

# From Bankstown to Jigalong and Yirrkala: Supporting Pre-Service Teachers in the Deployment of XO Laptops

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## ABSTRACT

The paper outlines the learning experienced by educators from the University of Western Sydney [UWS] as they worked with the One Laptop per Child [OLPC] Australia charity to deploy purpose designed XO laptops in remote communities across Northern Australia. The teacher educators applied their learning to classes of pre-service teachers and to a group who had volunteered to undertake a service learning activity with OLPC Australia.

The focus is the three different deployments of XO laptops in: Jigalong Remote Community School, Western Australia; Yirrkala School, Northern Territory; and, Yirrkala Homeland School, which comprises a number of small, homeland schools near Yirrkala, Northern Territory. The first deployment involved educators participating in a deployment and planning how to involve pre-service teachers in future deployments; in the second deployment the plan was executed with the support of two Indigenous pre-service teachers from UWS; then it was refined for a third deployment in the homeland schools surrounding Yirrkala. The third deployment involved 12 pre-service teachers who were supported in homeland schools near Yirrkala. This deployment was a combination of group training with classroom teachers, and on-site implementation of the uses of XO laptops to achieve learning outcomes. From each deployment, skills and knowledge were gained to determine the best course of action for supporting pre-service teachers in the deployment of XO laptops. As a service learning initiative, it was important to develop a reciprocal relationship between OLPC Australia, the schools and community involved in the deployment and UWS staff and pre-service teachers participating in the initiative. The relationship resulted in generating knowledge about Indigenous education and introducing XO laptops to school communities in remote areas of Australia.

This paper will focus in particular how the educators developed their understandings through action learning and collaboration. The results of this investigation showed that it was extremely important to negotiate the process with OLPC Australia and the need for flexibility to change and modify support based on a number of factors including pre-service teachers' and academics' concerns and their extent of involvement in supporting the initiative. Recommendations for pre-service teachers and university-based educators being involved in deployments have been developed to help support the realisation of OLPC Australia's mission statement.

## I. INTRODUCTION

The paper outlines the learning experienced by educators from the University of Western Sydney (UWS) as they worked with the One Laptop per Child (OLPC) Australia charity to deploy purpose designed XO laptops in remote communities across Northern Australia. The focus of this paper is the three different deployments of XO laptops in: Jigalong Remote Community School, Western Australia; Yirkala School, Northern Territory; and Yirkala Homeland School, which comprises a number of small, homeland schools near Yirkala, Northern Territory.

The teacher educators from UWS in collaboration with OLPC Australia applied their learning from previous experiences in ICT and professional experience and prepared UWS pre-service teachers to undertake a service learning activity with OLPC Australia. The first deployment involved educators participating in a deployment and gain first-hand experience to help plan future deployments that involved pre-service teachers; in the second deployment the plan developed from the Jigalong experience was executed with the support of two Indigenous pre-service teachers from UWS; then it was refined for the third deployment involving 12 pre-service teachers from UWS in the homeland schools surrounding Yirkala. This third deployment was a combination of group training with classroom teachers, and on-site implementation of the uses of XO laptops to achieve learning outcomes.

## II. SUPPORTING SERVICE LEARNING AT UNIVERSITY OF WESTERN SYDNEY

Academic staff at University of Western Sydney has developed three service-learning units to meet the needs of students wishing to undertake community engagement. *Learning through Community Service* is a double unit of study requiring the students to work with a community for up to 150 hours. This unit is part of the undergraduate Bachelor of Arts education electives and students undertaking this unit are in a pathway to primary school teaching. Similarly, the unit *Classrooms without Borders* was developed to promote pre-service teachers' learning through engagement with the broad range of people in the local communities, and the unit *Special Study in Primary Education* was developed to engage Indigenous pre-service teachers in developing a project involving schools and communities. Through these three units it is envisaged that University of Western Sydney students are able to make a positive contribution to the lives and learning of others by assisting those in need – whether it is through the provision of academic assistance such as mentoring, developing learning resources or offering other forms of support to community and non government agencies.

