

**Can open ICT4D shape future of rural education?  
Innovations in Sri Lanka Telecentres**

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## Abstract

Shilpa Sayura and 150 Nenasala Telecentres have enabled new forms of participation of rural youth in national education by creation of local language open learning environments in rural societies. This development catalyzing the power of ICT has addressed rural education problems in an innovative way demonstrating how ICT4D could be used to develop education in rural societies. This social education model providing an alternative way for enabling a more inclusive access to education in rural Sri Lanka is seen as an example of open ICT4D for shaping future societies.

This research studies open learning approaches used by four Telecentre case studies to enhance the understanding on new form of participation created by local language open learning to inspire a discussion on "Open learning at Telecentres" to suggest that "local language open learning at Telecentres is an effective rural development instrument to help shaping of the future rural societies in the developing world" as a replicable social educational model and emphasize future research and development in this area in the spirit of building capacity with international and developing world partners.

**Keywords:** open learning, open ICT4D, Shilpa Sayura, Nenasala, Telecentre/Telecenter, Learning Society, Knowledge Network, Knowledge society, rural communities, rural development, open development, social innovation and research

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## **1.0 Introduction**

Shilpa Sayura and 150 Nenasala Telecentres have enabled new forms of participation of rural youth in national education by creation of local language open learning environments in rural societies. This development catalyzing the power of ICT has addressed rural education problems in innovative way demonstrating how ICT4D could be used to develop education in rural societies and the impact of openness in the process.

### **1.1 Nenasala Telecentre Network**

Nenasala is the brand name of community owned 600 rural Telecentres network aimed to reduce digital divide, develop culture and commerce and promote community integration are setup by government under e Sri Lanka project in a 1000 Telecentres rollout plan. A Nenasala Telecentre is equipped with 3-4 computers, printer, webcam and a broadband internet connection are mainly four models (Table 1.0) and serves rural users with shared access to information and communication. The Uva province, which is the core area of this research (Fig. 1.0) has 60 Telecentres.

### **1.2 Shilpa Sayura Project**

Shilpa Sayura is a local language e learning project initiated by e fusion private ltd. with the partnership assistance of Information and communication Technology Agency (ICTA) under the e-Society Development Initiative (e-SDI). The vision of Shilpa Sayura is “to empower rural students with ICT based educational systems to improve self learning capacity while enhancing the Nenasala utilization through participative development”. (Shilpa Sayura –Localized Self and Group e-Learning System for Handicapped Students in Remote, Rural communities of Sri Lanka, Meegamma, N, 2006).

Shilpa Sayura consists of an e learning system covering junior secondary level national curriculum in local language. Shilpa Sayura pilot project implemented in 20 Nenasala centers in 2006 has been replicated in 150 Telecentres by 2009 (Fig. 2.0) serving over 9000 students. “In Sri Lanka the Shilpa Sayura project has provided content in local languages which is extensively used and appreciated. (Critical Issues for e-Learning Telecentres in Sri Lanka and India, Gaiani, S., Hansson, H., Meegamma, N., Mozelius. P., M-2009). The project has won several international ICT4D awards.

### 1.3 The general context of education in rural Sri Lanka

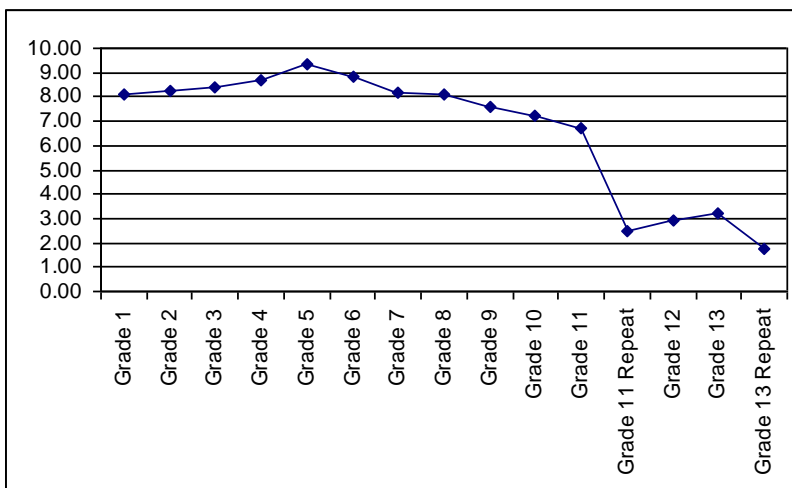
It is compulsory in Sri Lanka that all children attend school till age 14. The students who wish to pursue higher education must pass the General Certificate of Education (G.C.E) Ordinary Level (O/L) and study for another 2 years in G.C.E. Advanced Level (A/L) to sit for university entrance exams. The 9506 schools in rural Sri Lanka are maintained by the provincial government while 323 national schools are maintained by the central government.

The constitution of Sri Lanka states that "the complete eradication of illiteracy and assurance to all persons of the right to universal and equal access to education at all levels" (Article 27 (2) h) and the government since 1942 has been providing education free of charge. However comparing urban and rural societies one can observe that there are many disparities exist in access to education by rural societies.

#### 1.3.1 Education issues in rural Sri Lanka

Based on statistics of the Department of statistics, Sri Lanka in 2006, 9829 public schools, 561 Pirivena (Schools for Buddhist priests). And 80 private schools serve a total student population of 417921. Among 9829 public schools 7425 schools (75.5%) have less than 1000 students and 2735 schools (27.8%) has less than 500 students, hence 75.5% of the schools having equal or less than 1000 students are assumed as rural schools in this research (Table 2.0 and Table 3.0). The examination results in year 2006 (Table 4.0) shows that from 296358 candidates who sat for GCE (O/L) only 296358 (48.70%) were able to qualify for Advanced Level (A/L).

Early school drop-off is major growing problem as shown in following graph derived from national students distribution by grade statistics in 2002 (Table 5.0) The number of students in grades starts to decline after the primary secondary education and becomes sharp drop after G.C.E O/L examination.



## **2.0 Aim**

Aim of this research is to enhance the understanding on new form of participation created by local language open learning at Telecentres and intends to find answers to following research questions.

1. What constitutes open learning at Telecentres?
2. How open learning has been deployed for rural education development?
3. How open learning at Telecentres enabled new forms of participation, collaboration for rural education development?
4. What impact and changes were resulted from open learning?
5. What are the possible downsides and risks of expanding openness in the rural education development and how can we mitigate them?
6. Can open learning be used to shape future rural societies?

By answering above questions this paper hope to suggest that “local language open learning at Telecentres is an effective rural development instrument to help shaping of the future rural societies in the developing world” .

## **3.0 Methodology**

The methodology used in this paper is to be classified as case study research (Benbasat et al. 1987, Yin 1994). The information gathering process involved four open learning Telecentre case studies. The data collected through Telecentre visits, interviews, questioners and observations during 2008-2009. Telecentre managers were interviewed to find how they approached open learning and what new forms of participation resulted. A survey was conducted among 169 students of 6 Telecentres to study the change of created through open learning. Group discussions were held at Hingurukaduwa and Talakumbura Telecentres students and their parents to find out rural education issues. President of Shilpa Sayura Foundation, chief executive of e fusion private limited and content director of Shipa Sayura were interviewed to find out how openness was used in Shilpa Sayura project. Shilpa Sayura e learning system was studied to find out its technical and pedagogical approaches to facilitate openness in learning. Informal discussions held with teachers, parents and

community leaders and Telecentre & Shilpa Sayura M & E reports were studied to understand the implications of open learning at Telecentres.

