rates and to lower repetition and dropout rates.

In this context the Haitian Ministry of Education and Vocational Training (MENFP) entered into an agreement with the Inter-American Development Bank (IDB) for the implementation of a pilot project that would assess the effectiveness of and determine the requirements for bringing one-to-one computing to scale in Haiti. The pre-pilot project evaluated here was implemented on a smaller scale, prior to the deployment of the pilot project, to identify best practices to be built in to the larger pilot.

The MENFP and the IDB have already agreed upon the technical means by which one-to-one computing will be initially implemented and have chosen the model laptop that will be introduced into the primary school system. The chosen laptop is the XO laptop, developed by One Laptop Per Child, a nonprofit organization based at the Massachusetts Institute of Technology. Appendix 1 provides a more detailed description of OLPC and the XO Laptop.

2.3 The XO Laptop in Haiti

The version of the XO laptop used in the OLPC pre-pilot arrived at the school with the operating system, known as “Sugar,” in English only. Shortly after the beginning of the pre-pilot, MENFP technical assistants began to translate the operating system into French. A version of Sugar in Haitian Creole is currently in development but was not ready for deployment at the start of this project.

The process for converting the XO laptops from English to French was not streamlined, so the majority of the XO laptops used during the pre-pilot remained in English. In this regard the Haitian context varies somewhat from other places where OLPC pilot projects are underway. In Peru, for example, the XO laptops were delivered with the XO operating system pre-installed in Spanish.

With very few exceptions, the XO laptops used in the XO Camp were equipped with the same software package.

2.4 OLPC Pre-Pilot Project Goals

2.4.1 Gain Implementation Experience

The primary objective of the OLPC pre-pilot project was to gain knowledge and experience concerning the best practices of implementing and administering one-to-one computing in Haitian primary schools. Specifically, the IDB and the MENFP were seeking to highlight best practices favorable to an efficient and successful deployment of the OLPC project in Haitian primary schools. The knowledge gained from this pre-pilot will be reviewed for application to the full OLPC pilot project.

2.4.2 Identify Best Teacher Training Methods

The shift from teacher-centered to student-centered learning represents a daunting pedagogical challenge. For that reason, the pre-pilot project sought to identify promising ways to help teachers make this pedagogical shift. MENFP pedagogical and technical support staff, in cooperation with the school administration, are working with teachers to improve the training that teachers will receive before the full OLPC pilot begins.

2.5 Pre-Pilot Project Activities

2.5.1 Teacher Training

Start Date: May 19 End Date: Late July 18

Aim: Prepare teaching and administrative staff to use the XO laptop and to incorporate student-centered learning; assist in project implementation.

For approximately three weeks (May 19–June 13), prior to using the XO laptop in an environment with students, pre-pilot teachers were given training on the XO laptop and student-centered pedagogy. Daily training sessions were conducted by MENFP technical and pedagogical support staff. Each training session lasted approximately two hours, focusing either on the technical functionality of the XO laptop or on the theory of child-centered learning. Two XO laptops were used during the initial training sessions, as well as printed material explaining the constructivist pedagogical approach. Training sessions were semi-structured and often responded

to the interests of the teachers in training. School administrative staff were encouraged to participate in the training sessions and to offer support for the teachers.

Technical and pedagogical support from MENFP staff was ongoing throughout the pre-pilot project. This support included: troubleshooting techniques, pedagogical recommendations, software-specific training, and administrative advice.

2.5.2 XO Camp

Start Date: June 30 End Date: July 18

Aim: Gain practical knowledge of OLPC implementation strategies.

A total of 116 students from grades 1–5 participated in the XO Camp held at the Ecole Nationale Republique du Chili. The majority of XO Camp participants, with the exception of students in grade 4, were given one XO laptop to share with an assigned partner. Participating students of this all-girls school ranged in age from 6 to 15. Students and teachers arrived at school between 8:30 am and 9:00 am each day. Upon arriving, students typically engaged in some kind of physical activity (e.g., jump rope or other games), raised the Haitian and the Chilean flags, and ate breakfast when it was provided. These activities continued until a staff member rang the bell to indicate that all students needed to line up by grade. Students then prayed and sang in unison while standing in single file. Once the MENFP staff took attendance and handed out the XO laptops, students sat at their assigned tables, which were arranged by grade. By 9:30 am, students were typically seated at their assigned table to begin using the XO laptop.

All students used the XO laptop from 9:30 am to 12:00 pm, yet some classes were more structured than others. The fourth-grade class, for example, was typically given an in-class writing assignment to complete in groups, which the teacher corrected before 11:00 am, when students reported back to the entire class. Conversely, other classes were much less structured, with teachers ensuring discipline when necessary but otherwise allowing students to explore on their own with little guidance. Thus, the pedagogical structure of the XO Camp was not constant, but rather included both teacher-led and exploratory learning.

As will be discussed in section 4.2, students typically used the same laptop activities (Write, Paint, Record, and Browse Internet) until 12:00 pm, regardless of differences in pedagogy. At 12:00 pm students began shutting down the XO laptops, washed

their hands, prayed, sang, and ate a free lunch before heading home at approximately 12:30 pm.

It is important to note that class sizes varied by grade level, with the youngest grades having the smallest number of students. Student attendance (and class size) decreased over the course of the OLPC pre-pilot evaluation (Appendix 2). The average class size was 25 students sharing 13 laptops per class, with the exception of the fourth-grade class.

3 Evaluation Framework

This section describes the design, structure, methodology, and instruments used to guide this evaluation. While conducting the evaluation, we consulted the framework outlined below to ensure that our research design remained relevant to our objectives and to the context of the project.

3.1 Evaluation Design

A case study design was chosen for the evaluation of the OLPC pre-pilot project. The descriptive nature of the case study allowed the researchers to obtain information about the early stages of the OLPC pre-pilot project implementation, problems encountered, adaptations made, successes achieved, participant reactions, and environmental influences. The explanatory aspect of this evaluation framework was beneficial, because outcomes, such as student usage of the XO laptop, could be linked to specific aspects of the project. Lastly, the exploratory nature of case studies also proved to be a useful feature, as it allowed for a needs assessment.[3] This information will be discussed in depth in section 4 and will provide an understanding of the pre-pilot project while presenting the different perspectives from which it was viewed.

While this particular evaluation of the OLPC pre-pilot project is not directly generalizable to participating schools of the subsequent pilot project, a case study framework will help others understand the OLPC pre-pilot project's worth and the context in which it operated. Furthermore, this evaluation framework provided the team with flexibility in adapting the methods used to conduct the evaluation, which was advantageous within the changing context of the OLPC pre-pilot project.

[3] J. L. Fitzpatrick, J. R. Sander, and B. R. Worthen. 2004. Program evaluation: Alternative approaches and practical guidelines. 3d ed. Boston: Pearson Education.

3.2 Sample Design

3.2.1 Design Characteristics

The goal of the sample design was to obtain detailed and grade-specific information on the opinions and behaviors of students participating in the XO Camp that was the centerpiece of the OLPC pre-pilot project. A random sample of participating students was taken from each grade in order to represent variations in student attitudes and behaviors across grade and age levels. Before laptops were distributed at the start of the XO Camp participating students were paired, with each pair being given one laptop to share. Although student attendance varied significantly throughout the course of this study (Appendix 2), a total of 116 students were enrolled in the project, providing an average class size of 25 students sharing 13 XO laptops, as mentioned in section 2.5.2.

To ensure close and accurate observation of specific laptop usage, it was necessary to limit the number of student pairs that would be observed during an XO Camp session. At the beginning of the study it was noted that the start of a daily XO Camp session was often delayed by extended periods of play and physical activity and/or by teacher absences. These delays inevitably shortened the amount of time participating students could use the XO laptop and thus reduced the feasibility of closely observing a larger percentage of the students. After an initial testing of the observation guideline and an observation of the overall functioning of the XO Camp, it was decided that the number of observed laptops should be limited to five per grade to ensure accuracy. As each laptop was shared by two students, this sample thus represented 10 students per grade, or a total of 50 students participating in the XO Camp. For all other participant categories, the participant population was not sampled from or reduced (Table 3.1).

3.2.2 Description of Study Samples

The sample descriptions in Table 3.1 represent the various sources of data that we employed in this study. In each case, our goal was to obtain the maximum amount of data without sacrificing data quality and accuracy.

Table 3.1 Study Sample

Participant category	Description	Data collection methods	Sample	Justification
Students	Students of the ENRC, grades 1–5, participating in the XO Camp	Interview; focused classroom observation	Random sampling, stratified by grade: n = 50. Grades 1–5; 10 students per grade	Sample size restricted by time constraints. Five laptops chosen at random, two students per laptop
Students	Students of the ENRC, grades 1–5, participating in the XO Camp	Journal tracking	Entire population (116 students)	Feasible and near-perfect data source allowed for all students' laptop usage to be recorded daily
Teachers	Teachers of the ENRC, grades 1–5, participating in the XO Camp	Interview, classroom observation	Entire population (5 teachers)	Initial and follow-up interviews conducted
Adminis-tration	Administrative Director of ENRC	Interview	Entire population (1 administrator)	Initial and follow-up interviews conducted
MENFP Staff	MENFP technical and pedagogical specialists advising OLPC implementation	Interview	2 technical specialists, 2 pedagogical specialists	Initial and follow-up interviews conducted with technical specialists; one-time interview with pedagogical specialists

Note: ENRC = Ecole Nationale République du Chili; MENFP = Ministry of Education and Vocational Training.

3.3 Evaluation Instruments

The instruments that we used to gather data are described in Table 3.2. These instruments are not without flaw, however; their limitations are described in detail in section 6.

Table 3.2 Evaluation Instruments

Instrument	Purpose	Participants
Interviews	Obtain in-depth qualitative data regarding the introduction of one-to-one computing in the Ecole Nationale Republique du Chili	Participating students, teachers, administrators, MENFP staff, interviewed with varying frequency
Observation	Observe the responsiveness, interest and behavior of students and teachers during extracurricular usage of the XO laptop	Teachers, students, and assisting staff in all grades observed daily during XO Camp sessions

Journal harvesting	Gather user-specific data on the use of the XO laptop's software and communicative devices (use of mesh network / file sharing)	Laptops of students participating in XO Camp analyzed daily

3.3.1 Interviews

A total of 72 structured interviews were conducted. Initial and final interviews were conducted with teachers, the school administrator, the technical support staff from the Haitian Ministry of Education and Vocational Training (MENFP), and the fourth-grade students. The pedagogical team and students from all other grades were interviewed once. Initial interviews for teachers, the school administrator, and the MENFP technical support staff took place during the preliminary assessment (see section 1.1). As the pre-pilot project had not yet begun, initial student interviews with sample students took place during the evaluation. All final and one-time interviews took place during the evaluation. The following is a description of each category of interview conducted.

Student Interviews

Number of interviews conducted: 52
Average length: 20 minutes

Student interviews were designed to obtain qualitative descriptions of student perceptions and attitudes toward the XO laptop and its use in education. Students were asked to identify which aspect(s) of using the XO laptop were pleasurable, exciting, frustrating, confusing or troublesome. Additionally, student interviews sought to determine how students might perceive the use of the XO laptop during the normal school year. One-time interviews were sought from all 50 students in the sample. Seven of the randomly selected students were unavailable for interviews. Nine sample students in grade 4 were interviewed twice, once prior to receiving an individual laptop and once again after being able to take the XO laptop home. The second set of fourth-grade interviews also sought to capture potential security concerns regarding the safety of taking XO laptops home.

The protocols for student interviews are presented in Appendix 3.1.

Teacher Interviews

Number of interviews conducted: 12
Average length: 30 minutes

Initial and final interviews with each teacher at the XO Camp were held at the convenience of the teacher. In some cases, the teacher participating in the XO Camp had not taught the same grade during the normal school year. For example, the teacher of grade 3 during the normal school year was absent for the period of this study. Interviews with teachers were designed to reveal how the XO Camp teachers felt about the XO laptop and their role in using it as an educational tool. As the majority of the teachers interviewed in the study underwent a brief training period prior to the start of the XO Camp, these interviews also sought to determine how the teachers gauged the value of the training session and whether they believed it could be improved or expanded in any way.

The protocol for teacher interviews is presented in Appendix 3.2.

Administration Interview

Number of interviews conducted: 2
Average length: 20 minutes

Initial and follow-up interviews with the administrator of the Ecole Nationale Republique du Chili (ENRC) were designed to explore the challenges faced by school administrators when a laptop project is introduced into a school. Interview questions sought to understand how the administrator perceived the role of the teachers, the use of the laptop by the students, and any concerns the administrator might have had about technical difficulty, program sustainability, and student safety.

The protocol for the administrator interviews is presented in Appendix 3.3.

MENFP Staff Interviews

Number of interviews conducted: 6
Average length: 40 minutes

Initial and final interviews were conducted with each of the MENFP technical advisors. A single interview was conducted with each of the two pedagogical advisors at the end of the study. These interviews sought to describe and qualify the role of the advisors in the XO Camp. As the same core team of four advisors will soon be involved in implementing OLPC pilot projects in other schools, these interviews were

designed to extract suggestions and recommendations for improving the implementation of the larger project. Since the pedagogical and technical advisors build relationships with the school and the teachers and are also involved in the teacher training program, the interviews sought to understand how these relationships developed over time and what changes in the teacher training program could lead to a more efficient and successful deployment of the XO laptop in an educational setting.

The protocol for MENFP staff interviews is presented in Appendix 3.4.