*Learning through Community Service* has been taught for the last 5 years whereas *Classrooms without Borders* is a new unit in the primary program at the University of Western Sydney. *Classroom without Borders* and *Special Study in Primary Education* builds professional experience teaching skills by enhancing the understandings of socio-cultural differences, by engaging students with community agencies that focus on minority and disadvantaged communities. These units are service-learning subjects they reflect the development of a relationship between the major stakeholders in the community and the university. These stakeholders are the students, the community members (and in this instance the teachers and children in the Northern Territory and Western Australia), One Laptop Per Child Australia (a Non-Government Organisation) and the university academic staff.

*Classrooms without Borders* and *Special Study in Primary Education* require that the pre-service teachers contribute 30 hours of service during one semester for a community agency or with schools. All participating pre-service teachers will be concurrently undertaking formal academic components that support their engagement with the communities. The reciprocal nature of this service means that both the pre-service teachers and the communities benefit from the activities and the professional relationships involved. It seeks to promote active and responsible citizenship, and an awareness of social justice and equity principles that are essential for both teaching and learning. It positions learning as highly dependent on the development of trust, rapport and critical understandings of diversity. It is understood as a complex interchange that is reciprocal, lifelong, and moreover without borders; experienced both in/outside of formal classrooms. Both units forms part of the accreditation requirements of the New South Wales Institute of Teachers.

### III. ONE LAPTOP PER CHILD AUSTRALIA

OLPC Australia's mission is to enhance the education opportunities of children living in remote communities through the provision of a personalised learning platform called the XO and a holistic training program that prepares school staff, parents and local knowledge authorities in the communities to engage in their children's education. The initial training and deployment model adopted has involved spending about a week on-site with the communities training education school staff and community members about the XOs and how they can be used to enhance the children's education.

According to the Australian Bureau of Statistics (ABS), there are approximately 400,000 children living in remote, very remote and outer regional communities. OLPC Australia has ambitious plans to reach all of these children, which will require scaling the deployment and training model at an exponential rate. A risk identified soon after Crighton joined the organisation in August 2009 was not having enough skilled resources to be able provide the training to the schools and communities. The mitigating strategy was to work with a number of universities to train pre-service teachers who would then spend a week at the remote communities as part of their degree. This strategy had the additional benefit of equipping the next generation of teachers with the appropriate skills and knowledge to be able to effectively facilitate the use of XOs in classrooms.

Lecturing staff at the University of Western Sydney (UWS) were the first to embrace the program with the degree of energy and commitment OLPC Australia was seeking. However, before training and sending pre-service teachers into the field, OLPC Australia agreed it would be beneficial for a couple of the teacher educators to experience a deployment of their own so they could then understand what it was like and what pre-service teachers needed to know before participating in the deployment. Phil and Les were the first two teacher educators from UWS who volunteered to join OLPC Australia on-site at Jigalong Remote Community School in Western Australia in late-January/early-February 2010. Liddy Nevile, a volunteer education advisor and academic from La Trobe University, was also invited to accompany the team to Jigalong.

On previous deployments, the training program was divided into two phases. The first phase focused on the participants learning how to navigate the XO operating environment (both hardware and software), with a brief overview of some of the activities (i.e. software programs) that were pre-loaded onto machines. The teachers were then given the XOs to introduce into their classes, as the first time the children are given XOs the excitement expressed makes it difficult to hold normal lessons. The second phase, which would take place anywhere from a couple of days to a few weeks later when the initial excitement had somewhat abated, was focused on classroom integration. This phase involved exploring a number of the activities in more detail, followed by exercises that asked the teachers to prepare lesson plans using these activities. OLPC Australia expected the teachers to consider the implications of 1:1 computing with XOs on their pedagogical approaches themselves, mainly because the small organisation had not yet engaged anyone with considerable professional education experience.

#### IV. ACTION LEARNING IN DEVELOPING AN IMPLEMENTATION MODEL

An action learning framework was adopted by the educators involved in planning pre-service teacher involvement and developing an implementation model for the project. Herrington, Herrington, Mantei, Olney and Ferry (2009) define action learning “as an educational process whereby the participants study their own actions and experience in order to improve their performance” (p.3). Action learning typically involves a small group of colleagues utilising their own processes of sharing, reflection and facilitation in order to help each other learn from their experiences (Revans, 1982; Zuber-Skerritt, 1993). For us as educators our learning experiences moved from teaching education to pre-service teachers at the University of Western Sydney, Bankstown campus to remote places of Australia. The focus was to develop an implementation model that involved pre-service teachers in the deployment of XO laptops in remote communities across Northern Australia. From each deployment, skills and knowledge were gained to determine the best course of action for supporting pre-service teachers in the deployment of XO laptops.

