Evaluation of One Laptop Per Child (OLPC)

Trial project in the Solomon Islands

Ministry of Education and Human Resources Development

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Executive summary

The Australian Council for Educational Research (ACER) was commissioned by the Solomon Islands Ministry of Education and Human Resources Development (MEHRD) to undertake an evaluation of the One Laptop Per Child (OLPC) trial in three schools in Marovo Lagoon, Western Province. The evaluation was to be conducted in a very short timeframe and would consist mainly of interviews with teachers, students, parents and community members, together with a questionnaire distributed to a small number of MEHRD officers and other OLPC personnel. The key purpose of the evaluation was to identify the impact of the OLPC program and its strengths and weaknesses as implemented in the three schools. On the basis of the information gathered, ACER would identify any improvements that might be made.

The OLPC program is based on the concept of providing low cost and durable laptops to children in developing countries. The intention of the OLPC program is to encourage learning by engaging students in a range of educational activities via their own laptop. These activities are installed on the laptops prior to deployment and this content can be used as it is by teachers, adapted to suit local needs, or supplemented by wholly local content. The OLPC is one of three programs carried out under the Pacific Plan Digital Strategy with the support of the Secretariat of the Pacific Community.

ACER conducted a literature review in 2009 to identify existing approaches to the evaluation of OLPC programs globally. The review found that there have been few longitudinal assessments to date and many variations in implementation. One recommendation that arose from the review was to suggest that future OLPC deployment projects embed an evaluation framework at the very beginning of a deployment, preferably at the project design and planning stage.

The Solomon Islands is one of only a few countries globally to have developed its own Monitoring and Evaluation Framework. The key objectives of the framework relate to raising awareness about the project and assessing impact in a range of areas. ACER's evaluation has focused in particular on the impact of the OLPC program on teaching and learning, while also considering the other objectives stated in the framework.

Three trial projects began in July 2008. The schools in the trial were Sombiro, Batuna and Patukae Primary Schools. The evaluation was carried out over two months in late 2009. Local interviewers were trained in workshop sessions as part of the evaluation. A wide range of topics relating to evaluation was covered. Interviews were conducted with students, parents, teachers and community members. Consistent interview questions, tailored for each group, were used. Interview languages were Solomon Islands Pidgin and English.

The evaluation indicated that the impact of the OLPC program has been very positive. The evidence to date indicates that it has largely met the objectives of the program as outlined in the framework.

Parents, students, teachers and community members see major benefits in the program. MEHRDMinistry officers also see clear potential benefits for schools. The provision of the laptops has been greatly appreciated as a step in improving learning for students. This appreciation was repeatedly expressed in interviews. While there have been some difficulties of a technical nature, such as battery charging of the machines in some instances, the new technology has been embraced by the schools and communities. The program will be strengthened by the provision of more technical and preferably local support, by further training for teachers, and by training for parents and community members. An ongoing program of training, monitoring and evaluation is important. MEHRD involvement and support also remains very important for the success of the program.

Introduction

The Australian Council for Educational Research (ACER) was commissioned by the Solomon Islands Ministry of Education and Human Resources Development (MEHRD) to undertake an evaluation of the One Laptop Per Child (OLPC) trial in three schools in Marovo Lagoon, Western Province. The evaluation was conducted in a very short timeframe and consisted mainly of interviews with teachers, students, parents and community members. A short questionnaire was also distributed to a small number of MEHRD officers and other OLPC personnel.

Purpose of the evaluation

The main purpose of the evaluation was to identify the strengths and weaknesses of the OLPC program as implemented in these three schools and, on the basis of the information gathered, identify any improvements that might be made.

Structure of the report

This evaluation report provides a background to the OLPC program and trial, describes the methodology and findings, and offers a set of recommendations based on the findings. Appendix 1 provides additional background information about the pilot schools from MEHRD. Appendix 2 contains the questions asked of MEHRD officers and other non-MEHRD personnel involved in the program. Appendix 3 contains the questions asked of teachers, students, parents and members of the community. Appendix 4 provides a summary table of the Solomon Islands Objectives and Evaluation Framework and indicates how well these key objectives have been met based on the data collected as part of the evaluation.

Background

The OLPC program

The OLPC program is based on the concept of providing low cost and durable laptops to children in developing countries. The intention is to encourage learning by engaging students in a range of educational activities via their own laptops. These activities are installed on the laptops prior to deployment and can either be used by teachers, adapted to suit local needs, or supplemented by wholly local content.

The five core principles of the OLPC program are described as being:
- *Ownership*: In some communities, the child takes the computer home; in other communities, the laptop remains at school for cultural or practical reasons.
- *Targeting young children*: The laptops are intended for children aged 6-12 years.
- *Saturation*: The aim is to give every child and teacher in a particular school environment their own laptop.
- *Connection*: The laptops can connect with each other and with the Internet.

- *Free and open source*: Content can be shared and adapted.[1]

The OLPC is one of three programs carried out under the Pacific Plan Digital Strategy with the support of the Secretariat of the Pacific Community.

Literature review

ACER conducted a literature review in 2009 to identify existing approaches to the evaluation of OLPC programs globally. The review found that:
- Because OLPC is a relatively recent phenomenon, there have been few longitudinal assessments of its impact.
- The methodology, timing and conduct of the evaluations have been affected by the variations in project implementation models.
- The findings from existing evaluations are largely anecdotal and positive in nature.
- Because few projects have incorporated evaluation from the very beginning, little baseline data has been collected.
- Recommendations arising from the evaluations generally relate to training needs and technical matters rather than educational outcomes.

One recommendation that arose from the review was to suggest that future OLPC deployment projects embed an evaluation framework at the very beginning of a deployment, preferably at the project design and planning stage. Having an evaluation plan at this early stage helps clarify the aims of the evaluation, which as the ACER review found, can vary even among stakeholders in the same project, and enables baseline data to be collected so that change and impact can be measured.

The Solomon Islands is one of only a few countries globally to have developed its own evaluation framework. MEHRD's Monitoring and Evaluation Framework served as the basis for ACER's evaluation. The key objectives of the framework are described as being to:

- raise awareness about OLPC and the objectives of the trial in Western Province (Objective 1)
- assess the impact of OLPC in the area of teaching and learning (Objective 2)
- assess the impact of OLPC on enrolment or attendance (Objective 3)
- assess the impact of OLPC or XO (being the model of laptop deployed) in delivering/producing new curriculum materials/learning content (Objective 4)
- assess if OLPC/XO technology is technically feasible and sustainable (Objective 5)
- assess the impact of capacity building for teachers (and learners) in the OLPC project (Objective 6)
- assess the impact of OLPC on student learning, and school environment (Objective 7)

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[1] See http://wiki.laptop.org/go/Core_principles (retrieved November 2010).

- assess the impact of OLPC/XO technology on the community (Objective 8).

For the purposes of the evaluation, the main focus has been on the impact of the OPLC program on teaching and learning with some consideration also given to the remaining objectives.

Participating schools

The three official trial projects began in Sombiro, Batuna and Patukae Primary Schools in July 2008. The OLPC project is based on a partnership between MEHRD, SPC and the OLPC Association. Training was given to primary school teachers and students in the three schools. Parents and community members were also provided with information.[2] A part-time project officer, based at Batuna College, was appointed to provide technical support and training for teachers.

Sombiro, Batuna and Patukae Primary Schools cater for the first six years of schooling and have one class per Grade. Together the three schools currently have an enrolment of around 310, with Patukae having 130 and the other two schools about 90 students.[3]

See Appendix 1 for additional background information about the OLPC pilot schools as supplied by MEHRD.

Methodology

The evaluation of the OLPC program in the Western Province of the Solomon Islands was carried out over two months in late 2009. To make best use of existing local skills and knowledge and to keep costs down, it was decided to train local interviewers rather than fly in external researchers.