### **3.1 Questionnaire responses from Telecentres**

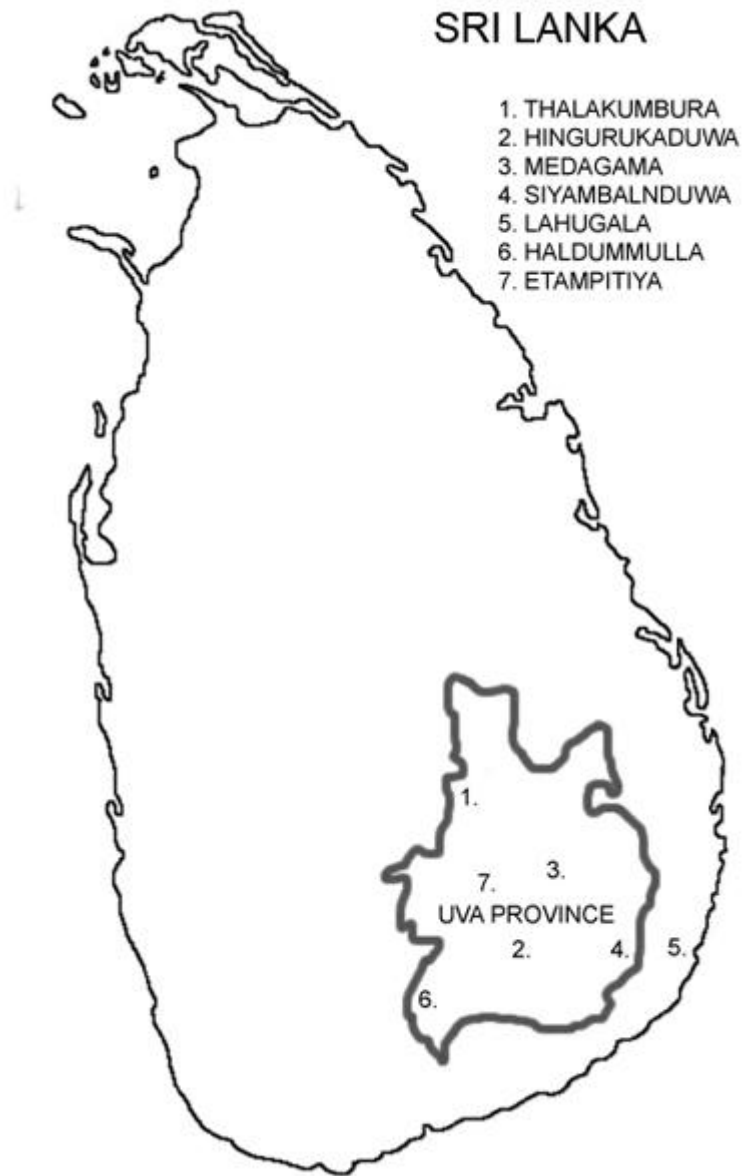
<b>Telecentre</b>	<b>Responses</b>	<b>Age</b>	<b>Gender</b>	<b>Language</b>
Talakumbura	22	10,13,15,19,13, 12,10,12,15,14, 14,15,14,16,16, 15,13,15,13,14, 15,15	Female: 5 Male: 17	Sinhala : 22
Hingurukaduwa	21	15,14,14,15,14, 13,14,17,12,12, 14,15,12,12,11, 13,13,14,13,11, 12	Female: 11 Male: 10	Sinhala : 21
Nagala	22	15,15,15,15,15, 15,15,15,15,15, 15,15,15,16,15, 16,15,15,15,15, 16,15	Female:17 Male: 5	Sinhala : 21
Siyambalanduwa	75	11,11,12,12,12, 12,11,12,11,11, 11,12,11,13,11, 13,12,12,12,12, 12,12,12,12,12, 12,12,11,11,11, 12,12,12,12,13, 13,13,13,13,13, 14,13,11,11,11, 12,12,11,12,12, 12,12,11,11,11, 13,12,13,13,13, 11,11,11,11,11, 11,11,11,11,11, 11,11,11,13,13	Female: 48 Male: 27	Sinhala : 75
Haldummulla	16	14,12,13,13,13, 11,13,13,13,13, 13,13,14,14,14, 13	Female : 5 Male : 12	Sinhala : 7 Tamil :9
Etampitiya	20	14,15,15,14,13, 11,9,14,15,14,1 1,13,15,12,14,1 4,12,14,15,14	Female : 13 Male : 7	Sinhala : 10 Tamil :10
Overall	Total : 176	Median : 13	Female : 99 Male :77	Sinhala: 157 Tamil:19

### 3.2 Case studies Information

	<b>Case</b>	<b>Data collection methods</b>	<b>Field studies by</b>	<b>Year</b>
1	Open learning at Telecentre changes lives of young priests  Talakumbura Telecentre	Interviews, Observations, Questionnaires	Niranjana Meegammana, Rasika Sampath, Keeriyagolle Dhammasara	2009
2	Open learning e village enables youth development  Hingurukaduwa Telecentre	Interviews, Observations, Questionnaires	Niranjana Meegammana, Rasika Sampath	2009
3	Telecentre empowers rural students with open learning  Madagama Telecentre	Interviews, Observations, Questionnaires	Niranjana Meegammana, Rasika Sampath	2009
4	Telecentre e School increases access to education  Siyambalanduwa Telecentre	Interviews, Observations, Questionnaires	Niranjana Meegammana, Rasika Sampath	2009



## Case study locations



The case studied Telecentres are located in rural villages in Uva province, Sri Lanka affected by high poverty. (Table 6.0)

## **4.0 Data & Analysis**

In this section the survey data and case studies presented, discussed and analyzed.

### **4.1 Responses for Interviews and discussions**

We interviewed 5 experienced Telecentre managers. The questioner respondents were young students learning at the Telecentres with median age of 13 and studying in grade 8. All managers specifically expressed that their areas having a disparity in inclusion of the national education.

A Telecentre manager stated that “Hingurukaduwa school lack trained teachers for ICT, English, Math, Science and even Art. As the transportation is very poor, teachers dislike working in our area. Students who can afford are moving out for education” (Interview 2.0). Another manager stated that “Math, Science and English are the weakest in our area. Due to the civil war many teachers transferred out of the area. We have a high failure rate in GCE O/L” (Interview 4.0). A Telecentre manager who is also a junior planning officer educational office, Madagama said “Madagama living conditions are very harsh, therefore teachers leave very quickly (Interview 3.0).” Another manager brought a new angle saying “During planting and harvesting times, students join agriculture work and miss many school days. They also can’t afford external tuition” (Interview 1.0). From the responses we found that there is an access to education and issue of getting good teachers to teach in rural areas, a social disparity influencing students to use open learning at Telecentres.

On the school drop off issue, Village headman of Thalakumbura said that “children who can afford a better school leave the village; children who stay tend to drop school early.” A female teacher from Haldummulla said that “many students fail G.C.E O/L examinations as our school doesn’t have adequate teachers for Science, Math and English”. She has been recruited as a primary teacher but made to teach Math, Science and ICT for grade 10 and 11. The teacher pupil ratio of Uva provincial schools to Uva national schools is 24.20 to 6.51. The national averages are 18.08 to 22.14 (Table 7.0). As the students per class are specified as 40, we think unavailability of teachers is a more of a deployment issue rather than non availability. The effects of this factor are clearly evident from Uva province G.C.E O/L examination results in year 2006 (Table 4.0). “Poor education facilities in Uva province has caused poor examination results increasing early school drop offs and unemployed youth” (E3 - Framework for Telecentre Network Sustainability Development, Meegamma, N., e-India 2009). This issue may have influenced the development of open learning in Telecentres.

We found no restriction on use of Telecentres with the gender, age or ethnicity. Evaluating of openness in access to open learning services we found 54% of the respondents being females as a sign of empowerment of rural women through ICT4D. 53% of the students in Haldummulla and Etampitiya Telecentres were from Tamil speaking community is a sign of communal harmony created by Telecentres. We observed that an adult female e learning agriculture in local language and another unemployed female is learning art from Shilpa Sayura for learning dress designing. All Telecentres are opening 7 days a week unless there is a special holiday. The log books showed that Talakumbura Telecentre is operating from 6.30

AM to 10.30 PM and students were learning over night at Hingurukaduwa Telecentre. "I learn both art and music which is not possible in school" said a student. He also has improved Math by studying lower grade content and gradually developing to higher grade using Shilpa Sayura. Telecentres enabling access without restrictions have enabled participation of rural communities in open learning is resulting from the openness in ICT4D.

The poverty in study area (Table 6.0) has not restricted access to learning by youth as subsidized and free services. Paying for learning is an innovative concept practiced by Hingurukaduwa Telecentre through a donor assisted scholarship program which provides a monthly micro allowance to students in addition to free use of Telecentre resources to encourage open learning. We observed that e agriculture programs are done in the night to educate the farmers who are unable to visit Telecentres in day time is a "Significant contribution of Telecentres for including the rural people in the knowledge economy both directly and indirectly" (Critical Issues for e-Learning Telecentres in Sri Lanka and India, Gaiani, S., Hansson, H., Meegamma, N., Mozelius, P., M-2009) Therefore local language open learning enabled by Telecentres are more open and enables increased participation in learning could be treated as an open development platform for shaping education in future rural societies.

A Telecentre manager pointed out a new need of unemployed youth. "Technical colleges are too far from village, if content is available unemployed youth can learn at the Telecentre, which confirms "the need of the hour is to find an alternative path to get a tertiary qualification; this could be done only through the use of distance mode. Today, Sri Lanka, at this given point in time, has to ensure a more efficient use of public resources to open more opportunities for higher education." (Warnapala, 2009, p 80) brings out a new angle on potential of open learning at Telecentres to provide vocational training in rural areas.