3.3.2 Observation (see Appendix 4 for Observation Roster)

In order to describe the implementation of the OLPC pre-pilot, daily observations were made over the entire period of the study. The aim of the observations was to observe and describe:

- Student focus level
- Specific student laptop usage
- Teacher sanctioning (discipline)
- Teacher engagement and encouragement level
- Teacher knowledge of the XO laptop
- General attitudes and behaviors
- Teacher/student and teacher/support staff relations

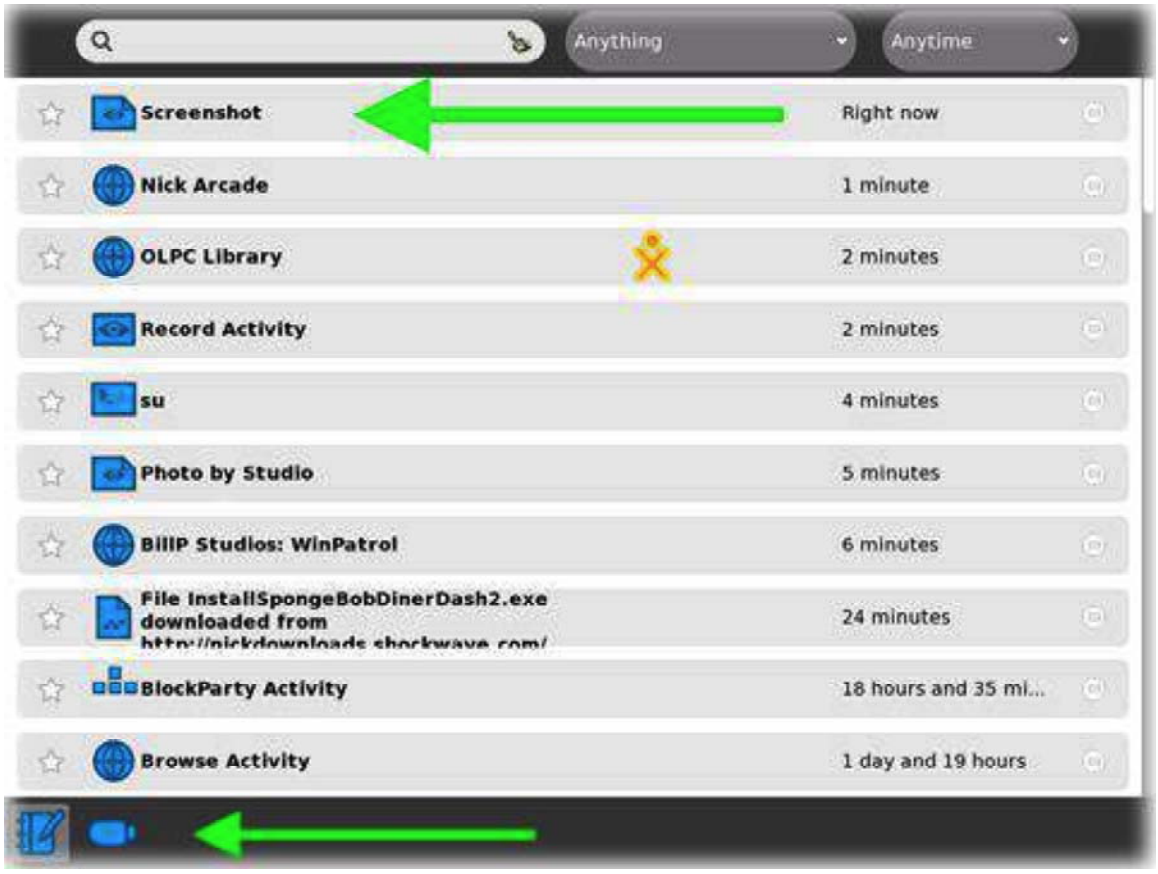
Before beginning their observations of the XO Camp, Jessica Cruz and Scott Kipp met with the local consultants who later assisted in the observations in order to clarify the observation parameters. The goal of these meetings was to increase inter-rater reliability by discussing and agreeing upon how behaviors in the classroom should be interpreted and recorded. Where feasible, the observation roster (Appendix 4) required the observer to count specific behaviors (such as disciplinary actions and teachers' interactions with individual students) so as to determine their frequency.

3.3.3 Journal Harvesting

Each XO laptop stores its data in a "Journal," an interface that stores and records user activity. (See Appendix 5 for a sample Journal Activity Tracking Sheet.) Figure 3.1 is a sample image from the XO laptop's Journal.

The left-hand column lists which activity was used, with names of documents and web pages listed. The right-hand column indicates when that particular activity was last opened or saved. The XO symbol in the middle column indicates that a particular activity was shared digitally from one XO user to another.

Figure 3.1 Sample XO Journal



Unlike a typical file storage system, the Journal is centered on the activities for which each XO laptop has been used. Other computers design their file storage systems based on documents and other files as the basic unit of organization, but the XO's Journal is designed around the activities in which each user has engaged. As can be seen, the Journal provides the following user-specific data:

- Activity (application used)
- Whether activity was shared (indicated by presence of the XO symbol in middle column) and with whom
- When an activity was last used (indicated by right-hand column, with time indicator).

3.4 Evaluation Design Matrix

We developed and used the following table to guide our data collection and analysis processes throughout the evaluation.

Table 3.3 Evaluation Design Matrix

Project objective	Evaluation question	Source(s) of information	Method(s) for selecting participants	Method(s) for data collection	Anticipated data collection & analysis timeframe
Assess the introduction of one-to-one computing in Haiti	Were the XO laptops distributed successfully in the accordance with project plans?	MENFP staff, teachers and administration of participating schools	Saturation sample of all available participants	Observation of classrooms, counting of XO laptops, inquiry about storage and functionality of laptops, interviews of MENFP personnel	Assessment at the beginning of study period, June 30–July 4
Determine nature of one-to-one computing in select Haitian primary schools	How do participants in the Haitian OLPC pre-pilot use the XO laptop?	Students, teachers, admin and MENFP support staff	School is purposefully selected by MENFP, students selected randomly, saturation of school and MENFP staff	Classroom observations, interviews, usage tracking	Data collection June 30–July 18. Analysis thereafter through August 4
Determine level of interest and responsiveness to the introduction of one-to-one computing	How often do students use the XO laptop?	All participating students	All classrooms observed, sample students selected randomly	Classroom observations, interviews, usage tracking	Data collection June 30–July 18, Analysis thereafter through August 4
Determine heterogeneity in laptop usage	How does teacher behavior affect laptop usage?	Participating students, teachers	Various, according to participant group	Comparative analysis of data from classroom observations, teachers, admin and tech staff	Data collection June 30–July 18. Analysis thereafter through August 4

Project objective	Evaluation question	Source(s) of information	Method(s) for selecting participants	Method(s) for data collection	Anticipated data collection & analysis timeframe
Determine the effectiveness and areas of improvement of teacher training sessions	How do the school and MENFP staff feel about the training school staff received before the OLPC pre-pilot project was implemented?	Teachers, MENFP support staff	Saturation sample of all available participants	Interview data	Data collection May 19-20 and June 30–July 18. Analysis thereafter through August 4
Obtain information about the dynamics created by students taking the XO laptops home	How do participants of the OLPC pre-pilot project feel about students taking the XO laptop home?	Fourth-grade sample-group students, school and MENFP support staff	Fourth-grade students selected randomly, saturation of school and MENFP staff	Interview data	Data collection May 19-20 and June 30–July 18. Analysis thereafter through August 4

MENFP = Ministry of Education and Vocational Training.

3.5 Procedures for Data Collection and Analysis

3.5.1 Interviews

Data Collection

Interviews for this study were conducted with the assistance of an interpreter familiar with the Haitian educational system and fluent in Haitian Creole, French, and English. The majority of the interviews were conducted before or after the pre-pilot project's scheduled activities so as to not interfere with the pre-pilot. The only exception was the final interview for the fourth-grade students. The nine students in the fourth-grade sample were interviewed during the XO Camp session to ensure that the interviews could be completed within the evaluation's time frame. The length of the interviews varied. Initial student interviews typically lasted approximately 15 minutes, whereas final student interviews lasted about 25 minutes, depending on the level of detail provided by the student. Teacher interviews ranged from 25 to 45 minutes, whereas the MENFP staff interviews varied from 30 to 90 minutes in duration.

All interviews were conducted in a private space with one or two of the evaluation team members (Jessica Cruz and/or Scott Kipp), an interpreter, and the interviewee. The first set of initial student interviews was conducted in an office space located on the first floor of the ENRC. However, frequent interruptions by staff entering and exiting the office and the noise level from the XO Camp proved too disruptive. The evaluation team requested a different space and was granted empty classrooms on the second floor of the school building. There, interruptions were much less frequent. The noise level remained a problem, but decreased dramatically.

We began each interview by explaining our role (to help gather information) and the purpose of the study (to inform and improve upon the subsequent OLPC pilot project). The interviewer encouraged the participant to provide his or her personal opinion, emphasizing that there were no right or wrong answers. Steps were also taken to inform the participant of his or her rights as an interviewee. More specifically, all participants were ensured confidentiality, anonymity, and the absolute right to withdraw at any point. Verbal consent was then requested before the beginning of each interview.

Data Analysis

Methods of interim interview data analysis included a daily review and editing of collected data to identify emerging and recurring themes to inform subsequent interviews. As a result, initial observations and interview data heavily informed the last interviews conducted: the fourth-grade final interviews and the pedagogical team interviews.

Methods used to analyze data from the interim and final interviews included analytic induction through cross-sectional coding in order to emphasize interviewee and interviewer interpretations and understandings. In cross-sectional coding, raw data were formatted into common formats, appropriately labeled according to participant characteristics (e.g., age, grade, etc.), reviewed to gain an understanding of emergent codes, and arranged according to thematic categories derived from cross-sectional codes.[4] In so doing, general patterns discussed by the majority of participants were highlighted. Furthermore, unique and interesting cases were identified. Subthematic categories were subsequently created to capture varying or contradictory points of view.

[4] D. R. Thomas. 2006. A general inductive approach for analyzing qualitative evaluation data. *American Journal of Evaluation*, 27: 237–246.

Subthematic categories also allowed views within and across thematic categories to be compared and contrasted, especially when responses came from multiple interview sources (different types of people). This method of data analysis facilitated the identification of relationships between variables. Methods of final analysis also included displaying data in charts to better compare and contrast data collected through various methods (such as observations or the tracking of XO student usage). These comparisons challenged or reinforced our codes and thematic categories.

This method was not perfect. It was possible for some texts to be coded in more than one category while others were left uncoded, as they were not relevant to the evaluation objective of student laptop usage. Cross-sectional coding thus served as a mechanism for interpretation by allowing the researcher to relate the data back to the guiding questions of the evaluation. As such, it was a systematic and consistent tool for identifying information relevant to the objectives of the OLPC pre-pilot evaluation.

Validity of Interviews

Two types of validity were ensured through the use of interviews: (1) interpretive validity and (2) internal validity.

Interpretive validity, or the extent to which an interpretation accurately represents the meanings attached to the participants, was secured through the presence of an interpreter in each interview. The interpreter's familiarity with Haitian culture and his or her linguistic ability in Haitian Creole, French, and English improved the likelihood that the evaluation team members would accurately interpret the meanings of the answers provided by the interviewees.

Internal validity, or the degree to which an observed causal relationship is justified, was also ensured through triangulation of methods and data. In using several methods such as interviews, observations, and usage-tracking data to conduct the evaluation, method triangulation helped obtain internal validity. Additionally, by interviewing different types of people, such as students, teachers, administrators, technical support staff, and the pedagogical team, data triangulation occurred through the use of multiple data sources, thereby further ensuring internal validity.[5]

[5] A. J. Onwuegbuzie and R. B. Johnson. 2006. The validity issue in mixed research. *Mid-South Educational Research Association*, 13 (1): 48–63.

3.5.2 Observation

Data Collection

Total number of observers: 4

Total number of XO Camp sessions observed: 40 (approximately 120 hours)

At the start of each XO Camp session, each observer was provided with an observation roster on which to record the day's activities. Observations were made by Jessica Cruz, Scott Kipp, and two local consultants. All of the observers were seated near the grade level being observed and made frequent rounds to monitor the activity of specific students. Observers kept interaction with students and teachers to a minimum so as not to disrupt or influence the observation environment. With four observers and five grades to observe, observers were rotated so that no grade would be consistently disregarded.

In order to more accurately interpret the events taking place during the XO Camp sessions, Jessica Cruz and Scott Kipp also made use of a translator during observation sessions. Ample time and space were provided for all observers to comment on any other aspects of the session deemed noteworthy. During observations, Scott Kipp and Jessica Cruz consistently monitored the observation environments and checked with the local consultants to ensure that all observations were being conducted in an accurate and safe manner and that no aspect of the observation roster was confusing or difficult for the local consultants to use.

Data Analysis

The measurements recorded in the daily observation rosters were compiled by category and coded for analysis. This process produced several scores for each week by grade level. Weekly scores were averaged and crossed with data recorded by Journal tracking in order to ascertain and describe the effect of specific teacher behaviors on student XO usage. Interim analysis began after Week 1 in order to identify dramatic inconsistencies and incomplete observation measurements, and to look for any unforeseen behavior that should be directly incorporated into the observation roster. Interim analysis suggested some of the parameters that would produce valuable findings in the final analysis, such as the measurement of student attention span.

General and environmental observation data were compiled and analyzed so as to compare and contrast general impressions of XO Camp activity across observers. This was done to identify common trends across observers and grade levels that could serve to inform any overall recommendations to be made with regard to project functionality and implementation.

3.5.3 Journal Tracking

Data Collection

Prior to the start of this study, Scott Kipp trained two local consultants to read and record user-specific data from the XO laptop. At the end of each day, these consultants opened and turned on each of the XO laptops in use by the XO Camp students and recorded the day's usage onto a Journal tracking sheet. Scott Kipp was present during this collection process to ensure accurate readings and to answer any questions the consultants had. As the process of recording usage data from the XO laptop is relatively quick, we were able to collect usage data from the entire student population and not just from the student sample subgroup. To check accuracy and ensure validity, Scott Kipp then selected random laptops and checked their completed Journal tracking sheets to verify a complete and accurate recording of usage data. Each week, data from completed tracking sheets were entered into spreadsheets and compiled. In this way, each laptop produced measures of how many programs were opened each day (daily usage total) and how many times each program was opened each week (weekly program total).