The process of developing an implementation model used hermeneutics to seek understanding through the interpretation of each educators experience in participating in the deployment of XO laptops as a method for co-creating meaning about how we could involve pre-service teachers. Gadamer (1979) stated that co-creation of meaning occurred when individuals were able to express their true ‘selves’ in dialogue with each other. In this study, co-creation of meaning occurred, for example, when we as educators interpreted what was being said in our conversations about our experiences by asking questions that explored and clarified different aspects of practice. According to Geanellos (1999),

Hermeneutic conversation is characterised by its interactive quality and by the predominance of the subject under discussion. In other words, the content of a conversation leads people into exploration and understanding rather than people imposing their views onto, and thereby dominating, the conversation (p. 42).

The conversations provided opportunities for us to develop our understandings and pose solutions to the problems we each encountered while experiencing the various deployments. Together we were able to provide an invaluable experience for pre-service teachers and at the same time support Indigenous communities in Jigalong and Yirrkala. Together, we were able to piece together the individual threads from each deployment and construct an understanding based on our individual and collective experiences. We used the ‘hermeneutic circle’ (Alvesson & Skoldberg, 2000) as an iterative process through which we developed our model for supporting pre-service teachers in the deployment of XO laptops in Yirrkala and nearby homeland schools.

#### V. JIGALONG REMOTE COMMUNITY SCHOOL

The deployment in Jigalong Remote Community School, Western Australia involved a team of five visitors working in the community over seven days to help prepare the staff and some parents for the handover of the XO laptops to the children of the school. The team consisted of two teacher educators (Phil and Les), an academic with an interest in OLPC and ICT in Learning (Liddy Neville) and two staff from OLPC (Crighton and Damien). While one educator used staff development leave to finance the travel expenses of the trip all other costs being covered by OLPC or Jigalong Remote Community School. Previous deployments by OLPC Australia had been made into similarly remote schools and had been conducted by their staff and volunteers. These teams were usually limited to two people and typically focused on technical or logistic issues. Since OLPC Australia was interested in developing their deployment model to emphasise the role of the XO laptops in classroom teaching, academic lecturers were invited to investigate how this could be achieved in a way that was sensitive to the educational and cultural needs for the staff, students and community members. OLPC Australia had also approached UWS seeking assistance with marshalling the help of pre-service teachers to assist in this deployment model. At this stage the plan was to support the emphasis on classroom learning by subsidising volunteer students from

the service-learning units within the Education degrees to enable them to assist in the field during deployments.

The two teacher educators from UWS primarily saw their visit to Jigalong as an opportunity to develop their own understandings of how learning and teaching is conducted in remote Aboriginal communities. It gave them an opportunity to try out applications of the unique set of learning software that the XO computers support and to better understand how remote Aboriginal children may choose to use these programs. They wanted to know if the wonder and excitement with which Aboriginal students responded to these computers could be harnessed to help progress the development of academic skills like English literacy, mathematical reasoning and problem solving. Before they left for the trip they also began to plan for the deployment preparation workshops they would run for the teacher education students upon their return. They believed that the content and conduct of these four days of workshops would be shaped by their experiences at Jigalong and by further consultation with the OLPC staff upon their return.

The deployment to Jigalong can be characterised as having three phases. The first involved getting the resources into the school. This involved setting up the computing infrastructure, meeting key teachers and community members and then preparing for the deployment of the XO laptops to the children. The second phase focused upon a day of in-service with teachers and community members exploring how the unique software set supported by the XO laptops could be of real benefit to their children. The third stage ran for a number of days and saw the five visitors working in classrooms with the students and the teachers. In consultation with the teachers they linked the programs on the XO laptops with specific learning outcomes and lessons with the children. This was the key phase because the adult stakeholders saw satisfaction of this outcome as the defining purpose of the deployment.