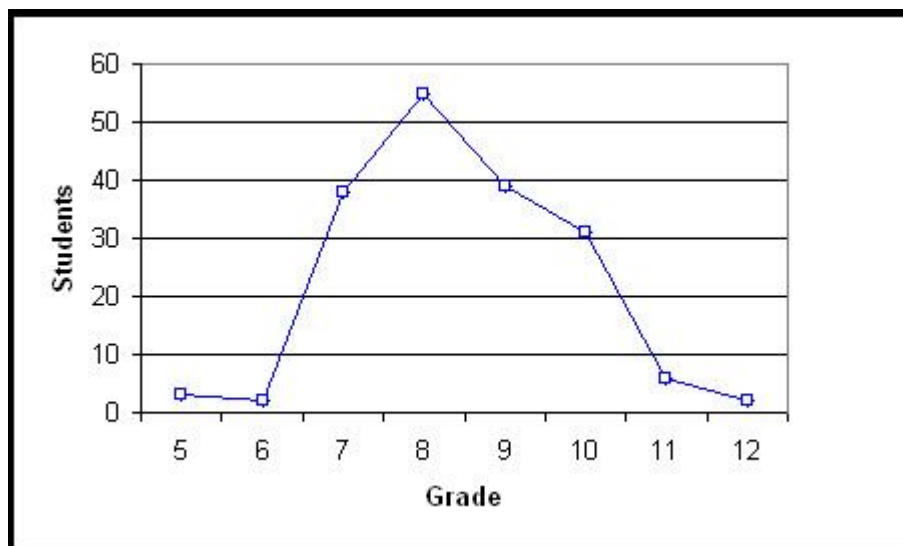
At the group discussions the parents valued the contribution of Telecentres and agreed that the "Telecentre is improving rural education". The expressions "My child has learn to speak in English", "My son is doing better in school now" and "my daughter aimed to be a computer teacher" reflect that open learning is enabling creation of new learning paths to careers not available to rural youth before. Hence "The Telecentre initiatives in Sri Lanka can be seen as a modern follow up to the successful Free Education Scheme introduced in 1944 in Sri Lanka" (Warnapala, 2009) which widens the learning opportunities of rural youth with the openness created by ICT4D.

Answering the question "How does your Telecentre approach rural education development?", and "What special activities of your Telecentre has brought to your community?", Telecentre managers described unique open learning deployment approaches used to develop education in their community which are presented in case studies of this paper.

## 4.2 Analysis of data from the questionnaire

The questionnaire for students (Form 1.0) consisted open questions on educational tools used, preference of educational tools, how often they are used, what they learn, how they learn including a comparison of Telecentre and school education. The questionnaire also asked about their achievements, obstacles and suggestions for improvements.

### Student distribution by grade in the survey (Table 8.0)



Students learn at the Telecentre at an average of 8.4 hours per month. The median of 8.0 hours seems significantly a lower than urban and developed societies. They learn as a group sharing 3-4 computers. Shilpa Sayura, Azeem Premji, ICT learning CDs and Google images as main educational tools used. MS Encarta was used by only 2.3% of the rural students and none of the 176 respondents used Wikipedia as an educational tool although it's widely popular on education circles. All 75 students in Siyambalanduwa stating English language as their main obstacle shows the importance of using local language to increase rural youth participation in open learning. 94% of Sinhala students choosing Shilpa Sayura and 95% of the Tamil students choosing Azeem Premji as their favorite educational tool prove that the local language is the preference for open learning at Telecentres.

Learning Method	Students	%	Median Age
Self Learning	15	8.5	14
Group Learning	43	24.4	11
Self and Group Learning	118	67.0	13

On the question of learning method, 67% stated they do self learning and well as group learning and had a median age of 13 which is equal to the median age of the survey. The 8.5% do only self learning, are having a median age of 14 while those who do group learning only had a median age of 11. We think that there is a hypothesis on self and group learning behavior in open learning at Telecentres which need to be researched at a larger scale to test whether how learning behavior

change with age as such a finding will help design of open learning instructions and pedagogies suit age based learning methods.

Math (67.6%), Science (62.5%), English (35.8%) were most learned subjects at the Telecentre and the students taking external tuition for Math (34%), Science (16%) and English (20%) shows that Math, Science and English are the most demanding subjects in rural education which is further confirmed with 63.18%, 57.37%, and 51.65% of the candidates failing Math, Science and English in G.C.E O/L examination in 2006 (Table 10.0). The young priests did not take external tuition yet they were able to pass examination doing self and group learning using from Shilpa Sayura. Hence we consider enabling self and group learning with local language creates increased opportunities for participation of rural youth in knowledge society.

All 169 students took part in the survey stated that “e content is better than text books is possible impact of open learning and confirms that future rural youth will prefer e content over text books. . We met students walking as far as 4 kilometers to Thalakumbura Telecentre showing increased interest learning at the Telecentre. The students stated self learning (29%), and extra learning (18%) (Table 11.0) as the main differences of Telecentres, further they appreciated Telecentre for “e learning”, “easy learning”, “extra learning”, “further learning”, “more information than school”, “learning subjects not available in school”, “self learning”, “advanced learning”, “practical learning”, “learning on internet”, “using computers to learn” as advantages and described the positive experiences as “Interesting”, “easy” and “enjoyable” confirms that open learning at Telecentres enables new forms of participation in education for rural youth.

Students appreciated the ability of repeat studying to improve the weak areas and support school work hence we think that open learning at Telecentres is not competing but complementing the school education. Thalakumbura students saying “Telecentre was open when ever we wanted to learn” shows increased openness of Telecentre compared to government school in empowering learners which is resulting from enabling of open access to knowledge and serving of the different needs of the rural learners providing alternative ways to increase inclusion in universal education.

Responding to question on their achievements of using Telecentres students stated that improving weak subjects (39.8%), using computers to learn (22.2%), learning ICT (6.3% (Table 12.0) as main achievements. Two students winning young computer scientist award, two female students becoming a runner-up in a national e design competition and winning provincial software development competition are seen as significant achievements in the rural context.

Responding to question on obstacles and improvements students stated knowledge of English, unavailability of Tamil & Pirivena curriculum as their obstacles. The improvements suggested by students were adding more pictures, sounds & videos, extra subjects, advancing content, Including Tamil & Pirivena curriculum and increasing of learning time shows their keenness in engaging in open learning more at the Telecentres in future.

### ***4.3 Open learning at Telecentre changes lives of young priests***

Thalakumbura Telecentre situated in a temple is equipped with three computers and volunteers help facilitating of e learning for 103 rural students by opening the Telecentre from 6.30 AM to 10.30 PM. Five young priests who studied in Lunugalle Pirivena could not sit for G.C.E O/L examination as their religious curriculum did not cover national curriculum which deprived their chances to enter senior secondary level leading to higher education. The five young priests self learning using Shilpa Sayura local language e learning resource at the Telecentre, were able pass G.C.E O/L national examination which enabled them to enter the path of higher education. “We prepared for the examination learning from Shilpa Sayura” said a young priest providing strong evidence on the change of performance through open learning.

“After the success of 5 priests, now more young priests are using Shilpa Sayura” said the head priest of Thalakumbura temple providing an evidence of how open learning enabled participation of isolated rural youth in national education. The young male priests who participated in the survey were a special group with a different life style and objectives but shared Telecentre equally and took part in open learning as a single group with others is enabling of new form of participation in education of rural communities.

#### **Impact of open learning at Telecentre**

Shilpa Sayura and Telecentre combination created an open learning environment enabling five young priests in national education which helped them to pass G.C.E. O/L examination which improved their lives with the new opportunity created to enter advance education leading to higher education. Talakumbura Telecentre which was non-operational before Shilpa Sayura was implemented (M & E Reports, e fusion pvt, 2008) became sustainable and a useful education resource for in their community.

#### **Challenges**

Open learning at Telecentres requires enhanced content and technical support. Students needing increased learning time create infrastructure challenges. Rural

communities although benefitted, are challenged with sustaining their Telecentres with the free services model.

### **Lessons Learned**

Shilpa Sayura is a useful local language open learning resource to improve rural youth education. Open learning at Telecentres can help increasing of the rural youth participation in national education. Openness in ICT4D can help serving of deep social needs of isolated communities like five young priests of Thalakumbura.