Data Analysis

By assembling daily usage totals and weekly program totals, interim analysis quickly revealed which aspects of the XO laptop were most popular and most frequently used among students and which students tended to explore aspects of the laptop that had not yet been formally introduced or explained by the teacher. Final analysis compiled all recorded usage by grade level so as to compare usage patterns with observed teacher-student behaviors and other general observations.

4 Findings

This section examines the most important results of our data collection. Subsections here are arranged according to the goals and objectives of the evaluation, as defined in the evaluation design matrix (Table 3.3).

4.1 Distribution of XO laptops

Major Findings

One-to-Two Computing

The principal divergence from project plans involved the number of XO laptops distributed. Due to logistical barriers and shipping delays, only 100 XO laptops were available for the XO Camp. After providing each teacher with an XO laptop so that the teachers could become more familiar with using the XO, too few laptops remained to permit one-to-one computing. With more than 100 students participating in the XO Camp, project directors decided to assign a single laptop to a pair of students rather than limit the number of participants. Beginning in week 2 of the XO Camp, fourth-grade students were provided with individual XO laptops for school and home use.

Battery Life

Initial interviews with staff of the Ministry of Education and Vocational Training (MENFP), conduced prior to project commencement, revealed that the project staff expected the XO battery to last 8–10 hours per charge. In actuality, the fully charged batteries were depleted within 3–5 hours, depending on usage. It is unclear whether this significant difference is attributable solely to a technical default or if the XO laptops were distributed without first being properly charged.

4.2 Participant Use of the XO Laptop

Major Findings

Attention Span

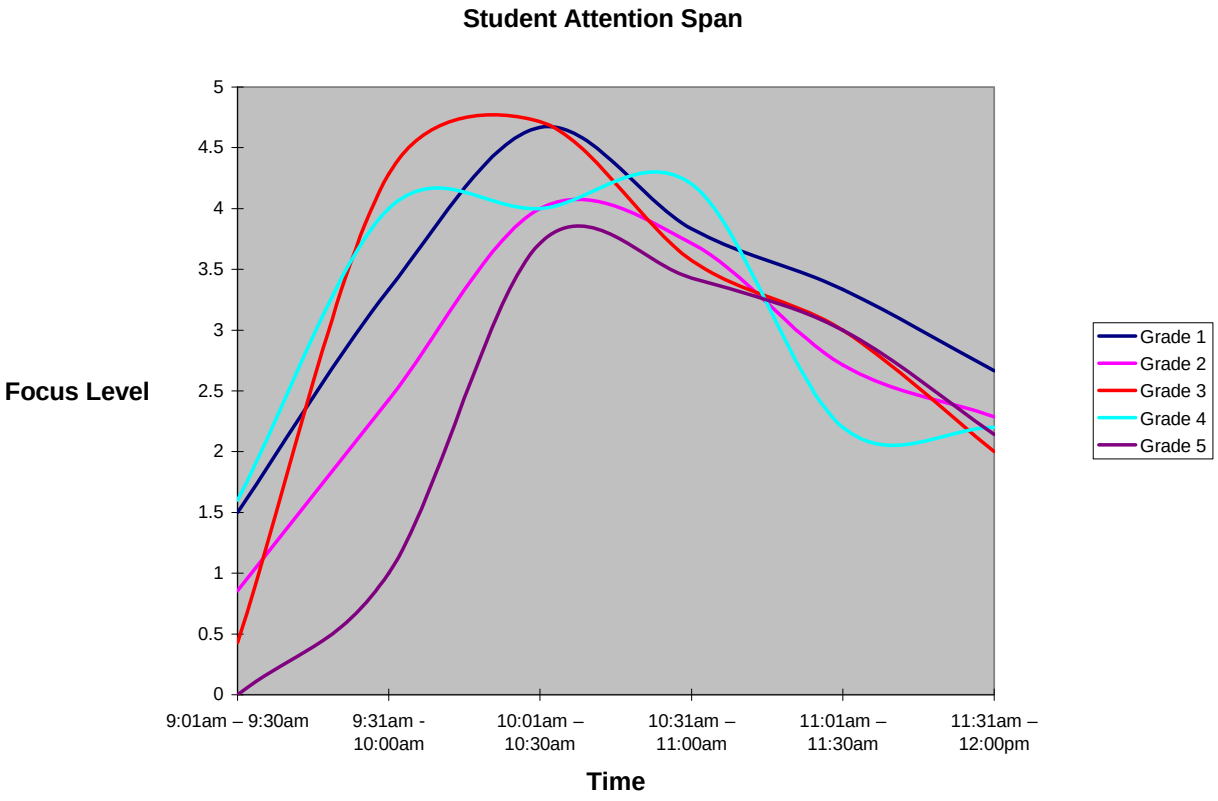
In observing student use of the XO laptop, it was immediately apparent that students' attention span varied considerably throughout a given XO Camp session.

Student use of the XO laptop typically rose at the beginning of each day's session, then waned after an hour of use (Figure 4.1). Observational data provided several explanations for declining attention spans, the most common of which were:

- Unequal sharing by XO laptop partners
- Dominance of the XO by one student partner
- Distraction by students in other grades
- Low battery life / fighting over electrical outlets for charging
- Low level of teacher engagement and activity.

Figure 4.1 Student attention span by grade

Average measures from combined observational data



Overall XO Usage

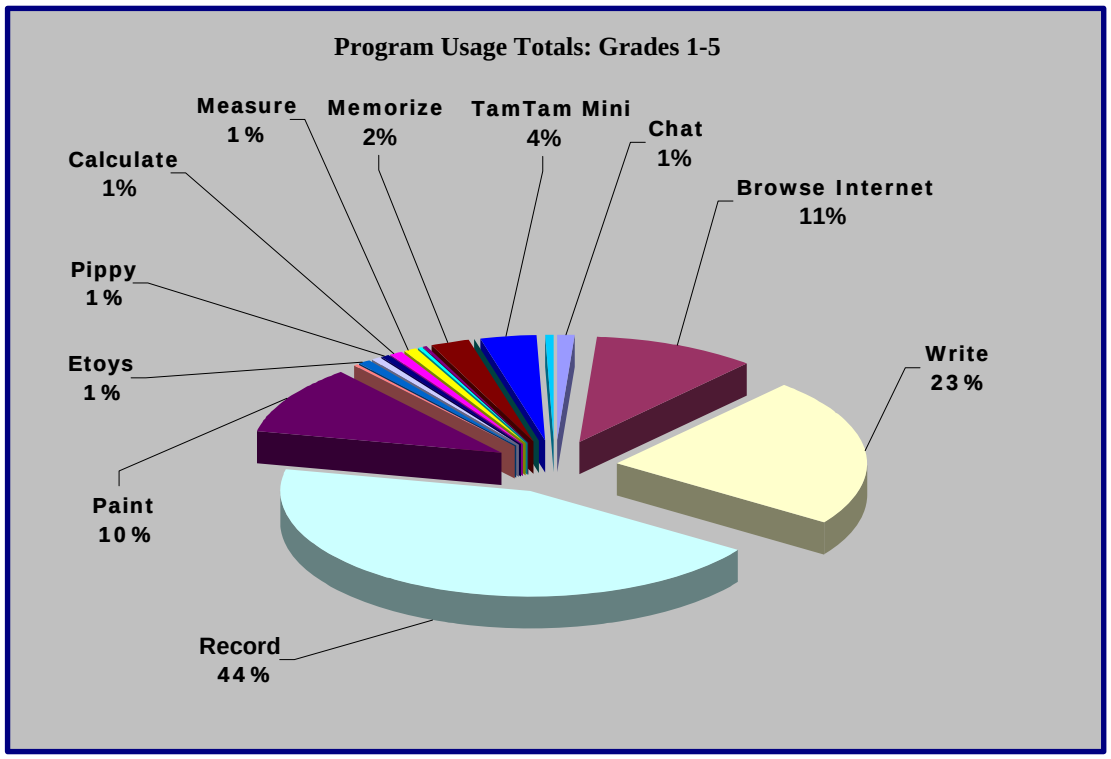
Four components of the XO laptop's software package dominated the overall usage profile: Record, Write, Browse Internet, and Paint (Figure 4.2). These four activities together represented 88 percent of XO laptop usage for XO Camp participants. Their

popularity and prevalence, represented here by data collected directly from XO Journal tracking, was confirmed by observational data.

These four programs, along with Memorize, Calculate, and TamTam Mini, were the only programs formally introduced to students during XO Camp sessions. Other programs displayed in Figure 4.2 (Pippy, EToys) represent exploratory usage of the XO laptop.

In general, usage trends were found to have a strong relationship with the formal introduction and instruction provided by the teacher. That is, when a clear activity was presented to the students and the students were given projects to work on using specific software programs, use of those programs increased steadily, while exploratory usage declined. This is demonstrated by the comparison of usage patterns of grade 5 from week 2 and week 3, for example.

Figure 4.2 XO Activity Usage: All XO Camp Participants, Grades 1–5



Near the end of week 2, the school's Internet connection, broken in week 1, was repaired, and a new project was introduced to grade 5, combining research on the Internet and summative essay writing. The formal introduction and use of the

Internet, beginning at the end of Week 2 and continuing through Week 3, drastically reduced the use of the popular Record and Paint programs among fifth-grade students.

Increased interest in organized group activity also lead to a decline in exploratory usage (of Pippy, TamTam Mini, and Chat) from week 2 to week 3 (Figures 4.3 and 4.4). Observational data confirm that teacher engagement was high during this time, as was the level of teacher sanctioning and encouraged student–student collaboration. Exploratory usage of the XO laptop similarly declined in other grades when new activities were introduced and student focus level was high.

Figure 4.3 XO Usage by Grade 5 Students, Week 2: July 7–11

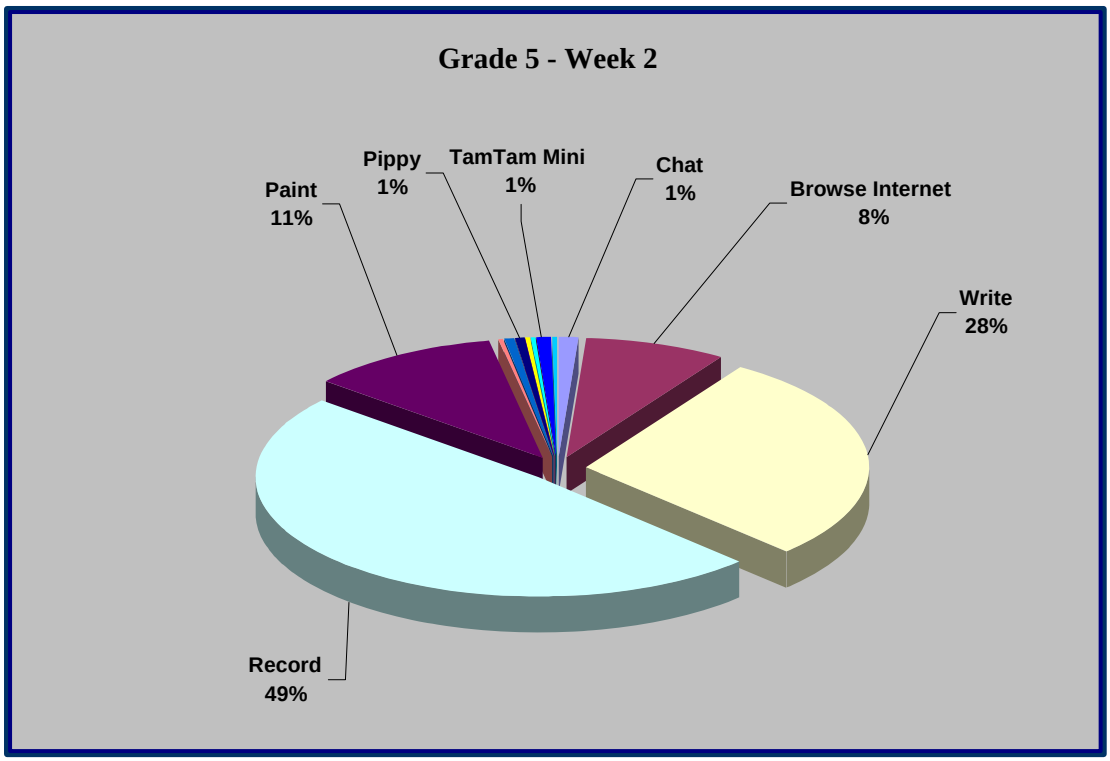
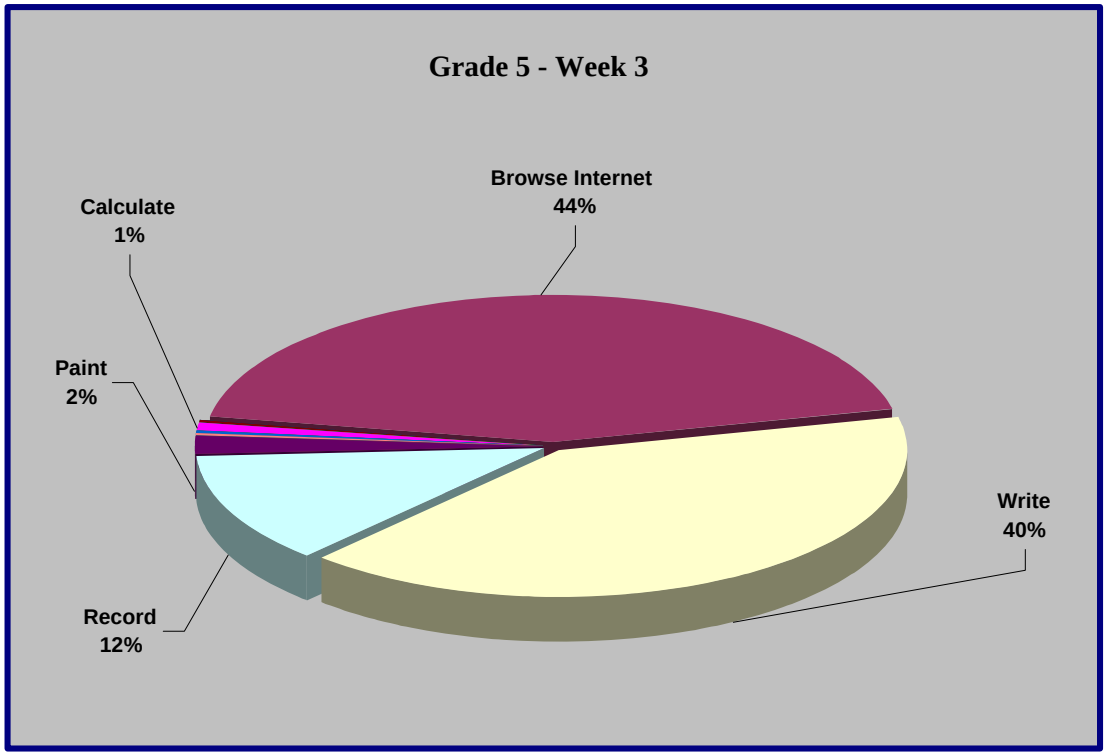


Figure 4.4 XO Usage by Grade 5 Students, Week 3: July 14–18



Reading and Writing

Interview data show that students and teachers used the XO laptop to practice or improve reading and writing in Haitian Creole and French. The pedagogical staff of the Ecole Nationale Republique du Chili (ENRC) and the MENFP agreed on the XO laptop's positive perceived effect on writing and reading in both languages. Included in Table 4.1 are selected remarks from staff interviewees to convey the perceived improvement on student reading and writing in Haitian Creole and French.