The lessons of the first phase had to do with coming to understand the realities of working in remote communities. In this location, at this time of the year, high temperatures made the visitors dependent of electricity and air conditioning. When it is still 40° C at 7:00 pm in the evening you know you have had a hot day. The distance between Jigalong and sources of food and water meant that costs were high and these essentials had to be secured before other plans could be pursued. However, more important than these physical realities was the need to understand the social and cultural aspects of the community within which we were working. By listening to all who would talk to you, by asking questions about what was appropriate and by actively working with members of the community presented an open stance that increased opportunities for learning in the short time we were there. Efforts to raise these understandings were later written into the training days presented to the teacher education students.

The second 'in-service day' phase continued this attitude of listening. The initial demonstration of the capabilities of the XO laptop was led by the visitors but was quickly redirected to assist the local staff and community present to discover the capabilities of the included software. The visitors were aware of the need to closely match the teacher's objectives for their students' learning with experiences that showed what the software was capable of doing. This approach set up the discussion between visitors and teachers about learning applications that ran for the remaining third phase of the deployment.

It was during the third phase that the 'new deployment model' was trialled in classrooms. Although this model was not destined to weather the realities of funding it was the focus of the team's efforts and discussions during this deployment. After an initial phase when the children explored the XO laptops with free play the teachers started to use this resource for curriculum purposes. The academics present negotiated to be allowed to work with classroom teachers and community workers to design teaching and learning experiences for the children on a day-by-day, lesson by lesson basis. These lessons were co-taught, were discussed and evaluated and were used as models for teachers to trial new strategies. As in any school context the take up of these opportunities varied with the level of support needed by different teachers to integrate the software into their teaching practice.

During this deployment the time spent away from the school was characterised by active discussion between members of the visiting team. The discussion tried to make sense of what was happening in this

school. It was agreed that this was a high functioning school and that what could be done here might not be able to happen in all similar remote schools. However, it was felt that there were some principles of the new deployment model that would be of use in the future. The first of these was that an educational focus for the XO laptops, facilitated by just in time coaching of the community leaders or teachers, created learning opportunities that could meet the unique learning needs of each context. The second principle was to try to maximise prior contact with the community before the deployment. In order to sensitively anticipate community needs and wishes, it was advisable to be in early contact with both school staff and significant community members. The third principle was to emphasise the central role of English instruction in the communities of remote schools. Most of the Aboriginal students who attend remote community schools speak several languages fluently. English is often the third or fourth and least familiar of those languages.

A spin off benefit for the teacher educators was that two of the teachers from the school agreed to be interviewed about their classroom pedagogy. This generosity allowed the learning benefits the teacher educators had received to be extended to their students. The interviews were combined with virtual representations of the teachers' classrooms and copies of the curriculum documents they used. These two packages were used as part of the information resource base for the deployment preparation workshops. More specifically they were also used as case studies within the M.Teach degree at UWS (Nanlohy, Wiggins, Brown, and Secord, 2010).

For OLPC Australia the post-deployment debriefs identified the Jigalong deployment to be the most successful so far. This was in part due to the fact that for the first time experienced educators were brought in as part of the deployment team. However, Jigalong Remote Community School was different to many of the other schools visited earlier. The school had a number of experienced teachers, which was different for many remote schools where the majority of teachers are relatively new and who, whilst enthusiastic, sometimes lacked the experience with curriculum development to create engaging and challenging lessons.

Despite the positive experience at Jigalong, OLPC Australia felt concerned about the sustainability of the program, in that they were not sure enough time was spent with teachers in building their confidence in using the XOs creatively in the classrooms. OLPC Australia also recognised the need for pre-service teachers to be as experienced as possible with the XOs, so they could help school staff and community members develop rich, sustained education exercises. Over the proceeding weeks, OLPC Australia worked with Les and Phil in particular to develop a training program specifically for the pre-service teachers that was spread over two weekend workshops.

## VI. YIRRKALA COMMUNITY SCHOOL

Yirrkala School was the next school we visited after Jigalong. OLPC Australia agreed to sponsor two pre-service teachers from the Badanami Centre for Indigenous Education (UWS), Karen and Will, along with Les and Diana from the staff of UWS, and Liddy and David Loader as education advisers. Karen and Will had completed the first two days of the pre-service training, so they had limited experience with the XOs. However, they both also possessed considerable experience working in schools in Aboriginal support roles. Being Indigenous Karen and Will were also of considerable importance, especially to the children and community members as they were more easily able to relate to them than non-Indigenous pre-service teachers.