#### ***4.4 Open learning e village enables youth development***

Hingurukaduwa is an isolated village facing education issues due to poor transport, communication and energy problems. “The education opportunities for our youth are very limited due to isolation” said Telecentre manager who started Hingurukaduwa Telecentre with a used computer donated by a well wisher in 2002. Their vision was to teach ICT and English to the village youth for creating an alternative path for their career development. They enabled e learning at homes using Shilpa Sayura and donated computers. Each computer was shared by group of 5-6 students. The Telecentre conducted ICT & English for students on week ends. Hingurukaduwa Telecentre changed the model of students visiting the Telecentre by enabling open learning at homes to increase access to national education creating impact on students living far from the Telecentre. The 20 open learning groups are technical supported by youth who were first benefitted which enabled participation of the beneficiaries in the development. A female student in grade 10 said “with Shilpa Sayura at home, I was able to improve my standing in the school tests”. At the group discussion the parents appreciated “learning enabled at homes” and stated “children are improving in school performance”. Computers and education services for students provided free of charge and a micro scholarship program implemented with donor assistance to encourage students to pursue ICT education. The Telecentre has expanded to two more villages recently to replicate their experiences of open learning.

The Telecentre has helped youth to develop ICT careers. A good example is case of a youth who could not study Science subjects in advanced level as they were not taught in village school. Telecentre created him an alternative path with open learning. “While volunteering at the Telecentre, I used Shilpa Sayura to learn English and ICT” he said. After studying Art subjects in advanced level, a Telecentre scholarship helped him to study java programming and join Shilpa Sayura developer team and he plans to enroll in a bachelor’s degree in ICT. Two Telecentre youth winning National Young Computer Scientist award in 2007 seen as remarkable achievement enabled by open learning in a rural setting and they hope to become ICT professionals following an open learning path through Telecentre.

Hingurukaduwa e village approached rural education development in a more open manner addressing local needs to increase participation of youth live far from Telecentre. They used volunteering effectively to support open learning process. The

facilitation of group learning at homes helped empowering of rural youth with education and the micro scholarship program encouraged the rural youth to learn ICT and English for developing of future careers to increase their employment prospects.

### **Impact**

Hingurukaduwa Telecentre by taking local language open learning to village homes created a new form of participation in national education by rural youth which helped improving their education and developing alternative paths for career development through ICT.

### **Challenges**

Increased demand has created a challenge for expansion of Hingurukaduwa e village hence the running a totally free services model is a challenge even with donor assistance.

### **Lessons learned**

implementing group learning at homes creates a new form of participation.

Hingurukaduwa mode can be replicated in large scale to improve rural education using ICT. Open learning can help rural youth to find alternative paths for career development. The Telecentre manager demonstrates that social entrepreneurship is an important element in rural development with ICT.

## ***4.5 Telecentre empowers rural students with open learning***

Madagama is one of the highest poverty locations belonging to Bibile education division of Uva province, recorded only 34.08% pass rate in G.C.E O/L compared to national average of 51.3% in 2006 which provides a clear evidence on status of poor education in the area. Although ICT was introduced as a subject in G.C.E O/L examination in 2006, local school was not able teach ICT due to unavailability of a well trained ICT teacher. The G.C.E O/L ICT curriculum is a two year study in covering theory and practice in programming, number systems, logic gates, computer hardware, networking, computer security, internet, web designing, flash and ICT & society including office applications. The teacher in charge of ICT in school said, "Currently I am teaching only office applications to students" stating the knowledge constraint faced by teachers to teach ICT curriculum. ICT is considered as an important subject by students evident from a student who said "I am learning ICT for future employment" seems a good reason that influence students to take ICT as a subject for G.C.E O/L examination even in a highly constrained educational environment.



The manager of Nagala Telecentre situated 20 km away decided to address Madagama ICT education problem with open learning used at Nagala Telecentre. "Shilpa Sayura has all the content needed to teach O/L ICT", he said. He started a Telecentre at Madagama bringing one of the three computers from Nagala Telecentre and partnered with an unemployed youth to share his personal computer with the Telecentre also creating an employment opportunity. After an awareness session conducted in local school over 50 students and several teachers joined the Telecentre to learn ICT on G.C.E O/L curriculum. The Telecentre teaching ICT in local language increased participation of students and gradually developed them to learn ICT in English.

In August 2009 the first group of students of the Telecentre took ICT subject in mid term test, improved their performance and 11 students passed ICT subject in GCE O/L examination in December 2009. One of the students said "We could learn ICT because of the Telecentre." The Telecentre by facilitating open learning at the Telecentre enabled new form of participation in national education through open learning at the Telecentre is an example of importance of openness in rural education development.

The learning methods and approaches deployed by Madagama Telecentre were blended with self and group learning, class room teaching and instructor guided learning. Group sessions were held at Telecentre to discuss and solve problems which helped students to learn from each other. The Telecenter manager said "There was no need to give notes, students self learned at their pace and in their own time using Shilpa Sayura". Telecentre trained local teachers in ICT free of charge and provided study materials to use in the school. "Telecentre created learning opportunities for students that were not available before" said principal of the local school. This development enabled by openness in ICT4D is an example of potential of Telecentres to increase participation of rural youth in education and shows that collaborative partnerships made with local schools can complement national education and increase Telecentre sustainability.

### **Open learning Impact**

The students of Telecentre improved performance in ICT subject in school and 11 students passing ICT subject in G.C.E O/L examination is resulting from open development enabled by ICT. The Telecentre collaborating with local school increased learning opportunities which complemented national education by developing of local teachers to teach ICT.

### **Challenges**

Students stating the need for learning ICT in local language seems a general need of rural societies creates challenge in developing content with local language ICT terms as it requires wider community participation for acceptance of terms used.

### **Lessons Learned**

Open learning at Telecentres can help create new forms of participation by rural youth in national education. The collaboration of Telecentres and local schools can complement each other in rural education development. The social entrepreneurship of Telecentre manager is a significant enabling factor in the change resulted in rural youth. This experience can possibly be replicated island wide Telecentres to enable teaching of ICT for national curriculum with open learning addressing lack of ICT knowledge in rural communities.

#### ***4.6 Telecentre e School increases access to education***

Siyambalanduwa is one of the highest poverty areas in Uva province. The education constraints are reflected from 63.16% of the candidates in the district failing G.C.E O/L examination in 2006. "Failing O/L exam is a burning issue in our community" said the head priest of the Temple. The Telecentre started in 2006 was closed down due to lack of community participation and re-opened in June 2008 with the introduction of Shilpa Sayura e learning. The Telecentre facilitating open learning for Math, Science and ICT created new learning opportunities for the village youth. "I have improved my Math using Shilpa Sayura" said a girl learning at the Telecentre. Among 102 students learning at Siyambalanduwa Telecentre 80 students (78.4%) passed G.C.E O/L in 2008, which is a significantly a higher rate than 36.84% pass rate recorded in the district is seen as a change of performance resulted from open learning at Telecentre.

Learning English was constrained in the area due to non availability of English teachers. Telecentre obtained the service of a volunteer located 250km away in Colombo to teach English using Skype. "Learning on Skype helped me speaking English", Telecentre manager said. Taking this experience further the Telecentre started conducting online Math and Science lessons to an isolated group of students in Lahugala Telecentre 20km away. The collaborative partnership between two Telecentres helped the isolated youth group to improve their knowledge and pass G.C.E O/L examinations and created revenue to Telecentres increasing their sustainability. This case provides an example of open learning in increasing of participation in national education. The open learning approaches deployed by Telecentre are blended with self and group learning, class room teaching and distance learning using of local language e content at the Telecentre.

## **Open learning Impact**

Siyambalanduwa Telecentre has become sustainable with open learning introduced by Shilpa Sayura which transformed the Telecentre to a form of e school increasing participation of rural youth in education. The learning on Skype has connected distance communities for knowledge sharing enabling a new form of participation enabled by ICT. The new learning participation opportunities created by Telecentre helped improving of the education of isolated rural youth.

## **Challenges**

Knowledge of English was stated as a barrier in using internet by respondents learning at the Telecentre. The infrastructure limitations restrict the participation of more youth needing open learning service.

## **Lessons learned**

Shilpa Sayura can be used to help improve the sustainability of Telecentres. Local language open learning help increasing of participation of rural youth in national education. Collaborative partnerships made between Telecentres can open new possibilities to increase inclusion of excluded communities in education development and provides innovative solution problem of lack of teachers. In this development the role played by committed individuals increases the impact of open development.

## **5.0 Discussion**

### **5.1 Openness in rural Telecentres**

As demonstrated in four case studies, Telecentres by creating open learning environments with local language educational resources enables access to national education by youth without gender, age, ethnicity and economic restrictions provides a new way for participation in education seems a result of openness in ICT4D. The free and subsidized access to learning services and micro scholarships has encourages rural youth to engage in learning despite their economic conditions. A young priest saying "Telecenter was open when ever we wanted to learn" is a self expression of openness experienced at the Telecentre. The responses to survey question on difference of Telecentre to school clearly shows that Telecentre is more open and inclusive in rural education development.