There were two parts to the evaluation: a small number of questionnaires were completed by ministerial and non-ministerial personnel with involvement in the OLPC program; and interviews were conducted with members of the participating school communities. ACER had hoped to be able to do two additional things: collect teachers' notes on classroom activities for a week and collect a record of journal activities for a small number of students, but time constraints meant these were not done.

While the Solomon Islands Monitoring and Evaluation Framework lists a range of indicators and instruments – such as teacher log books, school records, demonstrations by teachers or students, meetings, inspectors' reports – these were either not available at the time of the evaluation or it was not practicable to gather these in such a short timeframe. The focus has therefore been on the interviews and short questionnaires.

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[2] See Solomon Islands Deployment Report at
http://wiki.laptop.org/images/c/ca/Solomons_OLPC_Deployment_Report_Aug08.pdf (retrieved November 2009).
[3] MEHRD Terms of Reference for the evaluation, p. 7.

Methodological issues

With any new program it can be difficult to establish a direct causal link between an initiative and student outcomes as there can be so many factors that affect student performance in a school community. In this evaluation, the data collected is qualitative. As with most of the limited number of evaluations of the OLPC program globally, there was no baseline data, such as pre and post assessments, collected at the time of deployment to enable change to be tracked.

Given that MEHRD has been involved in the implementation of the OLPC program, and that the interviewers were from MEHRD, the issue of respondents potentially providing 'expected' responses to please the interviewers was circumvented by asking the same, or very similar, questions to different people and groups to allow for data triangulation.

ACER training

An ACER trainer conducted workshop sessions with a small group of four staff selected by MEHRD. The training covered a wide range of topics relating to evaluation and was intended to meet MEHRD objectives (that is, evaluate the trial, ensure continuous improvement, inform programs), provide a foundation in evaluation theory and practice, assist participants to collect data for the project and build local capacity for this and future evaluations.

The training included background information about the OLPC program, the Solomon Islands Monitoring and Evaluation Framework and the literature review. Evaluation topics covered in the training included:

- purpose, principles, standards of evaluation
- techniques, including the strengths and limitations of each approach
- qualitative research tools (interviewing, focus groups, observation, document analysis, survey) and how to use these tools effectively
- triangulation of data sources.

There was a particular focus on building the knowledge and skills associated with designing surveys and conducting interviews.

Field work

Following the training, the ministerial staff visited the three trial schools and their communities. Interviews were conducted with parents, students, teachers, school leaders and principals, and a range of other community members. The interview languages were Solomon Islands Pidgin and English. Where necessary, the researchers translated interview responses into English. Parents were interviewed separately and in groups, depending on the circumstances. In one community, for instance, parents and other community members were interviewed together because of weather conditions.

ACER also emailed questionnaires to a small number of identified individuals associated with the program in MEHRD and externally. Six responses were received.

Researchers used interview guidelines with the same general focus areas as the Solomon Islands Monitoring and Evaluation Framework but tailored for the different groups. These focus areas included:

- awareness and knowledge of the OLPC program
- impact of the program: teaching and learning – enrolment and attendance, delivery of curriculum, materials and learning content, impact on the school environment
- feasibility and sustainability of technology
- capacity building
- impact on (families and) the community.

As indicated earlier, the questions were designed to address all eight objectives listed in the framework.

Table 1 below shows the number and types of participants interviewed by the Solomon Islands researchers.

Table 1: Number of Participants

School	Principals	Teachers / Teacher Aides	Students	Parents	Community Members
Batuna	-	3	18	7	7
Sombiro	1	3	18	6	-
Patukae	1	5	25	4	-
TOTAL	2	11	61	17	7

Findings and analysis

The students

'I use the laptop to help me learn more things' – boy in Year 3 and 4 group, Sombiro

'All the programs are good and we love them very much' – children in Years 1 and 2 group, Batuna

The questions for students were designed primarily to address Objectives 2, 6 and 7.

A total of 61 students from Grades 1 to 6 were interviewed across the three schools. The students were interviewed in groups of six to nine children at a time. The groups were formed according to Grade level, with each school being represented by one group for

students in Grades 1 and 2, one group for students in Grades 3 and 4, and one group for students in Grades 5 and 6.

The students were asked questions about their use of the laptop and what they like and dislike about the laptop. Their comments were overwhelmingly positive and indicated they use the laptops constantly. They are attracted to a range of activities they can do with the laptop, some entertainment-based and social, others purely learning activities. When asked about their dislikes or what they would change about the laptops, their responses extended only to comments about certain programs which they like less than others, complementary items they would like to have, and their preferred laptop colours.

How, when and where children use their laptops [Objectives 2, 6, 7]
Children use their laptops both at school and at home, and most children interviewed said they use their laptops every day that the laptop is charged. During classes at school, their use is limited to instances where teachers have allowed for the laptops to be used in class. Some teachers indicated that this occurs around 2-3 days a week. In their free time, however, students can use the laptops as they like.

When asked what they use the laptops for at school, children listed a range of activities. Older children in Grades 3 to 6 nominated a greater variety of activities and emphasised that they use the laptops mainly for learning, such as writing stories, learning the correct spelling and pronunciation of words, 'learning new things' from the Internet, or using the laptops to do work at school and to bring schoolwork home. A number of other activities, such as chatting with friends, playing games and music, taking photos and creating videos are also popular with older children.

Younger children in Grades 1 and 2 also use the laptops to learn to read, to type words and learn mathematics. The range of activities for which they use the laptops while at school includes drawing, painting and playing games. The clock function teaches the Grades 1 and 2 children to tell the time. Reading the Bible and memorising verses are also favoured activities to do on the laptop at school, mostly among the younger children in Grades 1 to 4.

All children interviewed indicated that that they use their laptops at home, both to do schoolwork that they have taken home and to play games and chat with their friends. A younger boy in a Grade 1 and 2 group said that 'the laptop becomes my friend when no one plays with me'.

The frequency of laptop use by children is dependent on the availability of charging facilities. Some children pointed out that they can use their laptops every day because their school (Batuna) has a generator that allows them to charge their laptops every night. Other children said that they use their laptops most days but cannot always use them because they do not have a school generator and the Distance Learning Centre where they can charge their laptops is 'quite far from the school' (Sombiro).

What children like and dislike about the laptops [Objectives 2, 7]

Between and within interview groups, children identified a range of preferred activities on their laptops. Some of the activities already referred to regarding laptop use at school and home are again mentioned. The favourite activities vary, but some girls in Grades 3 to 6 nominated taking and decorating photos and the chat function as their preferred activities. Three girls also said that they like everything in the laptops because these activities are all new to them. The activities nominated by boys as their favourites are the speak function – which shows them how to pronounce words – and games, music and videos.

When asked if the laptops have helped them learn, the children again related their positive response to particular learning activities on the laptops, such as the reading, writing and mathematics activities. Two themes emerge from the children's responses in relation to how the laptops have helped them learn: *learning new things* and *independent learning.*

Learning new things [Objectives 2, 7]**:** The novelty aspect of the laptops is clearly appreciated by the children. As one girl suggested, 'everything in the laptop [is] all nice because they are new to me'. Older children recognise the laptops as being a means to learn new things that they otherwise would not be able to learn. When asked how often they use their laptops, for example, a group of Grade 5 and 6 students reported that they use them when they 'want to find new things or information in everyday activity'. A group from a different school indicated that the laptops help them learn by enabling them to 'find out what is not known'. One boy put it most aptly, when he commented that his laptop has 'helped me to learn many things I did not know or learn before'.

Independent learning [Objectives 2, 7]**:** Students from different Grade levels expressed their appreciation of the laptop as a way to learn and discover new activities by themselves. A girl from the Grade 5 and 6 group stated that 'it is a good thing to study alone without our teachers'. A group of younger children said that the laptops 'helped us learn to print and draw pictures by ourselves … work without our teachers, learn ourselves at home and pronounce the words by ourselves', and another group suggested that they sometimes regard their laptops as their teacher.