Yirrkala School was special in the degree to which it had been integrated into the community. This integration had taken place over a number of decades, thanks largely to the history of local Indigenous principals and staff working in the school. Another feature that distinguished Yirrkala from other remote schools was the Literature Production Centre, at which books and other education resources were produced, often in the local Yolngu dialect. However, there was also a tension at the school during the deployment as the current Principal was struggling to maintain the school's bilingual education program in

the face of reforms the Northern Territory Department of Education was trying to introduce. The Principal made it clear that they were interested in how we could help support and enhance their existing curriculum, and not to replace it with an externally developed curriculum that would not be relevant to the local context. This suggestion was already compatible with our approach so we did not need to make any adjustments, but we found it inspiring that the school felt so passionate about maintaining the local context of their curriculum.

Based on our experiences at Jigalong, we (i.e. the OLPC Australia deployment team) tried to better plan which members of the education team would spend in each class throughout the week we were on-site. As with Jigalong, we spent long nights reflecting and discussing how the program could be more effective. Karen and Will were as much a part of these sessions as any of the other team members, and indeed were able to offer additional insights from the perspective of Indigenous educators. The deployment to Yirrkala School was complicated by a media conference announcing corporate support for our program from some of the biggest companies in Australia, specifically the Commonwealth Bank of Australia, Telstra, and News Limited. The visit to the school by several prominent figures caused a disruption to the school and training program. However, the wider benefits of the media conference justified the disturbance. We were still able to implement our plan to further document how deployment may be experienced by pre-service teachers and to further develop teaching resources that showed how to integrate the XOs with curriculum for use in the training workshops with UWS pre-service teachers.

## VII. WHAT IS IT LIKE TO BE ON OLPC DEPLOYMENT?

For both Diana and Les, the experience at Yirrkala Community School showed for them how two cultures can come together to provide learning at a level that addressed the needs of students and community. The teachers and the students at the school were ready to embrace the XO laptops and in most cases were open to the new way of learning. The children showed a really great enthusiasm for the technology – openly asked questions and worked with the many adults who would enter their classroom during the week of deployment. It was enlightening to see the way teachers had used two languages in their teaching and how classroom learning was supported by resources that were developed by teachers at the school and utilised the local language and images to produce eBooks.

For Will and Karen the opportunity to support the Yirrkala community was a learning experience that strengthened their views of the value of cultural knowledge and how it should be used to shape school curriculum. Both Will and Karen could connect with the children, sharing aspects of their culture as it related to their own families and communities. The Aboriginal children and community were excited to learn about Will's and Karen's background. Karen, in particular found the Yirrkala experience extremely valuable to her personally because of the connections she was able to make with the children and some of the Aboriginal women she had met. Their acceptance of her Aboriginality despite the 'white-ness' of her skin made her realise the importance of preserving cultural identity. However, there was one question Karen posed in her reflection, How will access to technology impact on the cultural traditions of Indigenous people living in communities like Yirrkala? A very important question which still stands unanswered

## VIII. WHAT TEACHING RESOURCES WERE DEVELOPED?

Les and Will negotiated with Kaz, the Year 5-6 teacher to develop and teach a lesson focused on literacy using the XO laptop. The lesson drew on what the class was doing in the previous two weeks and supported the teaching of narrative, in particular the use of nouns, adjectives and verbs to describe a text about birds. In figure 1 shows two images from the classroom that framed the content of the lesson.



Figure 1. Classroom Images of the Year 5-6 Classroom

Drawing on these images, Les and Will constructed a sample of text that was saved as a file on each XO laptop. The sample text is illustrated in figure 2.

All the birds gathered on the dance floor, and the music began to play. There were chickens, ducks, and geese. There were swallows, seagulls and crows. There were cockatoos, owls, and emus. The yellow ducks waddled across the floor. The white cockatoo strutted and flapped their wings. The wise owl sat on the large chair and watched the other birds make fools of themselves. The black crow stumbled about the dance floor and fell over the other birds.