### **5.2 Content and technologies for open learning**

Shilpa Sayura e learning system embedded with over 8000 local language lessons for learning 12 subjects for national curriculum enables creation of open learning environments in Telecentres to increase rural youth participation in national education. The concept of hosting the system in the local network allowing local

adaptation is a result of openness in technical design to increase participation which has helped taking education to village homes in Hingurukaduwa. The national curriculum based lessons and self testing questions has helped students for exam preparations and the facilities for shared home work creation, content bookmarking seem to engage learners in continues learning activity. The lessons ranging from simple to advance knowledge opens learning to beginners. The 200,000 Sinhala – Tamil, and English dictionary facility helps searching of Google.com with local language keywords has opened access to widely available English content by local language users. The Indigenous content in Shilpa Sayura is licensed on public domain and lessons provided on creative commons licensing increases the re-use and sharing. Students stating that “e content is better than text books” seems to be a result of openness of content and “technology can facilitate learning by providing real world contexts that engage learners in solving complex problems (Duffy & Cunningham, 1996; Honebein, 1996; & Cognition and e Technology Group at Vanderbilt, 1992). The teacher participation in Shilpa Sayura evident in design of curriculum, content authoring and review process. A teacher singing a “Hindustani Raga” for students to practice with her and training on web designing by a virtual tutor are examples of virtual teacher concept which enhances participation by best teachers in rural education development. Teaching Math, Science and English from distance on skype also enhances education participation using “ICTs may be of use to enhance education of the poor. Informal education, developing functional skills, matters as much if not more than formal education” (Towards Universal Primary Education, special issue of Mainstreaming ICTs, OWSA, Vol. I/no. 2, 2004). The content and technology strategies of the case studies are creating new modes of rural youth participation in education are significant impact using ICT.

### ***5.3 Local language impact on rural education***

Use of local language content and technologies has been the key approach of open learning deployed by Telecentres. The students choosing local language educational tools as their favorite, proves that the local language is the preference of rural youth for learning. It's a challenge developing local language technologies and content with pace of changing knowledge. We observed that adult communities are using local language content in Agriculture and Art at Telecentres. Hence local language content at Telecentres can be seen as an important strategy to make isolated rural societies participate in knowledge society. Local language ICT also can enable rural society's participation in global concerns like sustainable agriculture, renewable

energy and democracy. Hence we suggest local language open learning to be considered as an open development platform for participation for shaping future rural societies.

#### ***5.4 Self and group open learning***

As found in the survey, self and group learning has been the main open learning approach "in which individuals take the initiative, with or without the help of others, in diagnosing their learning needs, formulating learning goals, identifying human and material resources for learning, choosing and implementing appropriate learning strategies, and evaluating learning outcomes." (Knowles 1975: 18) where each individual takes the responsibility of own learning is enabling new form of participation in knowledge society. Telecentres by engaging students in a self and group learning provides an alternative means of education addressing constrained rural education. This process modifying the learning behaviors of rural youth enables learning on a self determined time and space with content and pedagogies designed specifically with "learner-centered strategies" (The Design of Effective ICT-Supported Learning Activities: Exemplary Models, Changing Requirements, and New Possibilities, Cameron Richards, 2005). Math practice using interactive java and flash animations are best examples for self learning pedagogies. The collaborative group learning concept is pro-active and complements reactive learning in a classroom. The self testing and feedback pedagogies use concepts of "drill and practice often used in some gaming techniques for encouraging participation and motivation" (The evolution of ICT-based learning environments: which perspectives for the school of the future?, Rosa Maria Bottino) enhances effect of self and group learning. Self and group learning in a social environment could be quite informal where observing others, trial-and-error, and group activities can help creation of new knowledge among group. Hence the self and group open learning as shown in case studies increases freedom for self-determination and learner independency in participation of education is resulting from openness of ICT4D initiating such processes.

#### ***5.5 e Content for increasing education participation***

Students stating "e content is better than the text books" is positive response encouraging e content development which also challenge ensuring of author rights, anti plagiarism and authenticity which are possible issues in electronic form that can be easily modified, shared and distributed. In this context Cape Town open Education Declaration, 2008 stating that "everyone should have the freedom to use, customize, improve and redistribute educational resources without constraint" although a worthy of consideration, the local regulations, individual beliefs, user needs and economic reasons can possibly restrict true implementation of open content concepts in e content. The openness in e content is also dependent of purpose it is used and by whom and how it was developed as "The existing configuration of property regimes and organizational forms that produce, disseminate and maintain certain goods are essential components of the social environment that determine the relative openness of a particular good". (Open ICT4D, 2009). Therefore open development does not seem to enforce extreme openness in e

content which possibly restricts authenticity, creative rights and entrepreneurship. However in terms of mass scale replication of education development can significantly benefit from open content.

### ***5.6 Partnerships in open development***

As demonstrated in four case studies collaborative partnerships lead to “more positive social outcomes” (Open ICT4D, 2009) in human development. The development has involved a process of software & content development, review, implementation, support and capacity building, learning deployment and evaluation with collaborative participation of professionals, teachers, and Telecentre managers to “achieve the developmental goals of poverty alleviation” (open ICT4D, 2009). Shilpa Sayura and Telecentre initiatives well bridged with ICT expertise of Shilpa Sayura and access to rural communities by Telecentre which helped creating values for each other and a shared vision. Shilpa Sayura Foundation the ownership shared entity formed by project participants made development more open and participatory due to the “fundamental changes to organizational processes and structures” (Open ICT4D, 2009) increasing of sustainability of the development. The winning of Singapore Lien I3 Challenge by Shilpa Sayura Foundation is an example.

### ***5.7 Social entrepreneurship for open development***

It is evident from all four case studies that the roles played by the social entrepreneurs have made a significant impact on development and the inspiration for leadership seems to have emerged from the openness to adapt development addressing specific needs of their community. Therefore we think that social entrepreneurship as an essential element in making open development a success.

### ***5.8 Challenges and opportunities in open learning***

Local language open learning for rural communities is challenged with ever increasing and changing user needs resulting from changes in the national curriculum requiring continuous review and updating. The self and group learning requires continues enhancing of instructions and pedagogies in content and maintaining local support structures for re-deployment of updates. As stated in the survey students needing more learning time requires upgrading of infrastructure. The donor assisted development model requires consideration of revenue generation for sustainability, however generating revenue from low income rural societies is a challenge.

From the case studies we see that local language open learning at Telecentres as an emerging branch of open education and a unique social educational development model which can enable new opportunities for rural youth to participate in national education. This model can be further enlarged by adding content needed for adult communities especially on the areas of sustainable agriculture, community health,

women empowerment, environmental conservation and economic development of rural societies. As expressed by Telecentre managers youth vocational training is potential area for development for increasing career development prospects. Hence open learning experiences of rural development can be scaled up and replicated in large scale for making a real difference in education in rural societies.

### **5.9 Openness and ICT4D for Innovation**

Openness is a philosophy which describes way of doing things. The term “open” has been used in ICT to differentiate the ownership and sharing of technology and content. The open source and open content explicitly allows copying and modifying by anyone. Open ICT4D relating to the context of human development is more meaningful with the inclusion and participation opportunities created for rural societies by openness. Future ICT4D can be considered as a platform for rural development which “designs around the specific resources, capacities and demands of the poor... as the platform for development” (ICT4D 2.0, Richard Heeks, 2009) where the innovation shall emerge from practical application of development ideas.

Peter F. Drucker defines Innovation as "change which creates a new dimension of performance." evident from open learning case studies which created the change and performance improvement of rural youth in a new dimension where strategy, skills, values, systems and structure collectively and openly influenced the development process. Hence we think openness in ICT4D can create new perspectives of technology and processes for innovating new forms of participation to address education issues in shaping future rural societies.

### **5.10 Scale of openness in ICT4D**

“Openness is not a binary concept; it is scalar” writes Open CT4D, 2009. The scale of openness in ICT4D helps ensuring of transparency which leverages early identification of “gaps in design and reality to make iterative changes in a flexible manner” (ICT4D 2.0, Heeks, 2009) in open development to improve the impact.

The operating platform choice of Shilpa Sayura has been influenced by Microsoft Windows used by all Telecentres and satisfactory Unicode support for local languages. The economic arrangements with authors, developers and teachers has influenced the openness in content which agrees with the argument "given different developmental contexts and that there will undoubtedly be trade-offs between competing interests and values" (Open ICT4D, 2009). Therefore we think the scale of openness in ICT4D is dependent of following operating parameters and their variations.