Table 4.1 Perceived Reading and Writing Improvement via XO Usage I

Staff number	Date interviewed	Interviewee quote
1	7.9.08	"It [the XO laptop] has had a positive effect because the [student] spelling has improved a lot."
9	7.8.08	"The typing practice builds their vocabulary and improves their spelling."
10	7.15.08	"…the laptop is helping the students with language, both in French and in Creole because they are writing more and the ones that have their laptops in French are getting more exposure to the language."

All together, 56 percent (N=9) of ENRC and MENFP pedagogical staff mentioned the improvement students had made in reading and writing Haitian Creole and French after using the XO laptop. The remaining 44 percent did not directly state a

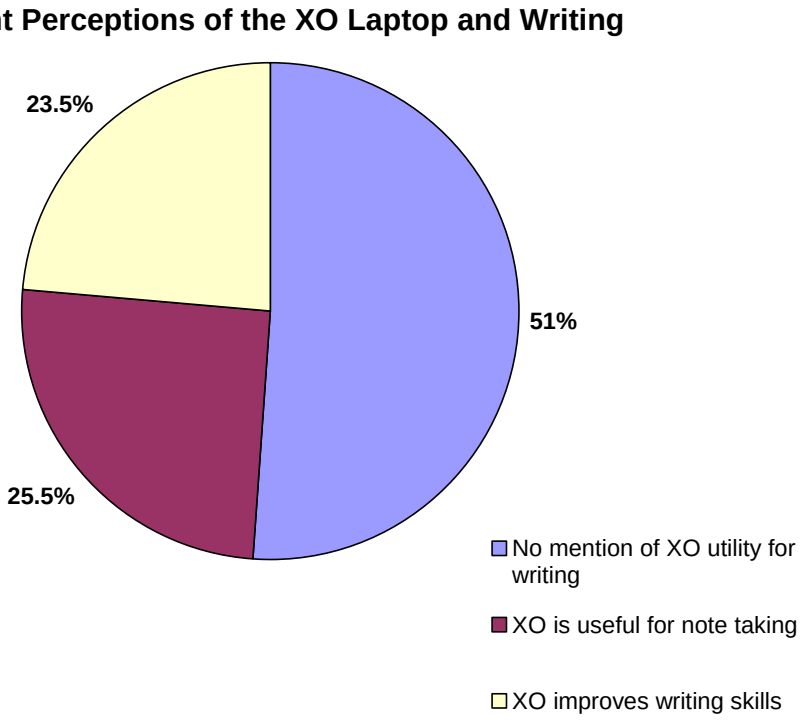
perceived improvement in reading and writing of either language, although they did speak positively about typing on the XO or using XO activities requiring reading and writing. Table 4.2 provides examples.

Table 4.2 Perceived Reading and Writing Improvement via XO Usage II

Staff number	Date interviewed	Interviewee quote
4	7.7.08	"The kids will be more responsible and more independent because they'll learn about researching with the computer early on. They will be better prepared when they go to the university… This is a new way to learn. Normally students just write and take notes. They have to learn exactly what is given to them. They have to study texts word by word and sometimes they are memorizing without learning. Since the XO allows them to do more research, they will learn, not just memorize what they're doing."
6	7.7.08	"One positive aspect about working and teaching with the XO is writing… The XO will help the students a lot because the quality of teaching will be improved. For example, typing rather than writing texts by hand makes it easier to correct and edit the text… The XO should have the content in French, not English. Content in Creole should also be included."
5	7.9.08	"It will be more interesting for the students. They will use the laptop for research, which will be helpful."

These quotes demonstrate the positive perceived effects of using the XO for conducting research, which requires reading and writing, especially in French, as well as the positive effects of having XO content in Haitian Creole or French for increased reading comprehension when using the XO. Observational data further support the use of the XO to develop reading and writing in Haitian Creole and French. One teacher asked students to conduct research online in French and to write a summary of the content in Haitian Creole in order to ensure that students were not simply copying and pasting directly from the Internet without comprehending the content. The XO laptop has thus been used as a pedagogical tool with which to practice and improve reading and writing in Haitian Creole and French.

Figure 4.5 Student Perceptions of the XO Laptop and Writing



Students also spoke about writing as it relates to the XO laptop. Of the 43 students interviewed, 65 percent said the Write activity was their most frequently used activity, and 19 percent said it was their favorite activity on the XO laptop. Additionally, 49 percent of interviewed students believed the XO was helpful for writing. As can be seen in Figure 4.5, however, 52 percent of these students believed it was useful for note taking while 48 percent believed the XO laptop would improve writing skills. Table 4.3 provides several student quotes illustrating these sentiments.

Table 4.3 Select Student Quotes on Writing and the XO Laptop

Student number	Date interviewed	Grade level	Student quote
16	7.9.08	2	"It could help with spelling and writing during the class."
41	7.9.08	5	"It would help with the essays and my homework. It would help me take notes too. And to write."
43	7.11.08	5	"The laptop is a good thing for me. It teaches me how to write, how to take pictures, and how to draw."

The perceived positive effects of the XO laptop on student's reading and writing skills appeared within a three-week period beginning June 30, the day the XO Camp began, until July 18, when it ended. While it may be difficult to fully observe the effects of the XO laptop on reading and writing in such a short time, the perceived

improvement may be accounted for by the increase in student interest. As participant #5 stated (Table 4.2), the XO laptop has increased interest in student learning. If students are intrigued by the XO laptop, they may consequently be more receptive toward reading and writing, or learning in general.

Several students reported being given a print-out of Haitian stories to type using the XO laptop's Write application in an effort to improve typing skills. This activity, along with Internet research, provided increased exposure to language, which may have helped students read and write better. However, the perceived improvement in student writing, specifically in spelling, may be misleading, since the improved spelling may in fact be due to the XO laptop's spell-check feature. On the other hand, spell-check may help students improve spelling on their own, because they are able to correct their writing without relying as much on the teacher.

Students wrote daily journal entries on the XO laptop. Like their written assignments, these were edited by the teachers. During interviews, most teachers said it was easier to edit students' work done on the XO laptop. Thus they were able to spend more time working one-on-one with students and less time lecturing. Increased individual attention may have thus been a significant factor in the perceived improvement of student's reading and writing skills.

Additional Findings

Opportunity for Improved Learning and Future Preparation

Of the 43 students interviewed, 40 percent believed that the XO laptop would facilitate learning or provide opportunities for the future. Students believed the XO laptop could be used to facilitate the learning process through the use of tools such as the Internet and a calculator because, as student # 40 stated, "Everything you need is on the laptop" (7.14.08). Table 4.4 further demonstrates this point, as expressed by student interviewees.

Table 4.4 Student Quotes on Improved Learning and Future Preparation

Student number	Date interviewed	Grade level	Student quote
23	7.8.08	3	"I am in the third grade. I want to use the laptop in the classroom in order to make progress and be better at using the laptop by the time I'm high school."
30	7.8.08	3	"When I use it, I'll understand what I'm working on much better, which will make it easier to memorize."
47	7.9.08	5	"Since I'm young and I'm learning right now, it would be better to learn during the year. I want to do something related to computers when I grow up. This will help me prepare for my future goals."
49	7.10.08	5	"The XO would make it easier to understand things because I can research things I don't understand."

Accordingly, 85 percent (N=11) of the ENRC and MENFP staff also believed the XO laptop would provide opportunities for future advancement and improved learning. In addition to speaking of the benefits of using the Internet or the calculator on the XO laptop, staff members believed that the XO would also increase student attendance, interest, and independent thinking, thereby contributing to clearer understanding and improved learning. School and MENFP staff members also expressed belief in the XO laptop as a symbol of progress, opportunity, and advancement. The selected staff quotes in Table 4.5 illustrate these sentiments.

Table 4.5 Staff Quotes on Improved Learning and Future Preparation

Staff number	Date interviewed	Interviewee quote
2	5.19.08	"It's very good. I like it. The kids used to learn by memorizing and sometimes they didn't understand what they were memorizing. But now the laptop is useful because it's practical. They have to do research and they have to use their mind. It's a better way to educate…The laptop is going to change education in a positive way because the kids will be more open to the world. They won't sit in traditional classroom anymore."
8	5.19.08	"I like the XO laptop because it's very useful for us and for the children. It has a connection with the rest of the world. It's very useful because everything is done with computers now. I like the XO a lot."
9	7.8.08	"This is a very advanced step for the school. I believe it's very good to have the laptop in class because students need something to stimulate their learning. Since students are often interested in TV's and games, computers help them stay happy in class… Students will be more attentive in class because it will be easier for them. It will also increase attendance, student interest, and opportunities to do research."
10	7.15.08	"This is also a good and positive thing for the student. The student is learning how to think for herself, they are figuring out how to find knowledge on their own and this, of course, will be better for them. Another positive aspect is that when the kids go home with the laptop, families who may have never seen a laptop before get exposure."

4.3 Frequency of XO Laptop Usage

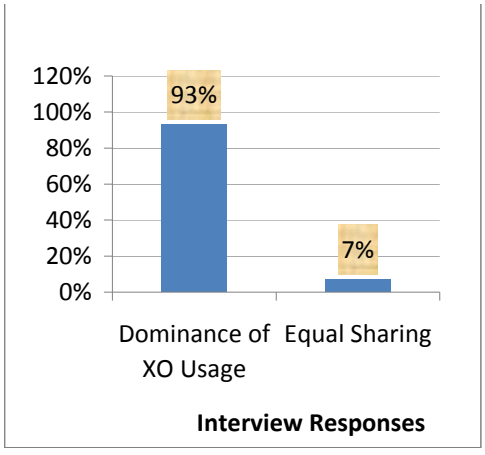
Major Findings

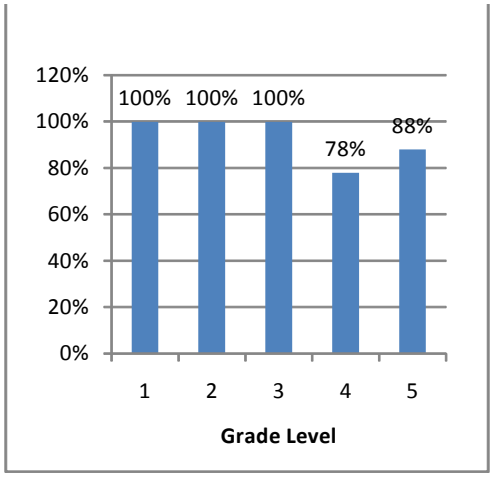
Unequal Sharing of XO Laptop

As mentioned in section 1.3, one-to-two computing was the norm during the XO Camp because of an unexpected shortage of XO laptops—raising the question of how well the laptops were shared. Grades 1, 2, 3, and 5 practiced one-to-two computing for the entire period of the XO Camp; grade 4 worked this way from June 30 to July 4.

As noted earlier, a sample of 50 students was randomly selected for an initial student interview. Of these, 7 could not be interviewed due to frequent absence or withdrawal from XO Camp, and one gave an unclear answer to the question on sharing, leaving 42 student responses as available data. Of these 42 students, 39, or 93 percent, believed the laptop was not shared equally and only 3, or 7 percent, felt the laptop was shared equally among the two partners (Figure 4.6). Interestingly, the three students who reported equal sharing of the XO laptop were all accused by their partners of dominating the XO laptop.

Figure 4.6 Incidence of Unequal Sharing of XO Laptop





All students interviewed in grades 1–3 believed that the XO laptop was not shared equally, while grades 4 and 5 showed a slight variation. Seventy-eight percent of the interviewed fourth-grade students and 88 percent of the interviewed fifth-grade students felt that the XO laptop was unequally shared. This finding may possibly indicate that students in higher grades, who are also more likely to be older,

are more likely to equally share use of the XO. Though unequal sharing of the XO could have varied by age, the interview data collected did not provide sufficient information to determine the relationship between age and XO usage. This was due to the fact that only three of the interviewed pairs of student partners agreed on who was the dominant XO user. Table 4.6 includes student quotes illustrating students' sentiments about sharing the XO laptop:

Table 4.6 Select Student Quotes on Unequal Sharing of XO

Student number	Date interviewed	Grade level	Student quote
15	7.11.08	2	"I use it more because my partner doesn't know how to do stuff and I take over."
19	7.10.08	2	"My partner uses it more. I wish I could have more time with it."
22	7.7.08	3	"My partner uses it more. She doesn't want me to touch the laptop. I like to share, but I would prefer to have my own."
23	7.7.08	3	"I am using my own laptop today because my partner is absent. When we are both here, my partner uses it more because she's a dictator. My partner had another partner earlier and that person complained and now the dictator was assigned to me and I have the same complaints. I like to share when my partner is here."
32	7.4.08	4	"My partner uses the laptop more because my partner doesn't want me to use the XO. She gets mad at me when I ask for the XO. I would prefer to have my own, but I agree to share."