When asked what they dislike about the laptops, one girl responded that she did not like the game Doom because it 'make[s] me feel bad and confuse[s] me', while another group pointed out that the game makes the battery go flat quickly. Several children expressed the wish that the laptops would start up and close down more quickly and that the photos taken by laptops would be clearer. However, many children expressed only the wish to have a laptop bag to carry the laptop around and a printer to print photos. A few children suggested other colours for the laptops.

Principals and Teachers

'As a rural school it [was] a big surprise for children to receive such a handy machine' – teacher

'This is unbelievable. It is really a blessing for this school' – teacher

'OLPC must and should be given the opportunity to expand in Solomon Islands … It must be realised, appreciated and embraced' – Principal

The questions for principals and teachers were designed to address Objectives 1, 2, 3, 4, 5, 6, 7, and 8.

Principals, teachers and teacher assistants from the three schools were interviewed in order to find out their understanding of the aims of the OLPC program and its impact on their school. Although the questions asked of principals were slightly different from those given to the teachers and teacher assistants, the questions overlap significantly so responses across the groups can be compared.

Aims of the program [Objectives 1, 3]
Principals, teachers and teacher assistants identified several different aims of the OLPC program. They believe that the program is intended to increase and equalise access to educational resources, particularly for 'children with poor or low level of literacy', 'who are not able to go to school' or who are 'slow in learning'. They also see the program targeting schools that are 'under-resourced or ill-equipped' and situated within rural settings.

Teachers and their teaching assistants also see 'helping the teacher in his/her teaching' and preparing their lesson plans to 'get information by researching' as a main aim of the OLPC program.

Another main aim of the program identified by principals and teachers is that of introducing children to technology. They see it as very important that children are able to 'see, touch and also feel [the laptops] for themselves', as this allows children to 'prepare themselves for the future use of modern technology'. They also think that an aim of the program is to 'motivate' and 'stimulate' children, which in turn 'reduces [the] high percentages of children not attending school'.

Impact on teaching [Objectives 2, 4, 6, 7]
When asked to identify the impact the OLPC program has had on teachers in their school, principals reported that it has enhanced teachers' capacity to plan their lessons and deliver presentations, and has given them access to additional information. One principal noted that the program has made learning 'more focused and concentrated'. Classrooms have come 'alive' by 'providing teachers with a dynamic, lively and resourceful learning aid' that gives them more time to 'attend [to] slow/needy learners'.

The principals' assessment of the impact of the OLPC program was supported by teachers' and teacher assistants' comments regarding how the laptops have affected their teaching. Many teachers and their assistants appreciated the reduced need for blackboard writing and the ease with which they can now prepare and write up 'day to day lessons as well as weekly and term plans'. In the classroom, teachers noted the impact the laptops have had on their interaction with students. A teacher observed that they can 'create more activities (extra) for fast learners' and another observed that teachers can 'have more time with slow learners'.

Teachers also highlighted their improved ability to obtain information through research on the Internet. They appreciated having an alternative method to retain and record information. Additionally, many teachers also point to an improved method of communication with parents. Teachers can use the laptops to send homework home with students and send messages to parents. 'Audio activities, writing activities and video activities make communication easier and much faster'.

Specific functions of the laptops were also found by teachers and teacher assistants to have had an impact on teaching. Many teachers highlighted the benefit of the speaking function of the laptop in assisting them to 'pronounce [English] words correctly'. The calculator function was also identified as being a great help in their teaching.

Overall, teachers found that the laptops have a number of positive impacts on their teaching. One teacher was particularly aware of the potential for stronger impact, noting that 'there will be more [ways of using the laptops] to come. This is only the beginning for both students and teachers'.

Use in the classroom [Objectives 2, 4, 6, 7]
When asked how they have mainly been using the laptops, teachers point to a range of activities, such as preparing lesson plans and developing activities linked to the plans. Again, there were several references to the use of the laptops to help students learn correct pronunciation of words, and the calculator to help with mathematics.

Teachers have been using the laptops to type up and save children's work. They also highlighted the use of the laptops for both indoor and outdoor classroom activities, such as 'science research'. As mentioned already, the laptops have also been used by children to take their schoolwork home and for teachers to send messages to parents.

The majority of teachers found that the laptops have decreased their workload. It is easier to prepare lesson plans by typing them up, for example, and to make recordings or take photos as additional materials for their classes; teachers can now distribute homework and administer exams to students by uploading the content on students' laptops. Not having to spend so much time on blackboard writing has also helped decrease their workload.

Further training for teachers [Objective 6]

Every teacher interviewed wanted further training. They would like training in general laptop usage and, as one teacher put it, 'to make our curriculum in line with these laptops'. Technical expertise is also of interest to the teachers, with most highlighting the need for training that would enable them to maintain and repair the laptops. One teacher, however, suggested the alternative of training community members 'to become technicians to repair and fix our laptops in [the] future'. A number of teachers also identified interest in receiving training in emailing, networking and Internet use, as well as learning how to install or create new programs on the laptops.

Impact on students [Objective 2, 3, 7]

Teachers and principals agree that the impact of the OLPC program on their students has generally been positive. They commented on the overall improvement to student learning that has taken place since the arrival of the laptops. The positive impact on students that they identified can be grouped into three main aspects: *independent learning*, *sharing and collaboration among students*, and *increased motivation*.

Independent learning [Objective 2, 7]**:** As students explore the laptops and make new discoveries, teachers have found an increase in students' independent learning ability or 'self learning'. Teachers observed that students have become more creative in their work, through activities such as developing their own vocabulary list using words and pictures, developing 'combination[s] of activities', writing their own stories and 'doing their research'.

Sharing and collaboration [Objective 2, 7]**:** In addition to increased ability and interest in independent learning, principals and teachers have also observed an increase in 'group learning initiatives' among students. Many teachers highlighted improvements in the way students collaborate and share with each other, such as in sharing their findings and ideas and in undertaking 'collaboration with other students'.

Increased motivation [Objective 2, 3, 7]**:** The laptops are perceived to have had a positive effect on students' interest in and motivation for learning. Principals commented that they have 'create[d] a lot of curiosity in our students' minds' and that they are 'decreasing boredom and increasing interest/participation in classes', as well as being 'a source of motivation for pupils to attend school'. Teachers have also observed improvements in class and school attendance, and suggest that 'children are more interested in school and learning now'.

In the (more than) 12 months since the laptops were distributed in schools, teachers have found that students' responses to the laptops have remained 'very positive'. They observe that students are still actively exploring the laptops and 'still find[ing] new activities' within the laptops. They note that the students' use of the laptops is becoming more

advanced. As one teacher remarked, 'they now have the confidence to play with computers without teachers assisting them'.

Several effects were also mentioned by teachers and principals that highlighted a number of issues they have faced. One teacher noted that the impact of the laptops on student learning is limited in his class because the class was not able to charge and update their laptops.

Another effect observed by a principal and teacher, which was also noted by parents, is that of children's constant use of the laptop. A principal suggested that '[s]tudents need to be controlled when using the laptops at home' so they have time to do housework. The teacher commented that one year on, students 'are still eager to use the computer more than going out to play with peer group'. Another teacher, however, observed that a surprising aspect of the program is the change in children's behaviour in the classroom, because it has reduced the incidence of 'going out late [at night]'.

Issues/problems/suggestions for improvement [Objective 5]
Although teachers and principals noted that, overall, there were no major problems with the OLPC program in their school, they pointed to a number of issues that have been faced and had several suggestions for improvement. Most of these issues were related to technical problems and charging the laptops.

Charging laptops [Objective 5]**:** A shortage of means to charge the laptop batteries is identified as a problem by many teachers and principals. One principal referred to a practice that required a fee for the charging of laptops, which creates a financial burden on parents and distress for children whose parents cannot afford the costs. Principals and teachers suggested alternative sources, such as solar power system or generators to improve access to charging the laptops.