	Parameters	Variations
1	Ownership	Public, Private , Non Profit, Community
2	Partnerships	Public – Private - Community Public - Non Profit - Community

		Public - Community Non Profit - Community Private - Community Community – Community Non Profit - Non Profit
3	Technology	Proprietary, Open, Mixed
4	Sharing	Public Domain, GNU GPL, Creative Commons, Open Content, Restricted
5	Legal	Privacy, Confidentiality, Security
6	Resources	Time, Cost, Existing Systems

The scale of openness of the process is dependent on the ownership and partnerships while technology choices are to be made to simplify the implementation, bringing convenience to users, making operational and maintenance ease where cost effectiveness possibly causing compromising of the openness..

### **5.11 Risks of openness in ICT4D**

increased openness in content although enables sharing and re-use of content possibly loose the authenticity and intellectual rights on the way; hence the process of content creation needs to review for such concerns. Openness in Telecentre makes some students to deviate from school education due to increased gaming and participation in social networks and access to explicit content in an open environment creates local cultural issues. Hence local restrictions on openness may be made at Telecentres for social and cultural reasons.

Openness creates different perfectives on development due to diverse socio-cultural, economic and political backgrounds of participants and some times restrict creation of a common agenda and priorities for development. Enabling increased openness in participation leads to conflicts as “the decision to adopt the participation strategy is that it threatens existing hierarchies. (Scale-up, Presentation at the GKP South Asia Regional Meeting: Wijayananda, J., 2004). Hence require creating awareness of the development objectives and agreements of strategies by participants.

## **6.0 Conclusions**

Local Language educational content helps creation of open learning environments in Telecentres for enabling new forms of participation in education by isolated rural youth resulting improvement of rural education and performances in national examinations by rural youth.

Local language e content shall be the preference of future rural youth; hence



increasing of efforts in local language content development can help improve rural education for transforming of developing world.

Openness helps increasing of participation enabling creation of new forms of collaborative partnerships for rural development where ownership sharing by participating community is seen as a means of increasing sustainability.

Increased openness in development may result possible local issues in diverse socio-cultural, economic and political environments which can mitigate with local adaptation of openness which may possibly include some restrictions made on local socio-cultural needs.

Local language open learning at Telecentres is seen as an emerging social education model which can be developed as an effective rural development instrument replicable at large scale for shaping future rural societies. Hence further research and development is emphasized in the spirit of building capacity with international and developing world partners.

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**Table 1.0**

No	Model	Owned by	Percentage
1	Temple	Chief priest of the village temple	47%
2	Community Based Organization	Organization officials	18%
3	Non Profit Organization	Organization officials	15%
4	Private	Private individuals	20%

Source: Needs assessment report, e fusion pvt ltd, 2008

**Table 2.0**

### Schools and Student Distribution in Sri Lanka

Number of Students	Schools
1-5	1363
51-100	1338
101-200	1989
201-500	2735
501-1000	1429
1001-1500	506
1501-2000	206
2001-2500	114
2501-3000	72
3001-3500	30
Above 3500	47

9829

Source: Statistics Department Sri Lanka

**Table 3.0**

### Provincial Schools Distribution 2006

Province	Schools
Uva	829
Western	1393
Southern	1151
Northern	368
Eastern	937
North Western	1250
Noth Central	783
Central	1483
Sabaragamuwa	1135

Source: Statistics Department Sri Lanka

**Table 4.0**

## Uva province G.C.E O/L examination results 2006

Education Division	Sat	Qualified for A/L	Percentage qualified	Failed in all subjects %
Badulla	3558	1662	46.71	8.97
Bandarawela	2938	1542	52.48	5.57
Mahiyanganaya	1903	702	36.89	15.16
Welimada	2416	989	40.94	9.39
Passara	1007	350	34.76	9.42
Monaragala	2207	813	36.84	17.19
Wellawaya	3149	1170	37.15	17.15
Bibile	1611	549	34.08	16.07
Total	18789	7777	39.98	12.36

Source: Statistics Department Sri Lanka

**Table 5.0**

### National Student Distribution by Grades in 2002

2002 Students in grades		
Grade	Students	Percentage
Grade 1	326915	8.12
Grade 2	333077	8.27
Grade 3	337816	8.39
Grade 4	350433	8.70
Grade 5	376052	9.34
Grade 6	355310	8.82
Grade 7	328778	8.16
Grade 8	327599	8.13
Grade 9	306548	7.61
Grade 10	291643	7.24
Grade 11	270083	6.71
Grade 11 Repeat	99562	2.47
Grade 12	118400	2.94
Grade 13	128957	3.20
Grade 13 Repeat	71181	1.77
Special Education	4721	0.12
	4027075	

Source: Statistics Department Sri Lanka

**Table 6.0**

### Poverty head count ratio of Sri Lanka and Uva Province

	1990/91	1995/96	2002	2006/07
Sri Lanka	26.1	28.8	22.7	15.2

Uva province                      31.9            46.7            37.2            27

Source : Statistics Department of Sri Lanka

**Table 7.0**  
**Teacher and student ratio of Sri Lanka and Uva Province**

<b>Sri Lanka</b>	Schools	Students	Teachers	Ratio
National schools	323	505347	27953	18.08
Provincial schools	9506	3521728	159046	22.14
<b>Uva Province</b>				
National schools	36	15365	2360	6.51
Provincial schools	793	288713	11929	24.20

Source : Statistics Department of Sri Lanka

The Uva province poverty head count and teacher & student ratios are well below national averages.

**Table 8.0**  
**Students distribution by Grade in the Survey**

<b>Grade</b>	<b>Students</b>
5	3
6	2
7	38
8	55
9	39
10	31
11	6
12	2

**Table 9.0**  
**Subjects learnt by students**

<b>Subject</b>	<b>Students</b>	<b>%</b>
Math	119	67.6
Science	110	62.5
English	63	35.8
History	37	21.0
ICT	32	18.2
Music	17	9.7
Dancing	15	8.5
Tamil	13	7.4
Photography	12	6.8
Sinhala	11	6.3
Agriculture	4	2.3
ALL	2	1.1
Buddhist Culture	1	0.6

**Table 10.0**

**2006 Examination Results by Subject**

No	Subject	Sat	Passed %	Failed No	Failed %	failed %
31	English Language	258975	36.82	95355	163620	63.18
32	Mathematics	259265	42.63	110525	148740	57.37
34	Science & Technology	258948	48.35	125201	133747	51.65
43	Social Studies & History	259096	75.48	195566	63530	24.52
51	Art	109763	54.45	59766	49997	45.55
21	Sinhala Language & Lit.	210198	79.19	166456	43742	20.81
11	Buddhism	193585	82.25	159224	34361	17.75
70	History	72905	56.62	41279	31626	43.38
71	Geography	73383	60.64	44499	28884	39.36
78	Agriculture	96671	73.49	71044	25627	26.51
47	Sinhala Literature	62064	62.79	38970	23094	37.21
54	Music(S)	50158	63.56	31880	18278	36.44
73	Health & Phy. Education	182403	91.13	166224	16179	8.87
81	Business Accounting	78882	81.44	64242	14640	18.56
98	Home Economics	54173	73.44	39785	14388	26.56
48	Tamil Literature	31140	57.15	17797	13343	42.85
52	Dancing(S)	52091	83.07	43272	8819	16.93
22	Tamil Language & Lit.	49748	83.4	41490	8258	16.6
64	Sec. Language(S)	12274	47.7	5855	6419	52.3
72	Development Studies	38484	87.8	33789	4695	12.2
46	English Literature	16082	71.2	11450	4632	28.8
55	Music (C)	11258	66.5	7487	3771	33.5
12	Saivism	26685	86.03	22957	3728	13.97
16	Islam	20239	86.19	17444	2795	13.81
97	Ele. tech.	5410	70.94	3838	1572	29.06
95	Mechanical Technology	5071	72.55	3679	1392	27.45
90	Construction Tech.	6131	81.63	5005	1126	18.37
65	Sec. Language(T)	2152	48.98	1054	1098	51.02
79	Horticulture	6479	83.39	5403	1076	16.61
96	Arts & Crafts	3564	77.97	2779	785	22.03
14	Catholicism	16561	95.95	15890	671	4.05
57	Drama & Theatre	12193	94.8	11559	634	5.2
53	Dancing (B)	2452	78.71	1930	522	21.29
63	Arabic	754	63.53	479	275	36.47
15	Christianity	2465	91.32	2251	214	8.68