Though the great majority of students reported dominant XO usage by one of the partners, most also said that they did not mind sharing in principle, even if they would prefer to have their own XO laptop. As reported by school and MENFP staff, students tended to quarrel over the XO laptop simply because they were young children learning to share a scarce resource.

The first quote in Table 4.6 suggests that the student who is more knowledgeable about the XO dominated usage. Several other interviewees also indicated that the student with the most advanced academic skills tended to dominate. This is an area of concern since interviews with students, teachers, and MENFP staff indicated that student writing had improved in French and Haitian Creole with the use the XO laptop. If academically advanced students are dominating the use of the XO, then students in need of academic improvement or guidance are missing a potential opportunity for advancement. On a more positive note, students also helped one another, despite arguments over XO laptop use. Participant #10, a staff member, said, "Too often they [the students] copy each other. If one begins to do something

new, everyone else at the table will begin to do the same thing. If one of them learns a new thing to do, the others learn from them." (7.15.08). While it is difficult to determine peer-learning effects from the data collected, this quote hints at the possibility of peer-learning effects that may occur when students share laptops, as well as when students use the laptops individually.

Additional Findings

XO Usage by Students in Fourth-Grade Sample

In addition to using the XO laptop during the XO Camp from approximately 9:00 am to 12:00 pm, the fourth-grade students in the sample reported frequent use of the laptop outside the school, subject to the availability of electricity to recharge the machines.

Students with electricity shortages in the home

Six of the nine fourth-grade students in the sample were not able to recharge their laptops at home. They reported using the laptop outside of school until the battery was depleted. These students employed a method of double charging during the XO Camp to attain additional computer time outside of school. They charged the laptops in the early morning hours of the XO Camp and again in the afternoon in order to have a fully charged battery before heading home. These students used the XO laptop for approximately six hours per weekday.

Students with reliable electricity in the home

The other three fourth-grade sample students had reliable electricity service at home. They reported recharging the laptop at home, indicating that it was used until the charge was low or depleted, but it is unclear whether or not these students continued to use the XO laptop while the battery charged or after the battery was completely recharged. However, these students also used the XO laptop for a minimum of approximately five hours per weekday for the same reasons stated for the students who experienced electricity shortages.

4.4 Teacher Behavior and Laptop Usage

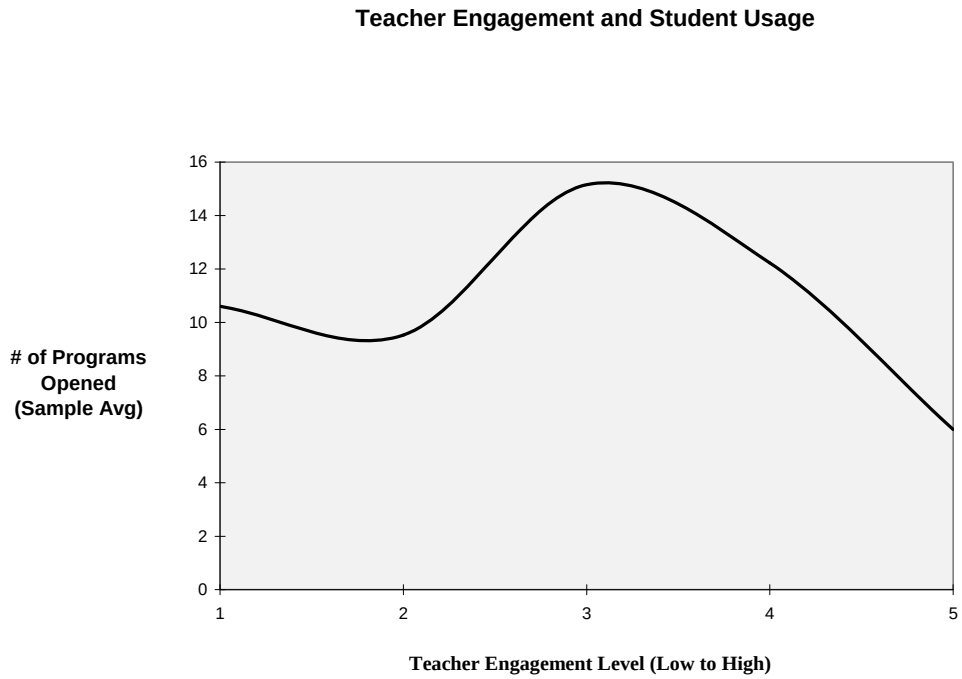
Major Findings

Teacher Engagement and Student Usage

To analyze the effect of teacher engagement on student usage patterns, we analyzed measurements of teacher engagement against data obtained from XO Journal tracking and focused observation data from the relevant subgroup of the student sample. Measures were taken from observational data that quantified how often teachers actively engaged, supported and approached students. Measures for the number of programs opened were taken directly from the XO Journal and then matched by date to the measures of teacher engagement. The measurements of teacher engagement included how often the teacher spoke with students who did not approach the teacher and how often the teacher made rounds to monitor and closely observe student activity.

Different levels of teacher engagement have varying effects on the number of XO laptop programs opened by the students (Figure 4.7).

Figure 4.7 Effect of Teacher Engagement on Student Usage of the XO Laptop



A teacher engagement score of 1 indicates very little or no active engagement by the teacher, whereas a score of 5 indicates a very high level of active engagement. A score of 3 is the median. Figure 4.7 indicates that, as an overall measure of all sample participants in the XO Camp, a teacher with a mid-range engagement score corresponds with the highest number of programs opened by the XO Camp participant. That is, a teacher who is actively engaged at a moderate level (i.e., not entirely inactive and not overbearingly engaged) tends to have students who open the highest number of programs on the XO laptop.

A grade-specific view confirms that higher levels of teacher engagement overall correspond with a slight increase in the number of XO programs opened. That is, teacher engagement in general is positively related to an increase in laptop program usage in each grade. Within each grade, the more active interest a teacher exhibits, the more actively that teacher's students will be engaged with the XO laptop. Additional observation data confirmed this trend, as several observers noted that lack of teacher mobility and activity tended to correspond with a higher level of distraction and disinterest among students.

Constructivist Ceiling Effect

As mentioned in section 1, the training sessions held for the ENRC staff explained the use of the XO laptop as a means of moving away from traditional or positivist pedagogy, which emphasizes the use of memorization to transfer knowledge from the teacher to the student. The training sessions instead moved the participants towards constructivist pedagogy, which involves the individual and social creation of knowledge through exploration with the instructor serving as a facilitator. Under this framework, students received some guidance on the use of the XO laptop, but they also were allowed or expected to learn about the XO laptop through self-guided exploration.

Interestingly, 40 percent (N=43) of the students interviewed made comments that suggested a ceiling effect on constructivist pedagogy. A few of these comments are reported in Table 4.7 below.

Table 4.7 Student Quotes Demonstrating Constructivist Ceiling Effects

Staff number	Date interviewed	Interviewee quote
21	7.7.08	"There are some things on the laptop that I don't know how to do. The teacher doesn't explain and I don't ask."
23	7.7.08	"I think going into this activity [News Reader] may mess up the laptop. I avoid it because it makes a weird sound every time I open it. The teacher doesn't understand it either. When I open it, I don't know how to go back."
30	7.8.08	"I'm having a problem closing the programs, but I'm too shy to ask [the technical support staff]."
40	7.15.08	"When I open one activity, I hear a 'zzzzzz' sound and the screen goes blank. I don't know what this activity is called or what it does."
48	7.8.08	"I would like people older than me, who understand the program, to explain it to me because I don't think the teacher understands it very well."

The quotes in Table 4.7 shed light on the limits of constructivist pedagogy. Students explored the XO laptop only up to a certain point and, as student #23 said, avoid the aspects of the laptop that are confusing or problematic. This avoidance is sometimes due to the student's shyness or reluctance to seek guidance from the teacher or from technical support staff. At other times, it reflects the teacher's unfamiliarity with the XO. Nevertheless, the effect is the same: 40 percent of students explored the laptop until reaching a point of frustration or confusion. As a result, students seemed to explore less after reaching a threshold and continued to use the XO activities with which they felt comfortable.

School and MENFP staff also commented on the limits of constructivist pedagogy within the framework of the OLPC pre-pilot project. Many believe more guidance is needed to ensure a transition from positivist to constructivist pedagogy for both students and teachers. Of the 11 school and MENFP staff members interviewed, 5, or 42 percent, believed that teachers and students were simply not used to a constructivist model of education and needed additional guidance to ensure its success. However, 100 percent of school and MENFP staff interviewees believed that the constructivist model was a good one to follow. All participants seemed hopeful and optimistic about the pedagogical transition after seeing the speed at which students learned about the XO laptop.

4.5 Evaluation of Training Program

Major Findings

Need for Additional Training

All (N=13) of the ENRC and MENFP staff interviewees reported a need for additional training. When asked about the three-week training session held prior to the OLPC pre-pilot project, all respondents said it was helpful, yet incomplete. While MENFP staff reported progress in teachers' technical and pedagogical ability with respect to the XO, all interviewees believed the training sessions should gone on longer. Some interviewees believed the training sessions should last 2–3 months or perhaps be ongoing throughout the academic year.

In addition to lengthening the training sessions, interviewees suggested changes in the way the technical and pedagogical training is implemented (Table 4.8). Interviewees suggested that the upcoming OLPC pilot project training session be divided into two parts:

- An intense technical and pedagogical training session prior to the implementation of the pilot project
- A continuous effort to provide ongoing training and support throughout the school year.

Doing so would address several of the concerns of school and MENFP staff. More specifically, school and MENFP staff believe that the training sessions should include subject-specific training to prepare teachers to teach with the XO across the disciplines (math, science, etc.). Also, as noted by participant #4, the training should include more troubleshooting techniques to allow teachers to help students who experience technical difficulties, thereby reducing the need for external technology support staff to be present in the classroom.

Section 5.1 offers for a comprehensive list of suggestions made by school and MENFP staff on how to improve subsequent training sessions.

Table 4.8 Reported Need for Additional Training

Staff number	Date interviewed	Interviewee quote
4	7.7.08	"The training we received was good, but the teachers are not yet ready. We should know how to use the XO for all types of projects in class. We've only been using it since May. We're not used to working with the laptop to teach math, etc. The way we were taught to teach is not how we teach with XO. We need someone to introduce us to teaching science, math, spelling, writing, etc. with the laptop. Every time we use a new discipline with the laptop, we need someone to help us. There are some technical things that we need to know also. Basic things the teacher should know, like troubleshooting, because we should be able to help students when they have a little trouble."
10	7.15.08	"Oh, of course. Essentially, the training was not enough. We are trying to change years of practice. Two or three weeks of training will not change their pedagogical practices. The training needs to be more often and more comprehensive."
11	7.15.08	"For the pedagogical training, I think there should have been more pedagogical training for the teachers. It's not only project activities, pedagogical training is also important. They didn't have much time to change because they've been working on the traditional method for so long. They've improved a lot, but I didn't have time to bring about radical change."

4.6 The XO Laptop in the Home

Major Findings

Positive Outcomes of the XO Laptop in Students' Homes

Two staff members spoke about the benefits of having students take the XO laptop home. These benefits included laptop exposure for families with no previous experience with computers, as well as an opportunity for continued student learning through additional practice with the XO. The fourth-grade students were allowed to take the laptop home beginning in week 2 of the XO Camp. A sample of 9 students from the fourth-grade class was interviewed after the students spent approximately one week and one weekend with the laptops at home. These students' views were in accordance with those of the staff members. All of the interviewed students shared the XO laptop with family or friends and received a positive reaction from everyone who saw or used the XO. Furthermore, 22 percent of the students received additional guidance from siblings who had prior computer experience. All students reported a reduction in play time, as students completed their household chores and then used the XO laptop for as long as they could.

Security

Although many students shared the laptop with family, friends, or neighbors, four of the nine participants, or 44 percent, did not take the laptops outside of the home. The parents of three of these students did not allow them to take the laptop outside, even at the cost of hindering the student's ability to complete an assignment. Furthermore, 78 percent of students did not feel safe walking home with the laptop.

Table 4.9 highlights students' fears and parental protection as well as the positive aspects discussed in the previous section.

Table 4.9 Select Student Quotes on Taking the XO Laptop Home

Student number	Date interviewed	Grade level	Student quote
32	7.14.08	4	"I have three brothers and they also use the laptop, but one of them already had a laptop in the house…He's showing me how to use chat and introducing me to email. Everybody was happy and my mother asked me to be careful and not break it. My neighbors and friends have also seen the laptop and they said that they want their school to have the laptops too… They see it when they visit because I try not to go outside with it because I don't feel safe. Sometimes I'm afraid someone will grab the laptop and hurt me."
35	7.14.08	4	"Before I began taking the laptop home, I spent more time playing…Now I spend more time playing on the laptop and I share it with everyone–mother, father, sister, and brothers. Everyone wants to know what it is and how to use it. A neighbor wants to buy one for her son and was asking where to find it…Sometimes when I'm walking home with the laptop, I'm afraid that someone will take it from me. My mother is always telling me to be careful and to put it in a place where no one can see it. Especially on the weekend because it's very easy for the neighbors to see inside the house."
37	7.14.08	4	"My younger brother was so excited…My mother was happy and told me that now I'll be very advanced. She said that she will come to me when she needs something from now on. Everyone was so happy, and I was happy too…Besides them, no one else has seen it because I keep it inside the house."