Technical difficulties [Objective 5]**:** Several teachers referred to technical issues with a number of laptops, some minor and others resulting in children not being able to use the laptops. They noted that while these problems often arise after the laptops have been used for some time, a number of laptops had technical issues from the start. Teachers expressed concern over the absence of a procedure for them to deal with laptop repairs.

Teachers focused their concern more on the implication of the technical difficulties rather than the technical issues themselves. One teacher, for example, expressed concern over the disruption to classroom activities that technical problems cause and another teacher observed that students whose laptops are not functioning become frustrated as they are left out of activities.

What teachers seem particularly concerned about is the limitation of their own capacity to solve these technical issues. As one teacher indicated, when the laptop of one of his

students could not produce sound, he was unable to assist the student because he does not have the necessary technical knowledge.

Teachers and principals alike recommended training teachers so they are able to maintain and assist in repairing the laptops. One principal suggested making trained technicians available to schools with laptops, but particularly recommended training for 'our local people from the community [to become laptop technicians] so they will quickly attend to our problems'.

Other recommendations [Objective 5]**:** According to some teachers, the availability of printers would be useful. They also pointed to a need for more school servers and Internet connectivity. For the laptops themselves, a few teachers commented on the need for a 'proper' mouse.

One principal questioned the sustainability of the program. He is keen to ensure the program's sustainability but wonders why the schools cannot take ownership of the laptops so future students can also use them. He observed that already some Grade 1, 2, 3 and 4 children are without laptops as they transferred in from other schools.

The parents

'This is something that is unexpected. We never dreamt that this would be happening in our schools. It shows the arrival of new technology in our islands'.

The questions for parents were designed to address Objectives 1, 2, 3, 4, 5, 6, 7 and 8.

The Solomon Islands parents see the laptops as very helpful learning tools for their children. They expressed their gratitude for the laptops and the part these are playing in their children's education.

There was a very high degree of parental interest. Parents were very positive about the program and the contribution it could make to the education of their sons and daughters. They specified many benefits, such as the ability of their children to conduct their own research via the laptops and to have access to new technology. 'The children are so proud that they have access to a new technology that no-one else has'. One parent commented that while the laptops were 'yet another new foreign element', it would be 'interesting to see what can be done with this and [how it can] contribute'.

Overwhelmingly, comments were positive: 'It is good to have such things in schools so that children can research for themselves'; 'The laptop is an excellent program for the children in terms of their learning'; 'It develops the intellect of the child'. Parents commented that the laptops allow the children to be 'innovative' and creative, that they 'improve learning', and that the laptops arouse 'more interest in children in terms of their education'. 'The laptops help children to reason things out for themselves. [They] motivate children to explore and discover things for themselves'.

One parent noted that having the laptops 'is very exciting for both parents and children, especially when it is something unexpected brought home by the children'. 'Parents become curious'.

Parents often commented on the changes they had observed since the laptops arrived and the educational advances they saw their children making: 'It gives a lot of excitement to the children and boosts a lot of interest '; 'The children are very happy to have them'. The parents expressed the view that their children's education is improving compared to the past. Parents believe that the laptops 'really help children with their learning – we find differences in the children's learning compared to times before the laptops came. Learning is now advancing … The laptops give excitement and encouragement for children to do their best at school'.

How the children are using the laptops [Objectives 1, 2, 7, 8]
It was clear during the interviews that parents were very aware of how their children were using the laptops both at school and at home, and that the laptops were a focus of family interest and discussion.

General use and benefits [Objectives 2, 7]**:** Parents observed that their children are using the laptops in a range of different ways for both research and pleasure (not mutually exclusive). 'They are using the laptops both for their schoolwork and of course for games and fun and pleasure … they are doing a lot of finding out for themselves'. Parents noted that when using the laptops, children would often branch out into different areas of interest. Benefits identified by parents included the following:

- 'They come across a program that stirs their interest.'
- '[Using the laptops] enhances and improves learning, especially in vocabulary, reading and typing.'
- 'Using the laptops improves spelling and pronunciation … they write and then type the word.'
- 'Students learn techniques of photographing, recording and fun interviewing.'
- 'They chat and communicate and share information with each other.'
- 'They do a lot of finding out for themselves.'
- 'They give encouragement to children to learn.'

Parents generally felt that the laptops increased learning for all students: 'It helps and assists slow learners to catch up with what they need to learn'.

Other areas of benefit discussed by parents during the interviews included *socialisation*, *attendance*, *parental help with the laptop*, *the children sharing with the family* and *the children's pride of ownership*.

Socialisation [Objectives 2, 7]**:** Parents commented that they had observed improvements in children's relationships with other children. It 'builds the sharing element with other students … They chat and communicate and share information with each other … There is the element of enhancing and elevating learning, and the idea of co-operative research and finding out'.

Attendance [Objective 3]: Parents noted that attendance had improved as 'they want to show their teachers what they have done with their laptops regarding their homework'. 'It improves interest in coming to school and thus improves attendance as well'; 'laptops give encouragement to children to attend school'; 'by the use of laptops at school, the children are motivated to attend school every day'; 'there is an improvement in the children's interest in attending school … they are now attending very well'.

Parental help with the laptop [Objectives 2, 8]**:** Parents also commented on the fact that students can use the laptops to help learn and study at home. They noted that it is important to praise the child when he or she independently finds out an answer to a question using the laptop. Parents can help the children in their home studies and laptop homework and sometimes, when the children are not using the laptops, the parents can use the laptops for their personal use – such as sending emails or Internet research or chatting with friends and neighbours. They also play laptop games with the children. The

parents do not have the opportunity to use the laptops often though because 'the children are using them most of the time'.

Sharing with the family [Objectives 2, 8]**:** Parents also observed that children take pride in showing other family members what they have learned. They like to show what the laptops are used for and the programs that are on them. The interviewers found that children are encouraged to share their laptop skills and knowledge with other members of the family, including cousins, nephews and nieces. Children take the opportunity to show and teach their parents how their laptop works. Other members of the family use the laptops to learn spelling and improve vocabulary.

Pride of ownership [Objectives 2, 8]**:** The children's pride in the ownership of their laptops was frequently commented on by the parents: 'There is a feeling of pride and confidence that they have another resource more complicated than the books or exercise books, biros and pencils'. One comment was that 'laptops also help parents to see the importance of their children's education'.

Issues/problems/suggestions for improvement [Objective 5]
Parents were specifically asked about any improvements that could be made in the OLPC program and to make any other suggestions or comments with regard to the program. Parents did not feel that there were any major problems, just a few 'minor ones' and matters that could be easily addressed. They described these as 'areas for improvement' rather than 'problems'. 'No problems, so far so good,' suggested one. A range of responses was provided about areas that they thought were particularly important or that might be improved or strengthened. These included technological matters, care of the laptops, parental supervision and laptop training for parents.

Technological matters [Objective 5]**:** Use of the laptops is restricted at home because there is no access to a server. Other restrictions were that the students do not have flash-drives or access to charging of batteries. Occasionally the laptop 'just goes off and does not come on even if the battery is charged'. 'It would be very helpful if flash drives, speakers and a printer were provided … children [need to see] the finished product of their usage and learning by printing out their work'. Sometimes the inbuilt mouse is 'a nuisance' and the sound volume is not loud enough and requires speakers. Some parents thought that the keyboards of the laptops could be harder and more durable. Another consideration was the need for a 'proper bag' for the laptop to enable proper care to be taken of the equipment.

Care of the laptops [Objective 5]**:** Parents thought it was important that both students and parents show 'proper care' for the laptops and know how to operate them. 'Parents need to be able to advise their children how to take constant care of their laptops … It is absolutely important to [observe] guidelines in taking care of the computers'. The parents consistently commented that they saw as one of their main duties with regard to the laptops the need to make sure that these machines are kept safe.