Figure 2. Sample text used in lesson on literacy

The lesson was implemented in Day 2 of the deployment. The Year 5-6 students found the lesson difficult because of their lack of experience in using the XO keyboard and the complexity of the task. In hindsight, Les felt he should focus only on the verbs in the sample text. As a result of Les's experience in teaching Year 5-6 and working with Will, he developed a workshop for UWS pre-service teachers in using the XO laptops in teaching literacy (see figure 3) and also clarified the role of the pre-service teachers in the deployment of XO laptops in remote areas of Australia (see figure 4).

- Use the **paint activity** to draw a picture or series of pictures to illustrate the main characters of your story
- Save each drawing as an image giving it a title and import into the **write activity**
- Write 2 or 3 sentences that sets the scene for your story and introduces your character(s)
- Identify key action words (verbs) used in your story and place in a table (2 column x 2-3 rows). In the second column give the meaning for each action word
- Show and tell – save your write activity on your USB stick as a .rtf file

Figure 3. Workshop in using the XO activities to teach literacy.

- Development of resources
- Address literacy and numeracy outcomes
- Charge XOs and ensure that each class can use XOs
- Liaise and collaborate with staff
- Maintain a reflective journal to write up experience
- Contribute to evaluation of the deployment

Figure 4. Role Expectation of the Pre-service Teachers by the UWS-OLPC team

During the Yirrkala deployment we were able to start planning for the next deployment at Yirrkala Homelands School, which would involve training the teaching staff of 8 or 9 small schools in homelands surrounding Yirrkala. Because of the nature of the homelands schools, we agreed to bring about a dozen pre-service teachers from UWS so we could send at least one person to each of the homelands.

During the post-deployment debriefs, we felt that although the deployment had gone quite well, we identified similar concerns to those raised after Jigalong about the sustainability of the program. As a consequence, we began exploring alternative training and deployment models that would be more sustainable and scalable. One of the key lessons OLPC Australia has learnt is the importance of fostering the development of local champions who will then be in a position to help support other school staff and community members. The new deployment model has a greater focus on building the capacity of local champions through a ten-unit online course, which will see school staff learning about the XOs before they are delivered, and then supported during and after the delivery. The online course allows the teachers to learn the essentials for using the XOs and at the same time to work together, forming a network of XO educators across the country. The emphasis will be on techniques they can use and re-use, which will be supported by a significant array of suitable Web-style content for teachers and students to draw in their teaching and learning.

The course will ensure participants are able to take a greater leadership role in all aspects of the deployment, thus ensuring the school and community are in a more sustainable position to manage the use of XOs as an effective learning platform. Each cohort of educators will commence the course with a two-day, face-to-face kick-off workshop with fellow participants and the course leaders, before they return home to work online. The new model will also be less disruptive to the schools and communities as there will be a greatly reduced need for OLPC Australia staff to be on-site, though on-site assessment of the program by qualified staff will still take place. Liddy Nevile assumed primary responsibility for developing the course content, which, along with the agenda for the two-day kick-off workshop, is constantly being refined and updated.

IX. YIRRKALA HOMELAND SCHOOL

The first attempt we had to trial the two-day kick-off workshop, albeit in modified form, was at the Yirrkala Homelands School deployment. The first two days of the weeklong deployment involved a pilot of the two-day kick-off workshop that all teachers and the UWS pre-service teachers undertook together. The UWS pre-service teachers then spent two days on-site at the various homelands communities, helping the teachers introduce the XO laptops to the children at the local school. The final day was spent wrapping up, answering questions, and reflecting on the past few day’s experiences. Throughout the Yirrkala Homelands School deployment, the pre-service teachers were supported by Colin Webb from UWS and Elisha Barrett, a new addition to the OLPC Australia team.

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In a conversation with Les and Phil, Colin described the experience with the announcement of his profound ignorance in a number of areas related to his time at Yirrkala:

“I knew nothing of the place (Nhulunbuy), I knew nothing about Aboriginal culture in Yirrkala, nothing about Homeland schools, nothing about the home teachers and the visiting teachers, nothing about the XO laptops!”