5 Recommendations

Our data highlight certain areas of improvement for the subsequent OLPC pilot project. Below is a summary of these areas along with recommendations based on the data obtained.

5.1 Training

As revealed in section 4.5, the staff of the Ecole Nationale Republique du Chili (ENRC) and the Ministry of Education and Vocational Training (MENFP) agree on the need for additional technical and pedagogical training for school teachers and staff. All ENRC and MENFP staff asserted that longer and more in-depth training prior to implementation of the OLPC pre-pilot project would have been useful. Some interviewees believed that the teachers' preparation and motivation are crucial factors in the success of the subsequent OLPC pilot project. Based on the interview data collected, it is suggested that the training aspect of the upcoming OLPC pilot be divided into two parts. Part one of the training session would be an intense technical and pedagogical training session prior to the implementation of the OLPC pilot project that may group teachers from various schools, while part two would be a continuous effort to provide ongoing training and support. Below are recommendations based on the interview data collected from ENRC and MENFP staff.

Training Session Part I

Technical Training

- Introduce teachers and school staff to all XO activities.
- Teach troubleshooting techniques.
- If feasible, provide each participant with an XO laptop to take home. If it is not practical for each participant to receive an XO laptop, handouts or another form of documentation of activities conducted during the training session could be provided for participants to take home in the form of a training manual.

Pedagogical Training

- Familiarize teachers and other participants with constructivist pedagogy.
  - Have teachers and other participants of the training session take on the role of the student so that the participant can learn about constructivism through exploration, a key characteristic of constructivist pedagogy.
  - Provide guidance in the early stages of the training session before having participants engage in full exploration.
- Familiarize teachers with methods for teaching various disciplines, such as math, writing, or science, with the XO laptop.

Training and Support Session Part II

- Hold monthly meetings throughout the school year for continuous training, as well as follow-up discussions between the school and MENFP staff.
- Continue teaching troubleshooting techniques, as needed.
- Implement weekly meetings with teachers, with or without the presence of the MENFP core team, to generate continuous weekly discussions about pedagogy and conflicts that may arise out of constructivist pedagogy as practiced with the XO laptop.
- Address unresolved issues from weekly teacher meetings at the monthly meetings with the MENFP staff.

5.2 Security

The majority of sample students, ENRC staff, and MENFP staff interviewees expressed concern about students taking the laptops home. Conversely, however, many agreed on the positive benefits of doing so. Those benefits include family exposure to the XO laptop and additional XO practice for the student, as discussed in section 4.6. The following recommendations about safety and the benefits of taking the XO laptop home are based on interview data:

- Only older students should be allowed to take the laptops home, given their higher levels of maturity and responsibility.
- Students should not be allowed to take the laptop home in the early stages of the OLPC pilot project. Instead, students should become accustomed to the XO laptop before being allowed to take it home.
- Teachers, school administrators, and MENFP staff should ask students and parents directly about potential safety concerns.
- Students should have the option of leaving the XO laptop in the school if security is a grave concern for either the student or the parent.

5.3 Project Ownership and Sustainability

The role of technical and pedagogical support staff too often supplants that of the teacher in daily activities. To encourage a sense of project ownership and responsibility in the school and to reduce dependency on outside support, we recommend that the role of the MENFP core team (which provides technical and pedagogical support) not extend to daily functional tasks such as taking attendance,

disciplining students, or teaching entire classes. The core team should focus on helping teachers take command of all aspects of the project.

5.4 Student Attention Span

Particularly for lower grades, attention span drops significantly after approximately 1:45 minutes of laptop use. Structured physical activity for 20–30 minutes is recommended to ensure and sustain attention span and more productive student use of the XO laptop. As the XO battery tends to lose a significant amount of its charge after 1:45 minutes, the time dedicated for physical activity should also be used to charge the laptops with the lowest battery life. Low battery charges were a substantial source of distraction, as the students fought for access to electrical outlets.

5.5 Teacher Behavior

Observation data from this study have shown that a more active and engaged teacher can have a positive effect on student activity and student focus in a student-centered learning environment that uses the XO laptop as an educational tool. Because the shift from a positivist to constructivist pedagogical approach can be extremely challenging for teachers and students, explicit instruction in stimulating and sustaining student engagement, as well as other forms of support, could help teachers make a smoother transition into the student-centered learning environment.

5.6 Student–Student Interaction

The XO Camp setting provided a healthy environment for cross-grade interactions among students. As the students were all working with the XO laptop, cross-grade interaction throughout the day positively reinforced learning, particularly for students in lower grades. Cross-grade interactions should be more formally structured into the XO curriculum so as to encourage student–student knowledge sharing. Students in the fourth- and fifth-grade classes responded well to working in groups. For lower grades, stronger encouragement of student–student interaction—through working groups or student presentations designed to share learning, for example—is strongly recommended, as such encouragement is consistent with the constructivist approach and might induce students to improve their technical knowledge of the XO laptop.

5.7 Changes to the XO Laptop

Several interviewees made suggestions for potential improvements to the XO laptop. These suggestions are listed below:

- Include a map of Haiti.
- Include a game in which sentences appear out of order, thus requiring students to arrange the words in proper order.
- Include the Cut, Copy, and Paste features typically available on computers.
- Improve the touchpad, which quickly loses sensitivity and proved difficult for students and staff to use effectively.
- Include a longer-lasting battery, since the current battery lasts only about 2 hours.
- Include activities specific to Haitian culture. For example, when teaching about science, it would be useful to have an XO laptop activity that compared the traditional or natural medicines of several countries, including Haiti.

6 Limitations And Items For Further Evaluation

The OLPC pre-pilot evaluation was not without shortcomings. The major problems are noted below.

6.1 Time Frame

The bulk of the OLPC pre-pilot evaluation was conducted within a short time frame—from July 3 to July 18—which limited the amount of observation, interview, and XO usage tracking data collected.

6.2 Student Attendance

Student attendance gradually decreased over the OLPC pre-pilot project and evaluation, especially for grades 1–3 (Appendix 2). Decreases in attendance or withdrawals from the XO Camp prevented the evaluation team from interviewing the complete sample of students that had been randomly selected. The reasons for decreased student attendance are unknown. However, several students lived far from the school and walked almost an hour every morning to arrive at camp. This may have been a significant factor in the observed decrease in student attendance.

6.3 Interview Data

Interviews were often conducted with high levels of background noise, making it difficult to hear participants, especially soft-spoken students. More importantly, all interviews were conducted through an interpreter. This complicated the evaluation team's ability to pose follow-up questions, because verbatim interpretation was often not feasible. The team had to conduct interviews based on translated summaries rather than the specific details of the interviewees' responses.

6.4 Journal-Tracking Data

During week 2 of this study, MENFP technical support staff began noting the increasing frequency of difficulties in basic XO functionality. It soon became apparent that the XO laptops were being slowed down by the ever-increasing amounts of data being stored on them. The pictures and sounds recorded using the Record activity were largely responsible for the lack of usable memory on the XO. To protect functionality, MENFP technical staff explained to all teachers how to delete files and data from the XO Journal. Some teachers did not explain to the students how to delete data, whereas others encouraged students to do so. Although the prevalence of deleting was relatively low, it did occur and thus resulted in slightly imperfect usage data. Close and focused observation of sample-group students was designed to offset the effects of deleting user data, though it should be stated that, without constant monitoring, periodic close observation cannot guarantee a comprehensive description of laptop usage.

It is important to note that a higher occurrence of usage for a particular program does not automatically indicate more time spent using that program. The Record program, for example, although representing the largest share of overall usage, did not necessarily occupy 44 percent of the time that participants spent using the XO laptop. The usage data represented here indicate only the frequency with which the XO software programs were activated, not how long each program was used. Although data recorded from the XO Journal indicate when a particular activity was begun, they do not indicate how long a student actively engaged with a particular activity (as opposed to having it open), because students could and did have multiple activities open at once.

6.5 Ideas to Be Evaluated in Greater Depth

Transition from Positivist to Constructivist Pedagogy

The OLPC pre-pilot evaluation uncovered interesting dynamics in the process of transitioning from positivist, or teacher-centered, learning to constructivist, or student-centered, learning. The "constructivist ceiling effect," discussed in section 4.4, is worthy of further evaluation in order to ensure a smooth pedagogical transition in which student learning is not negatively affected.

Perceived Improvement in Reading and Writing

To better understand the actual and potential connection between use of the XO laptop and improvement in student reading and writing in Haitian Creole and French, the perceived improvement of student's reading and writing skills should be explored further, with students who have acquired more experience with the XO laptop.

Student–Student Interaction as Curriculum

Many of the students observed in our study had already acquired technical aptitudes in the use of the XO that far surpassed those of their teachers. Students in higher grades, in particular, could serve as a significant source of knowledge for younger students. The social and academic implications of more structured student–student interactions in the context of an OLPC pilot should be investigated further.

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Appendixes

Appendix 1 The OLPC Foundation and the XO Laptop

One Laptop Per Child (OLPC) designed the XO laptop as an educational device to be deployed where infrastructure is poor and teacher quality is lacking. For these reasons and for the robust technical capabilities of the laptop, the XO was chosen as the optimal means for the experimental implementation of one-to-one computing in Haiti. The machine is sized for children and includes a number of innovations, including open source software, allowing children and teachers to create and invent new inputs; energy efficiency, accommodating solar or human power; mesh networking, facilitating cooperative interaction; and a hermetic seal to make it resistant to water and dirt. The networking capabilities of the laptop make it possible for children to communicate with each other and share content, which facilitates peer-to-peer cooperative learning, irrespective of Internet availability.

Basic software applications on the XO include a web browser, a word processor, a drawing program, and several programs designed for improving overall media literacy. By using the laptop's built-in camera and microphone with accompanying software, children will be able to learn how to capture and manipulate photos, videos and audio. The lighting of the laptop's screen is also adjustable so that it can be viewed in full sunlight without glare. According to the OLPC Foundation, "the XO laptop is a children's machine designed for 'learning learning.'" That is, the laptop is designed to teach itself to the child, who will then learn how to manipulate and tailor the XO to meet his/her needs and aptitudes. The operating system for the XO, Sugar, is open-source and thus malleable and able to meet a diverse range of interests. As such, the content of the XO is likely to become highly localized as it is developed and deployed. The usage of the XO is explained by the OLPC Foundation as follows:

> *"Using the XO as both their window on the world, as well as a highly programmable tool for exploring it, children in emerging nations will be opened to both illimitable knowledge and to their own creative and problem-solving potential."*
>
> — *www.laptop.org*

The stated goal of the OLPC Foundation is: "To provide children around the world with new opportunities to explore, experiment and express themselves." As the realization of OLPC's goal became closer, several countries began to formalize their interest in participating. The first country to officially commit to the OLPC project was Thailand, in 2005. Thailand was soon followed by Nigeria (2005), Uruguay (2006), Peru (2007) and Rwanda (2007). Mass production of the XO laptops then began in China in November. Based on the results from the pilot programs already undertaken, Uruguay is in the process of scaling up its initiative to encompass 150,000 students and Peru is also considering expanding its project. Ethiopia also

hopes to begin providing XO laptops for all of its 14 million children in primary school, beginning in 2008.

The XO laptop is approximately 242mm × 228mm × 32mm and weighs approximately 3 pounds (1.5 kilograms), depending on type of battery used. The XO laptop is able to pivot, as seen in the photo, so that the screen may be held and viewed without interference from the keyboard.

Figure A1.1 The XO laptop in normal and full-pivot position

Figure A1.2 The XO laptop in the Ecole Nationale Republique du Chili (first grade students)

XO Laptop Software

The following is a brief description of each of the software applications that were available to participants of the XO Camp.

	Chat	Interface for textual communication between two or more XO users.
	Browse (Internet)	Internet browser able to display images, texts and complex graphics.
	Write	Basic text editing application for word processing and image incorporation.
	Record	Media capturing interface for still images, video and audio.
	Paint	Drawing template, equipped with sample templates and designs.
	TamTam Jam	Music performance activity. Users can select which instruments play which sounds and conduct their behavior.
	Etoys	Interactive programming activity in which users can create and define action scripts for graphic objects (basic animation).
	TurtleArt	Users can practice programming commands by experimenting with command effects on the Turtle.

	**Pippy**	Users learn the XO's programming language in order to calculate expressions, play sounds, or make simple text animation.
	**Calculate**	A generic calculator interface designed for the practice of basic math.
	**Measure**	Users can measure, and see represented visually, sounds and distances related to the XO laptop.
	**TamTam Edit**	Users can organize musical orchestration, assigning notes and tempo for five separate tracks.
	**TamTam Synth**	Advanced music development and manipulation of installed and recorded sounds.
	**Memorize**	Users try to find matching pairs and can use words, letters or numbers to create their own flashcards.
	**News Reader**	Basic interface for receiving and viewing RSS feeds from favorite websites.
	**TamTam Mini**	Introductory music program; XO users can experiment with the sounds of each pre-installed instrument or create their own.
	**Acoustic Tape Measure**	Determines the physical distance between two XOs by measuring how long it takes sound pulses to travel between them.

Appendix 2 Attendance at the XO Summer Camp

Monday, June 30–Friday, July 18, 2008

Number of camp participants: 116

	Jun 30	Jul 1	Jul 2	Jul 3	Jul 4	Weekly average
Absences	28	25	23	22	29	
% Absent	24	11	20	19	25	20
	Jul 7	**Jul 8**	**Jul 9**	**Jul 10**	**Jul 11**	
Absences	21	23	30	—	27	
% Absent	18	20	26	—	23	22
	Jul 14	**Jul 15**	**Jul 16**	**Jul 17**	**Jul 18**	
Absences	38	28	21	33	—	
% Absent	33	24	18	28	—	26
Total average						22

— = Data not available.