Parental supervision [Objectives 2, 5]**:** Parents thought that there needed to be parental control at home, co-operation between children and parents in laptop use, and control over the playing of games, with supervision by both parents and teachers. 'Sometimes they spend a lot of time playing games on the laptop', which can lead the children to neglect their small tasks or chores and so 'not fulfilling what they are supposed to do at home'. Occasionally the children appear to be putting aside the work/homework given by teachers and instead doing 'laptop work'. However parents also appreciated the role of the laptops in keeping their children at home after school.

Laptop training for parents [Objectives 5, 8]**:** Parents suggested that the schedule for training the trainers be continuous and that all teachers be trained. They also thought that parents and community members should be trained to handle the laptops or to be resource persons for the program. 'Parents need to organise and supervise the use of laptops for learning at home … Interested village representatives should also be trained to teach [in the laptop program]'. Parents felt that they needed training to provide guidance to their children when they are doing assignments. It would help if parents could be given training 'up front', for instance, before students learn the art of painting on the laptop. They would like 'further knowledge and skills' in operating the laptop so that they could help their children as effectively as possible.

It would also assist if instructions were in Solomon Island Pidgin.

In summary, parents feel that the laptop program is an excellent program for the children in terms of their learning. One comment sums up the overall view: 'It helps children to learn both inside and outside the classroom'. As one of the researchers noted, 'the parents really appreciate the laptop program'.

The Community

The questions for community members were designed to address Objectives 1, 2, 5 and 8.

A group interview was held in Batuna with seven community members, including the pastor and three representatives from Rural Training Centres. In addition to this, principals of the Sombiro and Patukae schools were asked their opinion on the impact that the program has had on the broader community [Objective 8].

Overall, community members appear to be very interested in the program and particularly in the laptops themselves. Batuna community members acknowledged the potential of the laptops to provide students with the opportunity for self-learning, and to expand their knowledge base. Community members observed that the laptops have built students' confidence [Objective 2].

Batuna community members found that the program has not benefited the community just yet, because the focus has been children's learning rather than wider community benefit. However, they noted that there are efforts to document events in the community. They also observed that the laptops can become a liability to the community, creating a demand for petrol and other expenses for generators and solar power [Objective 5]. The comment was made that it is sometimes taken for granted 'that electricity is available in the communities. Not everyone has a generator or solar [power].

Despite this, the community members in Batuna agree that 'the laptop programs are great and very interesting' and suggested that the OLPC program needs to be expanded through the provision of printers, additional flash drives for downloading, 'proper' mouse and keyboard equipment, and training for parents and teachers. 'Teachers must really be well versed with the machines'. 'Training for parents is very much required'. They also suggested that parents need to create a timetable to track the use of the laptops in the home, so they can ensure their children are spending enough time on the laptops for learning purposes and still have time to do housework [Objectives 5, 8].

Implying similar reactions in the other school communities, principals in Sombiro and Patukae also commented that the wider communities are very interested in the program. They found that the program has 'enhance[d] community participation and support … increase[d] sense of pride and ownership of the school', and that the wider community find the program 'enhance[s] learning'. For one principal, evidence of the program's success could be found in the 'parents' [and] community's consolidated support for [the] school' [Objective 8].

Questionnaires

Four MEHRD staff and two non-MEHRD personnel with OLPC experience completed short questionnaires designed to identify the goals as understood by the respondents, and the main benefits and issues associated with the OLPC program. The questionnaire sought to gather information about the impact of the OLPC from the perspective of those who were involved in the setting up and implementation of the project. The questions were designed to address Objectives 1, 5 and 8.

The goals: *(What were the main goals of the OLPC program in the Western Province and to what extent do you think these have been achieved?)* [Objective 1]

Respondents described the OLPC as part of a global program in line with the Pacific Plan Digital Strategy of the Pacific Islands Forum: Reaching out to Remote and Rural Communities. The three schools are all in the Marovo Lagoon area and the OLPC project is part of an initiative to provide connectivity to the area. They are also near a Distance Education Centre. In addition to the practicalities of the project in these schools, respondents referred to the major potential benefits they could see in the project and in the way in which it was being implemented. One respondent described the OLPC as 'a global program, with universal principles of empowerment of children and grass roots

communities at its core', while noting that 'every child and every community has different needs'. Another respondent commented: 'In a nutshell, the OLPC [program] is a human development program'.

An overarching goal of the project was to provide a trial that could be evaluated to assess impact of the OLPC project in the three pilot schools.

The benefits: *(What do you think have been the main benefits for each of the following: MEHRD; students; teachers; the school community; other groups?)* [Objectives 2, 3, 4, 5, 6, 7 and 8]:

Respondents were very positive about the benefits the project had brought to the students and their communities. Not all respondents could comment on the specific groups and how they had benefited, as they did not always have direct knowledge. One respondent noted that the evidence of benefits is not yet known (prior to the independent evaluation). However, perceived benefits were outlined by various respondents as follows:

MEHRD: There have been general benefits to MEHRD in terms of increased knowledge and awareness of ICT in education and in the preparation of officers to assist in the implementation of the project if it is to be expanded. One respondent noted that MEHRD has gained 'an awareness of the principles of OLPC and improved understanding of issues and practices in ICT in education' and an 'improved capacity to plan and implement any subsequent rollouts and expansion. [They are also better able] to coordinate the integration of ICT into their programs'. Another respondent noted that if the trial at the pilot schools indicates successful implementation, then MEHRD will make the program available to other provincial Primary Schools. MEHRD has also been able to involve officers in the training, the delivery and the evaluation of the project in the three pilot schools.

Students: Respondents who had the opportunity to observe impact on students were very positive about the impact of the program. They described clear curriculum benefits, an increase in independent learning and increased student enthusiasm and motivation. One comment was: 'I found a student body that …was clearly proud of their skills, confident of their abilities, keen to display their prowess with technology, and enthusiastic about using the device for learning. Teachers reported that attendance was enhanced by the presence of the laptop at school'.

Teachers: Some respondents had had the opportunity to discuss the project with teachers. Teachers told one respondent that 'the laptop had created a buzz among the students' when first introduced which had been sustained over the subsequent year. Consistent attendance had initially increased and had also been sustained. Teachers said introducing the laptop made the children easier to teach in general, allowing them to focus on children who might need closer attention. Another respondent reported that

teachers were able to prepare lessons on the computers, move around the classroom more, could prepare many enrichment exercises and could communicate more easily with parents.

The school community and other groups: Respondents thought parents had benefited by being able to use the laptops themselves, assist students in their activities and communicate with teachers. Some children in other schools were 'envious of the younger children getting laptops' and there were concerns that these might be the only ones provided. One respondent noted that there was potential benefit for secondary and RTC (Rural Training Centre) teachers, for professionals in the community such as nurses, and for developing a community radio service.

Issues: *(What have been the main difficulties or issues in implementing and maintaining the OLPC program in the Western Province schools? Have there been any surprises?)* [Objective 5]

Respondents noted some difficulties of a technical nature in the rollout. For instance:
- there is not a technician for regular maintenance; local technical support was seen as important
- there is sometimes a lack of power to recharge the laptops
- teachers do not have the training to do minor maintenance
- there is no server for the schools
- there are no printers.

However, one respondent noted that 'considering there has been little or no follow-up support since initial deployment, the laptops seem to holding up very well in day to day use, with only a few machines breaking down'. In summary, as one respondent noted, 'more resources are needed in terms of technical support and equipment, including provision of school servers'.

Insufficient teacher training was also reported as an issue, both in terms of curriculum integration and technical needs.

Having insufficient time to ensure the most effective administration of the project was also reported as an issue. One respondent felt that while MEHRD is interested in the program in general, officers 'just have too many other things to do' and that this was also the case at provincial level, where education officers are interested but have other important work to do. (This respondent noted that SPC financing of a local OLPC project coordinator should assist in this respect.)

Positive steps to address difficulties or issues reported by respondents included:
- the advertisement of an Information Technology Coordinator (ITC) position in MEHRD

- the identification of an OLPC focal point person in MEHRD
- MEHRD 'taking ownership of the project' by including the OLPC project in its annual work programs
- meetings to explore options for providing improved power sources
- establishment of an OLPC Committee with regular meetings.