76	Japanese	381	45.41	173	208	54.59
56	Music (Western)	2064	90.6	1870	194	9.4
68	French	296	46.96	139	157	53.04
92	Shorthand & Typing (S)	192	42.19	81	111	57.81
88	Marine Bio Res &Tech.	620	88.23	547	73	11.77
35	Construction Tech.	308	77.6	239	69	22.4
36	Electrical & Elec. Tech.	122	65.57	80	42	34.43
40	Food & Dress Designing	383	89.56	343	40	10.44
38	Home Garden. Tech.	391	90.54	354	37	9.46
61	Pali	146	80.14	117	29	19.86
49	Arabic Literature	132	81.06	107	25	18.94
62	Sanskrit	55	58.18	32	23	41.82
77	German	27	37.04	10	17	62.96
89	Food Science & Tech.	130	88.46	115	15	11.54
37	Mechanical Tech.	106	85.85	91	15	14.15
75	Hindi	44	68.18	30	14	31.82
39	Creative Arts	201	96.52	194	7	3.48
93	Shorthand & Typing (T)	16	87.5	14	2	12.5

Source: Examination Department Sri Lanka

**Table 11.0**

**The difference of Telecentre to the school**

Difference	Responses	%
Self Learning	51	29.0
Extra Learning	33	18.8
Interesting	27	15.3
E Learning	20	11.4
Enjoyable	17	9.7
Easy Learning	8	4.5
Internet	7	4.0
Repeat learning	7	4.0
ICT Education	5	2.8
More information than school	5	2.8
Practical Learning	5	2.8
Advance Learning	3	1.7
Learn subjects n.a in pirivena	2	1.1
Improving Knowledge	1	0.6

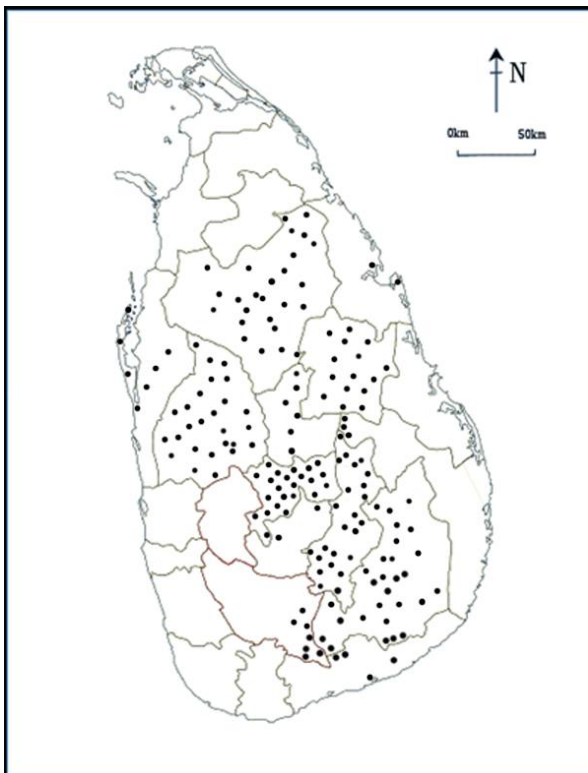
**Table 12.0**

## Achievements of visiting Telecentre

Achievement	Students	%
Improve Weak Subjects	70	39.8
Using Computers to learn	39	22.2
ICT learning	11	6.3
Extra Learning	10	5.7
Improving ICT Knowledge	8	4.5
More Knowledge	7	4.0
e Learning	6	3.4
Quick and Easy Learning	5	2.8
Wining Certificates	4	2.3
Practical Learning	2	1.1
Easy Learning	1	0.6
Practical Learning	2	1.1

Figure 1.0

Shilpa Sayura Operating Telecentres





**Figure 2.0**



## **Interview 1.0**

### **Keeragolle Dhammasara**

Interviewed by Niranjan Meegammana, Rasika Sampath  
At Thalakumbura Telecentre  
April 30, 2009

#### **1. Please tell your age and the profession?**

24 Years, I am a Pirivena Teacher

#### **2. How long have you been operating a Telecentre?**

About 2 Years

#### **3. How many computers are in your Telecentre?**

3 computers

#### **4. Do you have internet access?**

We have a satellite connection.

#### **5. What kind of users use your center and what do they want?**

Students, Unemployed youth, Women, Farmers and government officers

#### **6. What services does your Telecentres provide?**

E Learning for students, email and internet access, Agriculture information, Jobs and government information. We also provide ICT training, Tamil Language teaching for the community. We also provide word processing, printing and ID photography service

#### **7. Tell us about the education in your area?**

We have three schools in the area. There is one Junior School and Galauda Senior School. There is one Muslim junior school. The education in our areas is poor. The reason is lack of teachers and education resources. People are also very poor. During planting and harvesting times, students join agriculture work and miss many school days. They also can't afford external tuition. Parents are unable to send them to outside schools. There are some villages with schools with very few children.

#### **8. Do you think Telecentres can be used improve rural education?**

Yes! Opening Telecentres help people to access better education. They don't have to take tuition or go to outside schools. They learn at Telecentre using education software. Teachers sometimes come to our Telecentre to get content to use in the school. Galauda School has a computer lab with 10-15 computers, but they don't have teachers. We are having 3 computers and teaching ICT.

#### **9. What educational tools and technologies you use at the Telecentre?**

Shilpa Sayura, Azeem Premji, Agriculture CDs, Internet . We also we have a small library of books.

#### **10. How do you charge for providing your services?**

We provide services free to young priests. They village youth pay Rs. 100.00 per month. There are some poor students who can't afford Rs 100.00. For them we

provide education free. We take what they can pay when we give services to farmers. The government officers pay Rs. 100 per session of learning.

### **11. How open your services to people? Are there any restrictions?**

We are opening from 6.30 AM to 10.30PM and make no restriction on use of services. When students use internet we are observing. We are restricting watching movies and playing violent games. As we are a temple we have to restrict some access to internet.

### **12. Are there any problems openness in Telecentre?**

We some times have problems from some software, CDs and from virus when people use memory sticks.

### **12. How does your Telecentre approach rural education development?**

We provide group learning with Shilpa Sayura and conduct ICT training courses for young people and government officers. We conduct night sessions for farmers using agriculture CDs. We are teaching Tamil in Telecentre with the help of volunteering Muslim Priest. We are educating farmers at the Telecentre using Agriculture CDs. Our Telecentre help the young priests to prepare for G.C.E O/L examination.

#### **12.1 Tell us about learning by young priests?**

There are many young priests who are studying in Pirivena. The pirivena curriculum doesn't cover G.C.E O/L lessons. Pirivena is teaching Sinhala, Science and Math but the level is very much less than G.C.E O/L level. History subject is not taught in Pirivena.

#### **12.2 Why is it important for them to pass G.C.E O/L?**

They are now taking a religious education and it doesn't allow them to take part in National education and enter higher education. If they can pass G.C.E O/L, they can enter advance level and study further to enter university after completing advanced level. If they can enter university it will help them to become teachers.

#### **12.3 Isn't it deviating from their objectives of being a priest?**

Earlier they studied for Panditha Exam for priests, Now they like to enter the university.

#### **12.4 How do you enable them to learn for G.C.E O/L examination?**

We are facilitating them to self learn as a group using Shilpa Sayura lessons and examination practice questions. They work as a group and discuss lessons. We help them to study at the Telecentre.

### **13. What special activities of your Telecentre have brought to your community?**

We are providing e learning and ICT Training. Provide agriculture education from CDs and small seminars.

**14. What impact have been resulted from your services?**

Many students are improving their school education and preparing for exams. We have 5-6 young priests who passed G.C.E O/L and now they are planning to do Advanced level. They were able to pass G.C.E O/L because of Telecentre and Shilpa Sayura. There are students in far villages come to our Telecentre to learn ICT. We are also helping youth to find jobs on internet. We are helping some families to skype with their people working abroad. Because of Telecentre students have improved English and Tamil language knowledge and also help them to find jobs. One girl after ICT training joined badulla UNISEF office.

**13. What are the problems you have in providing educational services?**

Our computers are not enough to provide learning time as they require therefore we open the Telecentre even in the night. Our income is not enough to buy more computers. Our internet connection sometimes breaks down.

**14. What improvements would you suggest to make a difference in Telecentres in rural education?**

We like to have advanced level content and more computers.

***Interview 2.0***

**Janaka Srimal**

Interviewed by Niranjan Meegammana, Rasika Sampath  
At Hingurukaduwa Telecentre  
January 16, 2009

**1. Please tell your age and profession?**

37 Years, I am a Banking Officer

**2. How long have you been operating a Telecentre?**

About 6 Years

**3. How many computers do you have?**

We have 5 computers at this Telecentre. 4 each at the Ethpattiya and Pathanewatta branches and 20 computers in village homes

**4. Do you have internet access?**

Yes, a Wi-Max connection

**5. What kind of users visits your center and what do they want?**

Most of them are students from the village and unemployed youth. We also have some adults like government officers and parents.