Appendix 3 Interview Forms Used in the Evaluation

Appendix 3.1 Initial Student Interviews

Initial Student Interview
Approximate time:

Name of Interviewer: _____
Date: _____

Introduction Script:
Hello, how are you? My name is _____ and I am a researcher from _____. I am here to gather information on how the XO laptop works in the classroom. This information will be very useful in the future when the project is expanded. The answers you provide to the interview questions will be kept private and there are no right or wrong answers. In fact, I encourage you to give your personal opinion. This interview should take approximately _____ minutes. Your participation is completely voluntary and you can stop the interview at any time. Please feel free to ask any questions.

Background Characteristics:
Name of student: _____
Age: _____
Grade: _____

1. Can you tell me about what the XO does?
   a. Please note what the student does when you ask this question.

2. How did you feel when you first got the laptop?
   a. _____ Excited/Happy
   b. _____ Comfortable
   c. _____ Neutral/Indifferent
   d. _____ Uncomfortable
   e. _____ Scared /Worried

3. Tell me what's easy about the laptop:

4. Tell me what could be easier about the laptop:

5. Who uses the laptop more, you or your partner?

   a. How do you feel about sharing the laptop?

6. Can you describe a typical day at the XO camp?

7. Do you enjoy using the laptop in the classroom?
   a. _____ Very much so
   b. _____ Somewhat
   c. _____ Neutral
   d. _____ Not very much
   e. _____ Not at all

8. What do you do most with the laptop? (What XO/laptop activities do you use the most?)

9. Do you use the laptop for anything else in the class? Yes _____ No _____

a. If yes, what else have you used the laptop for?

10. Do you think it would be helpful to use the XO laptop in class? Yes ___ No___
    a. If yes, how so?

    b. If no, why not?

11. We're almost done. Would you like to add anything?

Questions for the interviewer:

1. End Time:

2. Did anyone or anything interrupt the interview or was there anything unusual?

3. Setting Description:

Appendix 3.2 Fourth Grade Final Student Interview

Name of Interviewer: _____
Date: _____
Beginning time:_____

Introduction Script:

Hello, how are you? You might remember from the last interview that my name is _____ and I am a researcher from _____. I am here to gather information on how the XO laptop works in the classroom. This information will be very useful in the future when the project is expanded. I'd like to remind you that the answers you provide to the interview questions will be kept private and there are no right or wrong answers. In fact, I encourage you to give your personal opinion. Many of the questions from the last interview will be asked again today to see if your experience with the laptop has changed. This interview should take approximately _____ minutes. Your participation is completely voluntary and you can stop the interview at any time. Please feel free to ask any questions.

Background Characteristics:

Name of student: _____
Grade: ___4____
Age: _____

1. How is it now that you are in a separate classroom with your own laptop to take home?
    a. Does she use the laptop the same way?
    b. Is it different from what you expected?
2. What do you differently at home now that you can take the laptop with you?
3. Do you share the laptop with family members?
    a. Which family members?
    b. How did everyone react to it?
4. Has anyone else seen the laptop (from her community)?
    a. If so, who?
        i. Was this because they visited your home or because you take the laptop outside of your home?
            1. How do they react?
5. Does the battery deplete faster now that you take it home?
    a. If so, how do you resolve this?
6. Does anyone walk home with you now that you take the laptop home?
7. Do you feel safe walking home with the laptop?
    a. Do you keep it in a bag?

8. For your transportation project, you had to interview and take pictures of people in the community.
    a. Did you do this in the community or in your home?
    b. If outside of the home/in the community:
        i. Did you go alone?
        ii. Did you take your laptop with you?
            1. How did people respond?
            2. Did you feel safe doing this?
9. How is learning in class with the laptop different from learning in class without the laptop?
    a. What does the teacher do differently?
        i. Does she lecture (talk to the entire class) more or less?
            1. Do you like this?
                a. Why?
        ii. Do you talk more with your teacher (one-on-one/individually) now that you use the laptop in class?
            1. Do you like this?
                a. Why?
    b. Are you more distracted or tempted to play games when the teacher lectures?
        i. If so, how do you complete your assignments if you have not listened to the professor?
            1. If they ask a friend, are they always able to answer?
    c. Do you do more group work now?
        i. Do you like this?
            1. Why?
10. Can you tell me the good and bad experiences/things about learning with the laptop?
11. Do you think it's helpful to use the laptop in the classroom? Why?
12. What do you do when you have a problem with the XO?
    a. If they go to the teacher, the teacher able to help?
    b. Have you had any problems with the laptop that you haven't been able to solve?
13. If you could, would you make any changes or add anything to the laptop?
14. We're almost done. Is there anything you'd like to add or do you have any questions?

Questions for the interviewer:

1. End Time:

2. Did anyone or anything interrupt the interview or was there anything unusual?

3. Setting Description:

Appendix 3.3 Initial Teacher Interview Guide

Initial Teacher Interview
Approximate time: _____

Name of Interviewer:
Beginning time:
Setting Description:

Introduction Script:
Hello, how are you? My name is _____ and I am a researcher from _____. I am here to gather information that will help with the implementation of one-to-one computing in Haiti. While I will not be involved with deciding what happens with the one-to-one computing in Haiti, I form part of a team that will help gather information on what has and has not been successful with the XO laptop and one-to-one computing. This information will be very useful in the implementation of a future pilot study in order to ensure effective nationwide implementation of one-to-one computing. The information you provide during this interview will remain confidential and it is important to emphasize that there are no right or wrong answers. Instead, you are encouraged to provide your personal opinion. This interview should take approximately _____ minutes, your participation is completely voluntary and you can stop the interview at any time. Please feel free to ask any questions.

Background Characteristics:
Name: _____
Gender: Male_____ Female_____
Teaching Grade Level: _____

1. How will the XO laptop be used by students?

2. What is your opinion about using these laptops in the classroom?

3. Do think the laptops will change education in this school?

4. How do think the students will respond to using laptops in the classroom?

5. Are you enjoying learning about the XO laptop? Yes _____ No _____

    a. If yes, what do you like about the training sessions?

    b. If no, what don't you like about the training sessions?

6. Thinking about the training sessions, do you feel that the entire group of teachers is learning together at the same pace? Yes _____ No _____

    a. If no, where do you see yourself in relation to other teachers?
        i. _____Far behind
        ii. _____In the middle
        iii. _____Ahead

7. Do you feel that you know this laptop and can use it well? Yes _____ No _____

    a. If no, what do you feel you need to know more about?

8. Is anything about the laptop difficult for you? Yes _____ No _____

    a. If yes, please describe:

9. Do you think the students should be allowed to bring the laptops home?

10. We're almost done. Would you like to add anything?

End time:

Questions for the interviewer:

1. Did anyone or anything interrupt the interview?

2. Was there anything unusual during the interview?

Appendix 3.4 Final Teacher Interview Guide

Final Teacher Interview
Approximate time: _____

Name of Interviewer:
Beginning time:

Introduction Script:
Hello, how are you? My name is _____ and I am a researcher from _____. I am here to gather information that will help with the implementation of one-to-one computing in Haiti. While I will not be involved with deciding what happens with the one-to-one computing in Haiti, I form part of a team that will help gather information on what has and has not been successful with the XO laptop and one-to-one computing. This information will be very useful in the implementation of a future pilot study in order to ensure effective nationwide implementation of one-to-one computing. The information you provide during this interview will remain confidential and it is important to emphasize that there are no right or wrong answers. Instead, you are encouraged to provide your personal opinion. This interview should take approximately _____ minutes, your participation is completely voluntary and you can stop the interview at any time. Please feel free to ask any questions.

Background Characteristics:
Name: _____
Gender: Male_____ Female_____
Teaching Grade Level: _____

12. Do you enjoy using the laptop?
    a. _____ Very much so.
    b. _____ Somewhat.
    c. _____ Neutral
    d. _____ Not very much.
    e. _____ Not at all.

13. Do you use the laptop at home? Yes ____ No _____
    a. If so
        i. How often do you use it?

        ii. How do you use it?

    b. If not, why not?

14. How do you feel about incorporating the laptop into your teaching?

15. Do you think it would be useful to use the laptop in the classroom during the normal school year? Yes _____ No _____
    Why or why not?
16. How do you think the XO laptop would change your classroom?

17. How have your students responded to the use of the XO laptop?

    a. What differences, if any, have you notice in regards to laptop usage between students?

    b. How do you feel about students having to share the laptops?

    c. Would you prefer that each student had her own laptop?
    Yes ____ No _____

i. Why or why not?

18. If possible, list two positive aspects about teaching with the XO:
    a.
    b.

19. If possible, list two aspects about teaching with the XO that could be improved:
    a.
    b.

20. Do you feel the training you received before the students received the XO was adequate?
    Yes ___ No ____
    a. If no, why not?

    b. How can it be improved for the future?

21. What effect, if any, has the XO had on student learning?

22. What effect, if any, has the XO had on student–student interactions?

23. What effect, if any, has the XO had on student-teacher interactions?

24. Would you prefer to teach with the laptop_____
    a. _____ All of the time
    b. _____ Some of the time
    c. _____ Rarely
    d. _____ Not at all
        a. Please elaborate.

25. How have you and your students adjusted to the core team (tech support staff and pedagogical staff)?

26. What do you do when a student comes to you with a problem?

    a. What is the best way to help students use the XO?

27. Have there been or do you think there may be any security problems related to this pre-pilot? Yes _____ No _____
    a. If yes, please describe the nature of the security problem:

    b. How were the problems resolved?

    c. How quickly were the problems resolved?
        1. _____ Very quickly
        2. _____ Fairly quickly
        3. _____ Average speed
        4. _____ Slowly
        5. _____ Very slowly

28. How do you feel about students taking laptops home?

29. Do you have any recommendations for pedagogical content that should be included in the XO?

30. We're almost done. Would you like to add anything?

Questions for the interviewer:

1. End Time:

2. Did anyone or anything interrupt the interview or did anything unusual happen?

3. Setting Description:

Appendix 3.5 Initial Administrator Interview Guide

Initial Administrator Interview
Approximate time: _____

Name of Interviewer:
Beginning time:
Setting Description:

Introduction Script:
Hello, how are you? My name is _____ and I am a researcher from _____. I am here to gather information that will help with the implementation of one-to-one computing in Haiti. While I will not be involved with deciding what happens with the one-to-one computing in Haiti, I form part of a team that will help gather information on what has and has not been successful with the XO laptop and one-to-one computing. This information will be very useful in the implementation of a future pilot study in order to ensure effective nationwide implementation of one-to-one computing. The information you provide during this interview will remain confidential and it is important to emphasize that there are no right or wrong answers. Instead, you are encouraged to provide your personal opinion. This interview should take approximately _____ minutes, your participation is completely voluntary and you can stop the interview at any time. Please feel free to ask any questions.

Background Characteristics:
Name: _____
Gender: Male_____ Female_____
Position/Title:_____

1. What do you think of the laptop program?

2. How do you think the students will experience the laptop program?

3. What do you see as the positive aspects of the laptop program?

4. What do you see as the negative aspects of the laptop program?

5. What are your expectations of the laptop in the summer session?

6. What do you think of the laptop training program?

7. Do you think any changes or improvements should be made to the training program?

8. How have the school's teachers responded to the laptop training program so far?

9. Do you think the laptop program will change the teaching methods used in this school?
Yes _____ No _____
If yes, please describe:

10. Do you think that the laptop program will change your relationship with the teachers?
Yes _____ No _____

If yes, in how so?

11. Do you believe the XO laptop program has had an effect on the interactions between school administrators and the Ministry of Education and Vocational Education? Yes ____ No ____

    a. If yes, has it been a positive or negative effect?

    Positive _____ Negative _____

    Please describe:

12. We're almost done. Would you like to add anything?

End time:

Questions for the interviewer:

1. Did anyone or anything interrupt the interview?

2. Was there anything unusual during the interview?

Appendix 3.6 Final Administrator Interview Guide

Final Administrator Interview
Approximate time: _____

Name of Interviewer:
Beginning time:
Setting Description:

Introduction Script:
Hello, how are you? My name is _____ and I am a researcher from _____. I am here to gather information that will help with the implementation of one-to-one computing in Haiti. While I will not be involved with deciding what happens with the one-to-one computing in Haiti, I form part of a team that will help gather information on what has and has not been successful with the XO laptop and one-to-one computing. This information will be very useful in the implementation of a future pilot study in order to ensure effective nationwide implementation of one-to-one computing. The information you provide during this interview will remain confidential and it is important to emphasize that there are no right or wrong answers. Instead, you are encouraged to provide your personal opinion. This interview should take approximately _____ minutes, your participation is completely voluntary and you can stop the interview at any time. Please feel free to ask any questions.

Background Characteristics:
Name: _____
Gender: Male_____ Female_____
Position/Title:_____

1. What do you think are the three most positive aspects of this program?
   a.
   b.
   c.
2. What are the three aspects of this program that can be improved?
   a.
   b.
   c.
3. Have there been any security problems related to the pre-pilot?
   Yes _____ No _____
   a. If yes, please describe the nature of the security problem:
   b. How were the problems resolved?
   c. How quickly were the problems resolved?
      6. _____ Very quickly
      7. _____ Fairly quickly
      8. _____ Average
      9. _____ Slowly
      10. _____ Very slowly
4. How have teachers reacted to the XO laptop and student-centered learning?
5. What have teachers told you about using the XO for teaching?
6. What is the role of the technology support staff?
7. Do you believe the XO laptop has had an effect on administrator-teacher interactions?

Yes ____ No ____

a. If yes, has it been a positive or negative effect?
Positive _____ Negative _____
i. Please describe:

b. If no, why not?

8. Do you believe the XO laptop has had an effect on the interactions between school administrators and the Ministry of Education and Vocational Education?
Yes ____ No ____

a. If yes, has it been a positive or negative effect?
Positive _____ Negative _____
ii. Please describe:

9. In your opinion, has the XO laptop helped increase student-centered learning in the classroom? Yes _____ No _____

a. If yes, has it been a positive or negative effect?
Positive _____ Negative _____
i. Please describe:

b. If no, why not?