However, what Colin did observe was the children’s reaction to the XOs. The children felt initially uncomfortable about trying to open up the XO but found out by playing with it. The children’s interaction with the XOs was documented by video footage. Colin’s role was to support the 12 pre-service teachers and from this experience concluded that the service learning in Yirrkala Homeland schools made a huge impact on the UWS pre-service teachers.

One pre-service teacher stated that he was not sure about going into primary teaching but now wants to get into teaching. All pre-service teachers made strong statements in regards to the impact the experience had on them personally. A group of five pre-service teachers who participated in the deployment of XO laptops in Yirrkala homeland schools produced a short video that described and highlighted the impact the experience had on them.

During the 2-day training session with the Homeland teachers and pre-service teachers, Colin observed the moment of joy experienced by all when they saw the neighbourhood view, “40 people in the room all went wild”. This moment was shared by both the non-Indigenous and Indigenous groups in the room. The Speak and Camera activity really resonated with the teachers. The training days did not take advantage of where the teachers were in terms of their knowledge and experience teaching Aboriginal children. There was general consensus for teachers to explore a range of activities and not just focus on the programming aspects of Scratch. The Aboriginal children were having difficulty in finding letters on the XO and so what was needed required more attention to the literacy needs of the children.

The feedback from the pre-service teachers about their involvement in the XO deployment was overwhelmingly positive, and the teaching staff at Yirrkala Homelands School also enjoyed their time and contribution. However, the changes to the deployment and training model mean that OLPC Australia are no longer required to spend a week on-site at the schools to train the teachers and community members. As such, it has been necessary to adjust the way OLPC Australia work with the UWS pre-service teachers.

## X. OVERALL LEARNING

The experiences of the three deployments resulted in generating knowledge about how to best engage Indigenous children and introduce XO laptops to school communities in remote areas of Australia. It emphasised the importance of addressing cultural specificity and English literacy, aligning activities with the demands of curriculum, and drawing on the knowledge and skills of the teachers working in remote communities. It confirmed the value of such experiences and their profound impact on the professional journey of pre-service teachers and the educators themselves. For the pre-service teachers who were involved, they all were asked to write reflections of their learning – all about themselves and the community where they undertook their service learning project. These reflections demonstrated the huge impact such initiatives have on the professional decisions on career choice made by the pre-service teachers

In regards to using the XO laptops in the classroom, one conclusion comes loud and clear is the huge potential the interconnectivity function of the XO laptops has in the classroom. The children using the XO laptops really responded well to the connectivity and being able to transfer pictures taken or send messages from one XO to another. They enjoyed using the Speak activity of the XOs and the opportunity to communicate using their Indigenous language. From our observations, the ability to communicate in this way is a very powerful strategy for Aboriginal children to utilise in the classroom. It is about linking with what Aboriginal children know in terms of their culture and match it with a school curriculum that values

Aboriginal knowledge and the input of the elders of the community. In the three deployments, the communities exhibited a strong sense of cultural identity and a desire to foster greater communication between Indigenous and non-Indigenous people.

At all sites, the need to simplify the technical infrastructure provided that primarily supports communication between the XO's, allowing children to share activities and learn collaboratively, was identified. A networking solution was provided in all cases, but questions remain around the sustainability of on-going support and maintenance of this solution. Instead of attempting to provide a support and maintenance solution from the ground up, we are considering ways to utilise existing technical support arrangements in remote schools and communities, including negotiating support agreements with respective state/territory departments of education.

The results of this study shows that it is extremely important to negotiate the process with a range of stakeholders including the Indigenous communities involved, the teachers working in remote areas of Australia, OLPC Australia and academic staff and students from the University of Western Sydney. There is a need for flexibility to change and modify support based on a number of factors, which sometimes we don't have control.

## XI. RECOMMENDATIONS

Recommendations for pre-service teachers and university-based educators being involved in deployments have been developed to help support the realisation of OLPC Australia's mission statement of providing XO laptops to children and effective training to educators in remote areas, and at the same time support pre-service teachers undertake service learning projects during their teacher education program. The recommendations may be identified on three different levels– the organisational, academic and the social/emotional areas. Each has important skills and content that needs to be addressed to ensure the partnership is successful.