Surprises: Respondents were surprised by the knowledge, skill and enthusiasm of the students: 'they know more than their parents and even the teachers … the children's enthusiasm seemed very fresh after a year of clearly solid everyday use'; by the sturdiness of the machines – 'the XO is indeed a rugged and robust machine'; and by the degree of positive feedback from the teachers despite shortcomings such as technical difficulties. A surprise for one respondent was that only a small number of MEHRD officers were involved (although this respondent noted the small numbers in general in MEHRD.)

Any suggestions or recommendations for improvement and strengthening of the program [Potentially relevant to all eight objectives]

Respondents had a number of suggestions as to how the program might be improved or strengthened. These covered technical issues, curriculum, MEHRD involvement and other avenues of support that could be explored.

Technical issues:

Decentralisation of technical support was cited as a means of facilitating usage and access. It was suggested that there be trained local technicians as back-up support for the OLPC program for each community. Another suggestion was that a technical design and support solution be set up and made available. A consistent power supply, the provision of a server, printer and two way radio for schools with laptops were also cited as desirable, as was the provision of a 'proper' keyboard and mouse.

MEHRD involvement:

Early and extensive local and central consultation and involvement were seen as important. Respondent suggestions for improvement included:
- the employment of a MEHRD officer as a focal point to facilitate and coordinate the program
- commitment from MEHRD to support the trials until the government decides whether to extend the program
- ensuring that the OLPC program is a MEHRD priority (it was noted that MEHRD has taken the initiative in organising an independent evaluation)
- ensuring that the program is part of discussions about how 'distance and flexible learning' and 'improved learning and teaching' (part of NEAP, National Education Action Plan) can be facilitated by a well prepared introduction to OLPC
- introduction of the OLPC program within a clear policy framework
- inclusion of the results of the evaluation and regional experience to be an input in policy development.

It was also suggested that there be coordination with other rural infrastructure and rural development programs, and continuing monitoring and evaluation.

Curriculum

Respondents suggested that Solomon Islands curriculum related activities should be included in the development of the program, that educational (digital) content be developed with demonstrations, and there be a team of program designers to develop local content.

Teacher training and professional learning

The inclusion of information about the OLPC program in teacher training to assist curriculum development, and a well designed teacher training program to accompany the deployments, were cited as important ways to improve the program.

Other suggestions included considering volunteer placements in OLPC deployments, the utilisation of partners such as OLPC Australia and the formation of a national OLPC club.

One respondent commented that rural and remote areas should be given preference for future roll-outs.

In summary, responses seemed to indicate that, in the perceptions of the six respondents, some distance has been covered in achieving the original aims of the project. It was noted that establishing the trial in the three pilot schools had allowed an independent evaluation to take place and that the results of this evaluation will give further insight into whether or not the program should be extended. Another positive outcome mentioned is that two officers in MEHRD have now been trained in conducting an independent evaluation.

Recommendations

The following general recommendations may assist in further strengthening this program in the Solomon Islands. These pertain to training and professional learning, curriculum, technical issues, MEHRD involvement and the future. The evaluators note that some of these issues are already being addressed.

Training and professional learning

Recommendation 1 [Objective 5, 6]

That both initial and further training for teachers be an ongoing part of the OLPC program, and that this training include technical expertise in order to address minor technical problems and professional content in order to incorporate relevant curriculum material and to improve learning opportunities for students.

Recommendation 2 [Objectives 5, 8]

That training in OLPC usage be provided for parents and other community members so that parents can assist their children further in their studies.

Curriculum
Recommendation 3 [Objective 2]
That further curriculum content via the laptops be developed which reflects national curriculum and local context, and that instructions be provided in both English and Solomon Islands Pidgin.

Technical issues
Recommendation 4 [Objective 5]
That local technical support be provided to schools in the OLPC program and that local community members be trained to provide this support.

Recommendation 5 [Objective 5]
That solutions to issues, such as charging of the computers, be investigated.

Recommendation 6 [Objective 5]
That, wherever possible, printers be provided to schools with a laptop program and that the efficacy of providing appropriate keyboards and 'mice' be investigated, and that, where possible, the provision of servers accompany any rollout.

MEHRD involvement
Recommendation 7 [Objectives 1, 5]
That MEHRD maintain close involvement in, and monitoring of, the OLPC program.

The future
Recommendation 8 [Objective 5]
That there be provision for new enrolments to schools to have access to laptops and that new staff have appropriate training as soon as possible.

Recommendation 9 [Relevant to all eight objectives]
That ongoing monitoring and evaluation be incorporated into any future rollout, and that baseline data be collected prior to rollouts in at least a representative sample of schools so that both quantitative and qualitative data can be gathered.

Conclusion
In terms of the objectives of the OLPC program trial, as captured in the Solomon Islands Monitoring and Evaluation Framework, the evaluators have found that:
- in general, awareness has been raised about the OLPC program, its vision and its functions (Objective 1)
- evidence to date indicates that there has been a positive impact in the pilot schools and that this should continue to strengthen (Objective 2)
- teachers and parents believe that the program is positively influencing student attendance (Objective 3)
- the OLPC program is leading to an increasing demand for the development of new and appropriate curriculum materials (Objective 4)

- while there are some 'teething' and other difficulties with the technology, and a need for further technical support, the program is proving to be both feasible and sustainable (Objective 5)
- while teachers have indicated a need for further and ongoing training and professional learning opportunities, the program has increased their professional capacity (Objective 6)
- the program is regarded in a positive light by schools and their communities (Objective 7)
- there is considerable interest and involvement in the program by the school communities (Objective 8).

In summary, the response to the rollout of the laptops in the pilot schools has been very positive. Parents, students, teachers and community members see major benefits in the program. MEHRD officers also see clear potential benefits for schools. The provision of the laptops has been greatly appreciated as a step in improving learning for students. This appreciation was repeatedly expressed in interviews. While there have been some difficulties of a technical nature, the new technology has been embraced by the schools and communities. The program will be strengthened by the provision of more technical and preferably local support, by further training for teachers and by training for parents and community members. An ongoing program of training, monitoring and evaluation is important. MEHRD involvement and support also remains an integral component for the success of the program.

Appendix 1: Background information

The Ministry of Education and Human Resources Development (MEHRD) has provided the following background information about the three schools involved in the OLPC trial.

About the schools

The three schools in the One Laptop Per Child program trial in the Solomon Islands are located at:

- Patukae   8.542 S 158.039 E
- Batuna   8.560 S 158.123 E
- Sombiro   8.744 S 158.213 E.

The project was run as a pilot of the EU Distance Learning Centres Project (DLCP www.schoolnet.net.sb). The schools are all in Marovo lagoon, Western Province. Sombiro is 1km from Bekabeka DLC. Batuna was selected because of the wireless link established between Bekabeka DLC and Batuna Adventist Vocational College (BAVC) as another pilot of DLCP (www.peoplefirst.net.sb/DLCP/Marovo.htm). Patukae was selected because it was connected to Internet via the PACRICS project of the SPC (www.pacrics.net). Importantly, all these decisions concerning the OLPC pilot were made via MEHRD's Technical Working Group on Distance and Flexible Learning.

Patukae Primary School is part of Patukae Community College, which combines with the secondary school. Batuna Primary School is close to Batuna Adventist Vocational College, who were involved as a community partner.

Power
- Patukae and Batuna have generator power available in the evenings only.
- Sombiro has no power so students have to walk 1km to the DLC to recharge.

Servers
- No servers were deployed at the trials sites due to funding restrictions.