10. Do you believe the XO laptop has had an effect on students?
Yes __ No _____

a. If yes, has it been a positive or negative effect?
Positive _____ Negative _____
ii. Please describe:

b. If no, why not?

11. Do you believe the XO laptop has had an effect on teachers?
Yes _____ No _____

a. If yes, has it been a positive or negative effect?
Positive _____ Negative _____

i. Please describe:

c. If no, why not?

12. We're almost done. Would you like to add anything?

End time:

Questions for the interviewer:
1. Did anyone or anything interrupt the interview?

2. Was there anything unusual during the interview?

Appendix 3.7 Initial Technical Support Staff Interview Guide

Initial Technology Support Staff Interview
Approximate time: _____

Name of Interviewer:
Beginning time:
Setting Description:

Introduction Script:
Hello, how are you? My name is _____ and I am a researcher from _____. I am here to gather information that will help with the implementation of one-to-one computing in Haiti. While I will not be involved with deciding what happens with the one-to-one computing in Haiti, I form part of a team that will help gather information on what has and has not been successful with the XO laptop and one-to-one computing. This information will be very useful in the implementation of a future pilot study in order to ensure effective nationwide implementation of one-to-one computing. The information you provide during this interview will remain confidential and it is important to emphasize that there are no right or wrong answers. Instead, you are encouraged to provide your personal opinion. This interview should take approximately _____ minutes, your participation is completely voluntary and you can stop the interview at any time. Please feel free to ask any questions.

Background Characteristics:
Name: _____
Gender: Male_____ Female_____

1. What was your initial impression of the XO laptop?
2. How do you think the students will respond to the XO laptop?
3. Do you think the XO laptop will be easy or difficult for students to use?
    a. Which activities do you think will be easy?
    b. Which activities do you think will be difficult?
    c. Which activities do you think will be popular?
4. How would you describe your relationship with the teachers?
5. Can you give a summary of the training sessions and what you did with the laptops?
6. How have teachers been responding to the XO laptop?
    a. Do all teachers feel the same way about the XO? Yes ____ No _____
        i. If yes, how do they feel?
        i. If no, which ones feel positively and which ones feel negatively?
7. How would you describe your relationship with the administration?
    a. In your opinion, what does the administration think of this project?
    b. Do you feel that you receive adequate support from the administration?
8. We're almost done. Would you like to add anything?

End time:

Questions for the interviewer:

1. Did anyone or anything interrupt the interview?

2. Was there anything unusual during the interview?

Appendix 3.8 Final Technical Support Staff Interview Guide

Final Technology Support Staff Interview
Approximate time: _____

Name of Interviewer:
Beginning time:
Setting Description:

Introduction Script:
Hello, how are you? My name is _____ and I am a researcher from _____. I am here to gather information that will help with the implementation of one-to-one computing in Haiti. While I will not be involved with deciding what happens with the one-to-one computing in Haiti, I form part of a team that will help gather information on what has and has not been successful with the XO laptop and one-to-one computing. This information will be very useful in the implementation of a future pilot study in order to ensure effective nationwide implementation of one-to-one computing. The information you provide during this interview will remain confidential and it is important to emphasize that there are no right or wrong answers. Instead, you are encouraged to provide your personal opinion. This interview should take approximately _____ minutes, your participation is completely voluntary and you can stop the interview at any time. Please feel free to ask any questions.

Background Characteristics:
Name: _____
Gender: Male_____ Female_____

2. Were there any difficulties with the XO laptop?
    a. What recommendations would you make for frequently occurring glitches?
3. Have any problems with the XO arisen that you were unable to solve?
   Yes _____ No _____
    a. If yes, what were they?
4. How did students handle difficulties that arose with the XO laptop?
5. Have you seen any students that are very good at using, understanding, and fixing their own XOs?
    a. If yes, please describe their experience.
6. How would you describe your relationship with the teachers?
7. How did teachers respond to the XO laptop?
    a. Do all teachers feel the same way about the XO? Yes ____ No _____
        i. If yes, how do they feel?
        ii. If no, which ones feel positively and which ones feel negatively?
8. How would your describe your relationship with the students?
9. How would you describe your relationship with the administration?
    a. Do you feel that you receive adequate support from the administration?

10. Regarding student use of the XO laptop, was anything different from what you expected?

11. Now that you have seen how students and teachers use the laptop in the classroom, would you do anything differently in the training of the teachers?

    a. Teachers expressed concern regarding their troubleshooting skills. Have you talked to them about this? What other skills might teachers benefit from?

12. We're almost done. Would you like to add anything?

End time:
Questions for the interviewer:

1. Did anyone or anything interrupt the interview?

2. Was there anything unusual during the interview?

Appendix 3.9 Pedagogical Team Interview Guide

MENFP
Core Team: Pedagogy
Approximately: _____

Name of Interviewer:
Beginning time:
Setting Description:

Introduction Script:
Hello, how are you? My name is _____ and I am a researcher from _____. I am here to gather information that will help with the implementation of one-to-one computing in Haiti. While I will not be involved with deciding what happens with the one-to-one computing in Haiti, I form part of a team that will help gather information on what has and has not been successful with the XO laptop and one-to-one computing. This information will be very useful in the implementation of a future pilot study in order to ensure effective nationwide implementation of one-to-one computing. The information you provide during this interview will remain confidential and it is important to emphasize that there are no right or wrong answers. Instead, you are encouraged to provide your personal opinion. This interview should take approximately _____ minutes, your participation is completely voluntary and you can stop the interview at any time. Please feel free to ask any questions.

Background Characteristics:
Name: _____
Gender: Male_____ Female_____
Position/Title:_____

1. Can you please describe your role in the implementation of the OLPC pre-pilot in this school?

2. Thinking about how the project will fare in your absence; how do you think the project will continue without you?

    a. Do you have any concerns for how the school will work with the XO laptop when your role is reduced?

3. Based on your experiences here, would you recommend any changes to the teacher training program?

4. Based on your experiences here, would you recommend any changes to your daily role for future pre-pilot schools?

5. What do you think are the most positive aspects of this program?

6. What are some aspects of this program that can be improved?

7. Please describe your relationship with the teachers.

8. How have teachers reacted to the XO laptop and student-centered learning?

9. How do you think the XO laptop and student-centered learning have affected teachers?

10. If possible, list some positive aspects about teaching with the XO:

11. If possible, list some aspects about teaching with the XO that could be improved:

12. Do you have any recommendations for pedagogical content that should be included in the XO?

13. Describe what effect, if any, the XO laptop has had on student-teacher interactions:

14. Describe what effect, if any, the XO laptop has had on student–student interactions?

15. Please describe your relationship with the students.

16. How have the students responded to the use of the XO laptop and student-centered learning?

    a. What differences, if any, have you notice in regards to laptop usage between students?

17. How do you feel about students sharing a laptop versus each student having their own?

18. How do you feel about students taking the laptops home?

19. Have there been any security problems related to the pre-pilot?
    Yes _____ No _____

    a. If yes, please describe the nature of the security problem:
    b. How were the problems resolved?
    c. How quickly were the problems resolved?

20. We're almost done. Would you like to add anything?

End time:

Questions for the interviewer:

1. Did anyone or anything interrupt the interview?

2. Was there anything unusual during the interview?

Appendix 4 Observation Roster

Researcher Name: _____
Date: _____
Teacher: _____
Grade Level: _____

The following measurement instruments will be used to guide the classroom observations: Laptop Use, Teacher Observation, Type of Computing Activity, Teacher Attitudes and Competency, and General Impressions. A tentative description of each guide is provided below.

1.1 Laptop Usage

For the time intervals provided below, please indicate to what degree the majority of students in the group were focused on XO laptop.

Time Interval	Laptop Usage				
	Very Focused	Focused	Somewhat Focused	Somewhat Distracted	Distracted
9:01am–9:30am					
9:31am–10:00am					
10:01am–10:30am					
10:31am–11:00am					
11:01am–11:30am					
11:31am–12:00pm					
Total					

Please Note:

1. "Very Focused" is defined as the majority of the group actively using or paying attention to the XO laptop for 25-30 minutes of the time interval.
2. "Focused" is defined as the majority of the group actively using or paying attention to the XO laptop for 20-24 minutes of the time interval.
3. "Somewhat Focused" is defined as the majority of the group actively using or paying attention to the XO laptop for 15-19 minutes of the time interval.
4. "Somewhat Distracted" is defined as the majority of the group actively using or paying attention to the XO laptop for 10-14 minutes of the time interval.
5. "Distracted" is defined as the majority of the group actively using or paying attention to the XO laptop for 0-9 minutes.

Comments:

_____
_____
_____
_____
_____

1.2 Type of Computing Activity (20 minutes of laptop per laptop per class)

In each grade group, 10 randomly selected students (split by 5 laptops) will be observed for 20 minutes. The specific type of computing activities used in this setting by each student will be recorded in the following format:

Activity	Laptop I	Laptop II	Laptop III	Laptop IV	Laptop V
Start Time					
Students					
Chat					
Browse (Internet)					
Write					
Record					
Paint					
TamTam Jam					
Etoys					
TurtleArt					
Pippy					
Calculate					
Measure					
TamTam Edit					
TamTam Synth					
Memorize					
News Reader					
TamTam Mini					

Do the students tend do understand and apply the teacher explanations? (Please indicate if, in general, the teacher was able to help the student advance).

Laptop I		Laptop II		Laptop III		Laptop IV		Laptop V	
Student 1	Student 2	Student 1	Student 2	Student 1	Student 2	Student 1	Student 2	Student 1	Student 2
Yes____	Yes____	Yes____	Yes____	Yes____	Yes____	Yes____	Yes____	Yes____	Yes____
No ____	No ____	No ____	No ____	No ____	No ____	No ____	No ____	No ____	No ____
N/A____	N/A____	N/A____	N/A____	N/A____	N/A____	N/A____	N/A____	N/A____	N/A____

1.2 Teacher Observation

Indicate the type of teacher instruction with regard to the following characteristics:

How often does the Teacher sanction?

Very frequently | Sometimes | Never

"Sanction" is defined as verbal discouragement, time out, physical punishment, removal of laptop, or other types of scolding.

Please Note:

1. "Very frequently" is defined as the teacher sanctioning 4 times or more per class.
2. "Sometimes" is defined as the teacher sanctioning 1-3 times per class.
3. "Never" is defined as the teacher sanctioning 0 times per class.

How often does the teacher help individual students or groups of students?

Very frequently | Sometimes| Never

Please Note:

1. "Very frequently" is defined as the teacher helping individual students or groups of students 8 or more times per class session.
2. "Sometimes" is defined as the teacher helping individual students or groups of students 3 to 7 times per class session.
3. "Never" is defined as the teacher helping individual students or groups of students 0 to 2 times per class session.

1.3 Teacher Attitudes and Competency

Does the teacher encourage students to help each other?

Very frequently | Frequently | Sometimes | Almost never or never | Actively discourages

Specify how the encouragement or discouragement is done (e.g. verbal instructions, classroom setup, or atmosphere conducive to collaboration):

_____
_____

Does the teacher speak with students who do not approach her?

Very frequently | Frequently | Sometimes | Almost Never | Never

Please Note:

1. "Very frequently" is defined as the teacher speaking with students who do not approach her 6 times or more an hour.
2. "Frequently" is defined as the teacher speaking with students who do not approach her 4-5 times an hour.
3. "Sometimes" is defined as the teacher speaking with students who do not approach her 2-3 times an hour.
4. "Almost never" is defined as the teacher speaking with students who do not approach her once an hour.
5. "Never" is defined as the teacher speaking with students who do not approach her 0 times an hour.

Is the teacher competent at using XO?

Very competent | Somewhat competent | Not at all competent

Please Note:

1. "Very competent" is defined as the teacher knowing the answer to questions or problems faced by students in the use of the XO 8 or more times out of 10 times a problem arises for a student.
2. "Somewhat competent" is defined as the teacher knowing the answer to questions or problems faced by students in the use of the XO 3 to 7 times out of 10 times a problem arises for a student.
3. "Not at all competent" is defined as the teacher knowing the answer to questions or problems faced by students in the use of the XO 0 to 2 times out of 10 times a problem arises for a student.

Does the teacher strictly follow the learning plan?
Yes _____ No _____
If no, describe the activities undertaken (e.g. new activities invented by the teacher or allowing students to work independently):

_____
_____

1.5 General Impressions to be filled out after the XO session
Classroom observation will also seek to record the daily impressions of the observers with regard to some of the following classroom characteristics:

1) Attitude: make general note of the behaviors and attitudes of the children with respect to the use of the laptop, cooperation with the teacher and communication with each other.

_____
_____
_____
_____
_____

2) Observe the dynamics between teachers (traditional staff) and support staff (IT experts).

_____
_____
_____
_____
_____

3) Monitoring: Please note if teacher made rounds to monitor student XO screens.

_____
_____
_____
_____
_____

4) Did students tend to multitask by using several XO activities or do they tend to use only one activity at a time?

_____
_____
_____
_____
_____

5) Additional Comments:

_____
_____
_____
_____
_____

Appendix 5 Journal Activity Tracking Sheet

Date ____/____/____ Laptop #_____ NS = not shared; S = shared

	Activity	Mon		Tue		Wed		Thu		Fri		Total			Com-ments
		NS	S	NS	S	NS	S	NS	S	NS	S	NS	S	NS +S	
	Chat														
	Browse (Internet)														
	Write														
	Record														
	Paint														
	TamTam Jam														
	Etoys														
	TurtleArt														
	Pippy														
	Calculate														
	Measure														
	TamTam Edit														
	TamTam Synth														
	Memo-rize														
	News Reader														
	TamTam Mini														
	Acoustic Tape Measure														