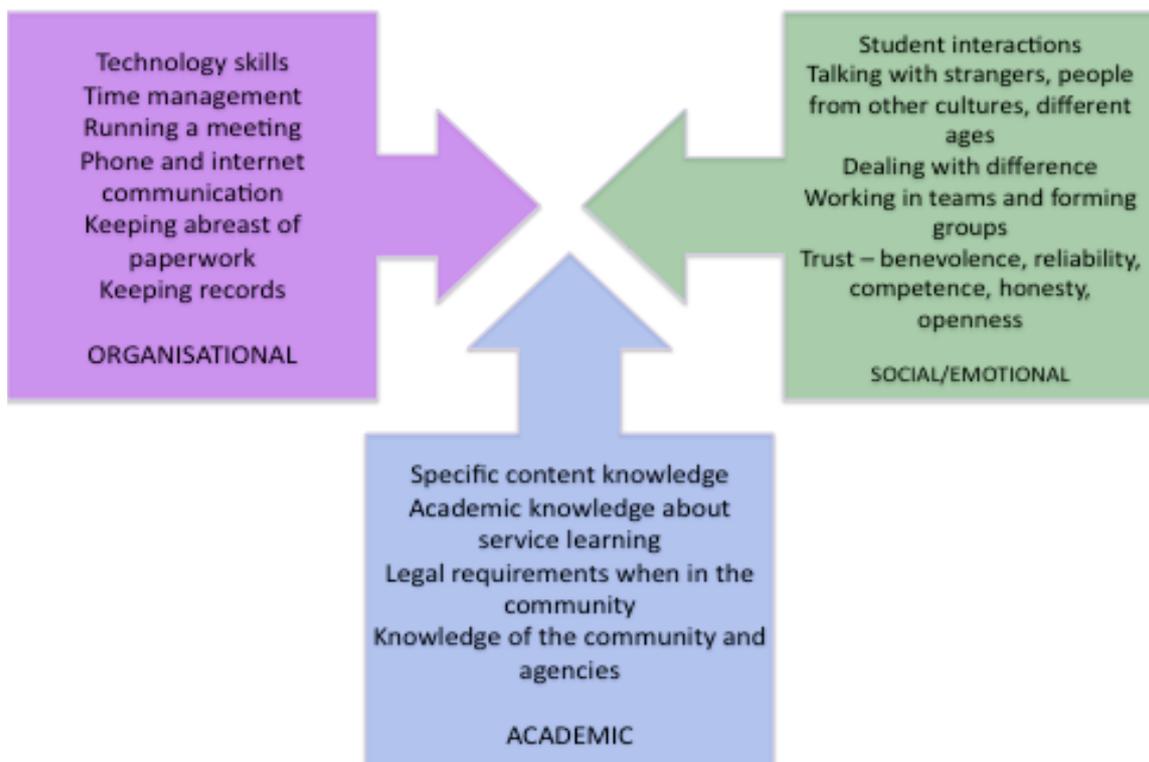


Figure 5. Skills for effective Service Learning Projects

The organisational strategies that need to be developed for the university students are the skills of technology skills with the XO, time management, communication skills, and working in a team. The academic skills relate to the specific content relating to the teaching and learning using the XO laptops, knowledge about service learning and knowing about the communities the students will be working in, the legal requirements including child protection and the prohibitive person's declaration. The third area that is often not considered in relation to university study but is an imperative in service learning that is the social/emotional skills which relate to understanding working in a community and the development of a reciprocal partnership between all the stakeholder – the students, the schools and OLPC; and, the interactions they have to undertake in the community need to be understood and developed.

From OLPC Australia's perspective, we recognise the benefits of working with pre-service teachers from universities around the country, especially in the longer term as they enter the workforce. However, we may have underestimated the cost and effort required to support investments of this nature. We are now considering a range of different approaches to ensure the program operates as effectively as possible given the recent changes to the deployment and training model and availability of resources. One of these may involve establishing a more formal internship program for pre-service teachers and other tertiary students based on similar initiatives in other parts of the world. In all cases, a clear understanding of the goals, roles and responsibilities of all stakeholders is required, along with the need to be flexible to adapt to changes in the circumstances, which are inevitable in the environments in which we operate.

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