Time line
- Oct 2007 – 12 B4 (prototype) laptops delivered to Bekabeka School for awareness
- Dec 2007 – B4 laptops circulated to Patukae school
- July 2008 - 75 laptops deployed at Batuna. Grade 1 saturated and all the teachers received laptops. Report with full details available at wiki site (see URL below)
- Elnah Tati hired by the South Pacific Commission to provide some local support to teachers and assist with evaluation (part time)
- March 2009 – 300 additional laptops delivered to Solomon Islands used to saturate the remaining grades 2-6 in each school. Additional deployment
- September 2009 evaluation takes place.

Initial batch of 75 laptops distributed in July 2008

	Patukae	Batuna	Sombiro
Grade 1	25	24	10
Primary teachers	5	5	6
Secondary teachers	1		
Vocational teachers (BAVC)		2	
Trials	31	31	16

Enrolment and laptops distributed to Patukae, Sombiro and Batuna Primary Schools (2009)

Patukae Primary School					
No. of Teachers	Grade	Enrolment	Receive Laptops	Do no have Laptops	Teachers without Laptops
1	1	26	25	1	
1	2	27	25	2	1
1	3	21	20	1	1
1	4	23	20	3	
1	5	23	23		
1	6	13	13		
Sombiro Primary School					
No. of Teachers	Grade	Enrolment	Receive Laptops	Do not have Laptops	Teachers without Laptops
1	1	18	16	2	
1	2	11	11		
1	3	18	18		
1	4	18	16	2	
1	5	16	16		
1	6	8	8		
Batuna Primary School					
No. of Teachers	Grade	Enrolment	Receive Laptops	Do not have Laptops	Teachers without Laptops
1	1	25	22	3	
1	2	15	15		
1	3	15	13	2	
1	4	18	16	2	
1	5	16	14	2	
1	6	15	12	3	

Note: Some students do not have laptops because they came in late. Some of the teachers were only transferred to the school this year, so they were not included in the list. Some of the students who received their laptops were subsequently transferred to other schools.

About the project

The project history in detail with deployment reports, photos and YouTube videos can be found at: http://wiki.laptop.org/go/OLPC_Solomon_Islands

It is important to note that the trials did not quite manage to cover the complete recommended scenario for an OLPC trial. MEHRD believes the following deviations are likely to have reduced the beneficial impacts:

(a) There was no school server and thus no way of demonstrating the ability to access curriculum and other educational content.
(b) The Curriculum Development Division did not take part in the pilot.
(c) The saturation was reached only a few months before the evaluation.
(d) Only a basic introduction to curriculum integration was carried out. Normally MEHRD has three levels of training: level 1 is vision and principles, level 2 is laptop and server literacy, level 3 is lesson planning and curriculum integration. Normally MEHRD would have returned after six months to carry out level 3 training, with inputs by curriculum department.
(e) There was no day time power source. Normally laptops should be charged as the students use them and then they can go home with a charged laptop. There are solar power solutions for this (such as the DC Share cables with flexible 20W panels and no need for battery banks or inverters).
(f) There were no periodic training updates for teachers.
(g) Although the community was briefed, there was limited participation, such as community OLPC clubs providing local technical support.

Appendix 2: Questions for field work

Questions for parents

1. What can you tell us about the laptop program (One Laptop Per Child) that your son or daughter has been involved in? [Objective 1]
2. How has your child used the laptop? (for example, at school only? At home? For pleasure? To do research? To play games? Other things?) [Objectives 2, 6, 7]
3. Have you or other members of your family used the laptop? (if yes, what has the laptop mainly been used for?) [Objectives 2, 8]
4. What have been the best things about your child having the laptop? (for example, think of your child's interest in school, attendance, learning, ability to work with other students) [Objectives 2, 3, 6, 7]
5. Have there been any problems with the use of the laptops? (If there have, what have been the main problems?) [Objectives 2, 5]
6. Have you been surprised by the laptop program? (If so, what have been the surprising things for you?) [Objectives 2,7]
7. Are there any other comments you would like to make? [Potentially relevant to all eight objectives].

Questions for community members

1. What can you tell us about the laptop program (One Laptop Per Child) that your local school has been involved in? (for example, why do you think the school has been involved in the program?) [Objective 1]
2. What have been the main benefits for the students in having these laptops? [Objectives 2, 3, 4, 6, 7, 8]
3. What have been the main benefits for the community? [Objective 8]
4. Have there been any problems with the use of the computers? (If so, what have been the main problems?) [Objectives 2, 5]
5. Have you been surprised by the laptop program? (If so, what have been the surprising things for you?) [Objectives 2, 7, 8]
6. Are there any other comments you would like to make? [Potentially relevant to all eight objectives].

Questions for teachers and teacher assistants

1. What do you think are the main aims of the laptop program (One Laptop Per Child) that has been trialed in your school? [Objective 1]
2. What is the response of students after a year of using the computers? (Are they still excited? Are the students still wanting to use them?) [Objectives 2, 7]
3. How have you mainly been using the laptops? (Have you changed the ways in which you use them? If so, how and why?) [Objectives 2, 3, 6, 7]
4. Have the computers helped you in your teaching? (If so, in what ways?) [Objectives 2, 3, 4, 6, 7]
5. Have the laptops *increased* or *decreased* your workload? If so, can you explain how they have done so? [Objective 7]
6. Would you like more training? If so, what would help? [Objective 6]
7. Have the computers had positive effects on student learning? (If so, what are some examples of these?) [Objectives 2, 3, 6, 7]
8. Have there been any problems associated with the use of the computers? (If so, what have been the main problems?) [Objectives 2, 5]
9. Have there been any surprises or unexpected aspects of the OLPC program? (If so, what have these been?) [Objectives 2, 7, potentially 8]
10. Are there any other comments you would like to make? [Potentially relevant to all eight objectives].

Questions for principals

1. What do you think are the main aims of the laptop program (One Laptop Per Child) that has been trialed in your school? [Objective 1]
2. What impact do you think the OLPC program has had on each of the following:
   a. your students
   b. teachers in your school
   c. parents of your students
   d. the broader community? [Objectives 2, 3, 4, 6, 7, 8]
3. Can you please tell us why you think that the laptop program has had this impact on each group? (for example, what evidence do you have of its success?) [Objectives 2, 3, 4, 6, 7, 8]
4. What, if any, issues or difficulties have there been with the introduction and maintenance of the laptops? [Objective 5]
5. What, if any, recommendations do you have for improving the OLPC program in the Solomon Islands? [Objectives 2, 5, 7]
6. Are there any other comments you would like to make? [Potentially relevant to all eight objectives].

Questions for students

1. What do you use the laptops for at school? [Objectives 2, 6, 7]
2. How often do you use the laptops (for example, every day, every two or three days, once a week, once every few weeks?) [Objectives 2, 7]
3. Do you use the laptops at home? (if yes, what do you use them for?) [Objectives 2, 6, 7]
4. What do you like best about the laptops? [Objective 2]
5. Has the laptop helped you learn? (If yes, how have the laptops helped you learn?) [Objectives 2, 7]
6. Is there anything you do not like about the laptop? (for example, is there anything you would like to change about the laptop and why would you like to do this?) [Objectives 2, 7]
7. Is there anything else that you would like to tell me about the laptops? [Potentially relevant to all eight objectives].

Appendix 3: Questionnaire

Objectives of the Monitoring and Evaluation Framework

1. To raise awareness about OLPC and the objectives of the trial in Western Province
2. To assess the impact of OLPC in the area of Teaching and Learning
3. To assess the impact of OLPC on enrolment or attendance
4. To assess the impact of OLPC or XO in delivering/producing new curriculum materials/learning content
5. To assess if OLPC/XO- technology is technically feasible and sustainable
6. To assess the impact of capacity building for teachers (and learners) in the OLPC project
7. To assess the impact of OLPC on the learning, and school environment
8. To assess the impact of OLPC on the community.

The purpose of the questionnaires was to identify the:
- goals of the OLPC program as understood by MEHRD, sector partners, and those involved in the program [Objective 1]
- impact that the OLPC program has had (Objectives 2, 3, 4, 6 and 7)
- issues (Objective 5).

Questionnaire for local and regional staff involved in the deployment and implementation of the OLPC program

1. What were the main goals of the OLPC program in the Western province and to what extent do you think these have been achieved? (Please explain why you think this.) [Objective 1]
2. What do you think have been the main benefits of the OPLC program for each of the following:
   a. MEHRD (for example, what has the Ministry gained from having the OLPC program in its schools? What evidence is there of these gains?)
   b. Students (for example, skills, attendance, homework completion, engagement, social skills, other. What evidence is there to show these benefits?)
   c. Teachers (for example, changed teaching methods, increased use of computers in the classroom, different curriculum, enhanced professional learning. What evidence is there to show these benefits have occurred?)

d. the school community (for example, parent use of the laptops, parent involvement in students' work, parents' involvement in the school, changed perceptions of the broader school community? What evidence is there to show these benefits have occurred?)

e. other groups (for example, what other groups have benefited from the deployment and implementation of the OLPC program in the Western province? What evidence is there to show this?) [Objectives 2, 3, 4, 6, 7, 8]

3. What have been the main difficulties or issues in implementing and maintaining the OLPC program in the Western Province schools? (for example, technical difficulties, training issues) [Objective 5]

4. What action has been taken so far to address these issues? [Objective 5]

5. Have there been any surprises for you? (ie anything you did not expect from the deployment and implementation of the laptop program)? [potentially relevant to all eight objectives]

6. What, if any, recommendations do you have for improving the OLPC program currently and in the future (if more laptops are to be deployed) in the Solomon Islands? [Potentially relevant to all eight objectives].

Questionnaire for MEHRD officers

1. Why did MEHRD (the Ministry) implement the One Laptop Per Child (OLPC) program in the Western province schools? (ie what were the main goals?) [Objective 1]

2. What do you think have been the main benefits of the OPLC program for each of the following:

    a. MEHRD (for example, what has the Ministry gained from having the OLPC program in its schools? What evidence is there of these gains?)

    b. Students (for example, skills, attendance, homework completion, engagement, social skills, other. What evidence is there to show these benefits?)

    c. Teachers (for example, changed teaching methods, increased use of computers in the classroom, different curriculum, increased professional learning, IT training. What evidence is there to show these benefits have occurred?)

    d. the school community (for example, parent use of the laptops, parent involvement in students' work, parents' involvement in the school, changed perceptions of the broader school community? What evidence is there to show these benefits have occurred?) [Objectives 2, 3, 4, 6, 7, 8]

3. What have been the main difficulties or issues in implementing and maintaining the OLPC program in the Western Province schools? (for example, technical difficulties, training issues) [Objective 5]
4. What action has been taken so far to address these issues? [Objective 5]
5. Have there been any surprises for you? (ie anything you did not expect from having the laptop program)? [Potentially relevant to all eight objectives].
6. Do you think the Ministry goals for the OLPC program have been met? (Please explain why you think this.) [Potentially relevant to all eight objectives].
7. What improvements, if any, would you like to see in the OLPC program in the Solomon Islands? [Potentially relevant to all eight objectives].

Appendix 4: Solomon Islands Objectives and Evaluation Framework

Objectives	Expected Outputs	Achieved/not achieved
1. Awareness raised about OLPC and the objectives of the trial in Western Province.	MEHRD, teachers, sector partners and communities aware of: • The vision of OLPC • The function of OLPC/XO/XS • Objectives trial in the Western Province.	Teacher, parent and MEHRD respondents have indicated that they are aware of the OLPC program and the objectives of the trial. While teachers and parents did not specifically mention the OLPC 'vision', and thus it is not clear from the responses how familiar they are with this, they are certainly aware of, and support, the program.

2. To assess the impact of OLPC in the area of Teaching and Learning (In each sub-sector: Early Childhood, Primary, Secondary, TVET).	• The XO is used in Teaching & Learning (T & L) at schools and centres.
	• The XO is utilised in particular for some of the subjects.
	• The XO is integrated into normal/formal T & L - formal education delivery.
	• Teaching methods are affected positively through the use of the XO in T & L, including more/improved:
	  o Learning by Doing
	  o Child-focused teaching
	  o Group work/sharing/collaboration
	  o Inclusion / engagement of all students
	  o Curriculum changes as a result of the XO/OLPC project
	  o Impacts seen in all sub-sectors, but mostly with early age education (Early Childhood Education and Primary Education).
	  o Also assess any possible negative or nonimpact; learners and teachers not using XO or only after school hours.
		Teachers have indicated that the laptops are being used in a variety of ways across subject areas, mainly for literacy and numeracy activities, but also for science and other research. Other uses include for music, games, photography, painting and typing.
		
		The laptops appear to have been integrated into the curriculum.
		
		Teachers perceive their workload to have been reduced through being able to use the laptop instead of relying on the blackboard.
		
		It was not clear what curriculum changes have occurred as a result of the OLPC program.
		
		The evaluation focused only on primary school and not the other education sectors and found a positive impact from the OLPC program on children in the pilot schools.

Objectives	Expected Outputs	Achieved/not achieved
		Teachers, parents and students all indicate the laptops are used both at home and school. The only 'negative' evidence of use is associated with technical issues and the need for more training.
3. To assess impact of OLPC on enrolment or attendance.	Increased enrolment or improved attendance at selected schools compared to schools where OLPC or XO has not been introduced.	While this could not be substantiated by school data at the time of the evaluation, and while (as with any new initiative) it is difficult to show a direct causal link between enrolment or attendance data and a new initiative, both teacher and parent participants believe that the OLPC program is positively influencing student attendance.
4. To assess the impact of OLPC or XO in delivering/ producing new curriculum materials/ learning content.	New electronic content made available (in schools). The school server is an effective source of content. 'Wiki Educator' more frequently used.	Teachers indicated they believe the OLPC program is leading to a growing demand for new and appropriate curriculum materials. The pilot schools did not have servers. It is not known if Wiki Educator' is being more frequently used.
5. To assess if OLPC/XO technology is technically feasible and sustainable.	Teachers and students are able to use and continue to use the laptops. Power supplies are feasible, affordable. Good quality Internet connectivity. Required level of technical support, maintenance is available. XO-Equipment is reliable, functional and still working.	Some teething issues were identified. The main criticism of the laptops is that they are slow and that it is sometimes difficult to charge them. A need for further technical support was identified. Leaving aside these technical difficulties, the program was seen to be feasible and sustainable in the Western province trial schools.
6. To assess the impact of capacity building for teachers (and	Training (for XO) has built sustained capacity. Training system/schedule and	Teachers have indicated they have increased their professional capacity.

Objectives	Expected Outputs	Achieved/not achieved
learners) in the OLPC project.	methodology is effective. Teachers are able to integrate the use of the XO in formal and informal class-work. Teachers have improved access to resources and training support.	Teachers have indicated a need for further, ongoing training and professional learning opportunities.
7. To assess the impact of OLPC on the learning, and school environment.	Teachers and students regard the XO and OLPC project positively. School seen more positively by the community. Teachers have improved morale Absenteeism under teachers and learners is reduced. Higher demand / enrolment / retention (teachers and students).	Teachers, students and parents have indicated they regard the OLPC program in a positive light. There is no evidence to show improved teacher morale or reduced attendance at school by teachers. As mentioned earlier, teachers and parents have indicated they believe the OLPC program has had a positive impact on student attendance. This has not been quantified though. There is no evidence to suggest there has been a higher demand for enrolment or that retention of students has increased.
8. To assess the impact of OLPC, XOs on the community.	Community members involved in the use of XOs. Community regards the OLPC positively or negatively. Community has improved access to information and communication services. More involvement or active participation of parents in the school.	Community members indicated a positive response to the OLPC program. It is too early to identify benefits for the community. Efforts are being made to document what has been experienced. Evidence was not presented by community members to show improved community access to information and communication services. Parents indicated great interest in what their students are doing with the laptops. For increased participation to occur there needs to be training for parents.