**6. What services does your Telecentres provide?**

We mainly provide ICT & English education for students, ICT training and Internet access. We also provide information to adults.

### **7. Tell us about your area schools and their education?**

Hingurukaduwa village school lack trained teachers for ICT, English, Math, and Science and even they don't have teachers for Art. As the transportation is very poor, teachers dislike working in our area. Students who can afford are moving out for education. Our village is affected with poor education. Parents are mainly farmers and do not have money to send students to outside schools,

### **8. Do you think Telecentres can be used improve rural education?**

Yes! We are teaching ICT and English and students are learning other subjects from Shilpa Sayura. We have seen many students are improving in school. Children like to learn from computers.

### **9. What educational tools and technologies you use at the Telecentre?**

We mainly use Shilpa Sayura as its following National curriculum. We are also developing English teaching content.

### **10. How do you charge for providing your services?**

We provide all services free

### **11. How open your services to people? Are there any restrictions?**

We make no restriction to anyone on services, How ever we limit internet access to children when unobserved. We also restrict too much gaming and face book as some students are getting addicted to them

#### **11.1 Do you think openness has any risks or downsides?**

When we work with rural people some times openness and culture become conflicts. Young people want to everything to be open and their parents have concerns of openness in like in internet. However openness has not been a problem for us.

### **12. How does your Telecentre approach rural education development?**

We conduct English and ICT classes in Weekends and placed computers in village homes for shared learning by students. We have installed Shilpa Sayura in computers for self learning. We have a micro scholarship program for students and help some students with funding to do ICT courses. We conduct evening sessions for adults and unemployed youth. Our two branches in Ethpattiya and Pathanewatta are also providing e learning with Shilpa Sayura and training students with ICT. We also help community with information from internet and communication services.

### **13. What special activities of your Telecentre have brought to your community?**

E learning for school education, ICT and English training is our main service. We also make students create content for leaning English and ICT. You can see those content in [www.lankaenglishforum.com/](http://www.lankaenglishforum.com/), [www.punchipanchi.com](http://www.punchipanchi.com) and [www.lakarurna.org](http://www.lakarurna.org). E village is our main services which help students learning at home.

#### **13.1 Why do you enable e learning at home?**

Some students live far and can't come to the Telecentre, e learning facility at homes help them to learn everyday

### **13.2 What do they learn at homes and how?**

They mainly learn school curriculum from Shilpa Sayura. They are also learning ICT and English with the content we create. They are sharing the computers as a group. One computer is shared by 5-6 students.

### **13.3 How do you maintain home computers? Do they pay?**

We provide computers free of charge, The senior students volunteer for maintaining computers and technical support.

### **13.4 How do you obtain computers and how did start?**

We started Aruna ICT club in 2002, with a used pentium 1 computer donated by Farther Prasanna Fernando of Buttala Church. We started teaching students English and how to use computers. We got some more used computers from Jhon Keells and some international donors help us. We got three more computers from ICTA for the Telecentre and internet connection. In 2009 we got funding for setting up two branches in Ethpattiya and Pathanewatta.

### **14. What impact have been resulted from your services ?**

Since we started we were able to improve ICT and English literacy in our village. Our village students are stopping going to school in early ages. We were able to convince parents to continue education with our scholarship support and e learning helped them to improve. The children e learning now are very young but they do well in their school. Chamath and Sumedha two students won Young computer Scientist award from National Science Foundation in 2007. Many youth who studied ICT were able to obtain jobs with our help. One student is Srimal, He had to study Art although he wanted to study science as the school did not teach Science subjects for A/L. He was too poor to go outside school. At the Telecentre he learned ICT and after studying Art in Advanced Level, we provided him a scholarship to learn Java. He now works with Shilpa Sayura. From e learning students were able to learn subjects not taught in School.

We hope that there will be a new breed of young people in village. The education development is a time taking process, we can see real change in future to come.

### **13. What are the problems you have in providing educational services?**

As we are using used computers, we have breakdown problems. There is a demand for increasing number of computers at homes. Some students live in areas without electricity hence we can't place computers there. They have to come to Telecentre walking about 4-5 kilometers.

### **14. What improvements would you suggest to make a difference in Telecentres in rural education?**

One area we are thinking is to start vocational training for youth to develop careers as Technical collages. We like to have vocational training content. The Village

School and Telecentre can work together in this.

### ***Interview 3.0***

**Saman Sisira Kumara, September 5, 2009**

Interviewed by Niranjan Meegamma, Rasika Sampath  
At Thalakumbura Telecentre

**1. Please tell your age and profession?**

25, Planning Officer

**2. How long have you been operating Telecentre?**

About 3 Years

**3. How many computers you have?**

We have 3 computers in Nagala Telecentre and 4 at Madagama Telecentre

**4. Do you have internet access?**

We have a 3G broad band access at Madagama and Satellite Connection at Nagala

**5. What kind of users visits your center and what do they want?**

Students, Teachers Unemployed youth and government officers

**6. What services does your Telecentres provide?**

We are providing ICT training, Desk Top Publishing, House Plans and E Learning for students. We also provide email and internet access.

**7. Tell us about your area schools and their education?**

Madagama area living conditions are very harsh. We have not good transport and also water problems. There are several schools teaching up to advanced level. We have not adequate teachers for Science and ICT teaching. Most of the students try to go to outside schools if they can. But many are poor and can't go to outside schools with facilities.

**8. Do you think Telecentres can be used improve rural education?**

Setting up Telecentres in rural areas help improve ICT education. As an example people can get information from internet. Students can do e learning. We can help people to find educational information on internet.

**9. What educational tools and technologies you use at the Telecentre?**

We are using Shilpa Sayura and Internet mainly. We also have some e books for learning ICT and CDs.

**10. How do you charge for providing your services?**

We charge Rs 100 per month for e learning. We have special courses for office applications, graphics and desk top publishing. We charge Rs 3000 for four month course and Rs. 5000 for six month course

**11. How open your services to people? Are there any restrictions?**

We are providing services to anyone coming to Telecentre. There are no restrictions of services.

**12. How does your Telecentre approach rural education development?**

We are already operating a Telecentre in Nagala and serve community with ICT education, e learning and Agriculture information services. There was no Telecentre in Madagama. I found that Students in madagama are having a problem of learning ICT. We expanded nagala Telecentre service to Magagama.

**12.1 How did you expand Nagala Telecentre to Madagama ?**

We had 3 computers in Nagala, I found a location and brought one of the computers and Danuska Dissanayake an unemployed youth joined me with sharing his personal computer. From there we started. We did an awareness session in Nannapurawa School over 50 students and teachers joined Telecentre to learn ICT.

**12.2 How do you help local school education?**

This area don't have trained ICT teachers therefore students can't take ICT subject for G.C.E O/L, we are helping students and school teachers to learn ICT syllabus. We are providing e learning for learning ICT and conduct ICT classes. We also provide facilities to learn school subjects.

**12.3 Why is it important for students to take ICT subject for O/L?**

It helps them to get jobs in future and it's important to know ICT in todays world

**12.4 How do you teach them ICT?**

We prepare them to take ICT subject in G.C.E O/L examination using e Learning. We make them self learn from Shilpa Sayura and also conduct group sessions to solve their problems. We are also training local ICT teachers to train ICT in school. We provide them education material and past papers etc. We hold awareness sessions at Schools.

**12.5 If you are not a trained ICT teacher, how do you teach ICT for O/L curriculum?**

I have taken an ICT diploma from Uva University? Shilpa Sayura has all content needed to teach ICT for G.C.E O/L Curriculum. We are following O/L ICT syllabus and use past papers in Shilpa Sayura to prepare them for examination,

**13. What impact have been resulted from your services ?**

We have over 50 students studying ICT for O/L. Most of them are in grade 10 and take the examination in 2010. 8 Students are taking ICT subject for O/L in this year. The students have done well in ICT subject in the August term test. Most of the students taking ICT for O/L 2010 have a chance of passing the subject.

**13. What are the problems you have in providing educational services?**

We have some technical problems in our computers as they are not new. Students



using memory sticks bring virus to computers. We need more space and computers to expand our services.

**14. What improvements would you suggest to make a difference in Telecentres in rural education?**

We like to open up more branches in other rural locations in the area.

***Interview 4.0***

**Chaminda Nishantha**

Interviewed by Niranjana Meegammana, Rasika Sampath  
At Thalakumbura Telecentre  
August 8, 2009

**1. Please tell your name, age and profession?**

31, Community Teacher

**2. How long have you been operating a Telecentre?**

About 1 Year

**3. How many computers you have?**

3 computers

**4. Do you have internet access?**

We have a Satellite Connection

**5. What kind of users visits your center and what do they want?**

Students, unemployed youth and young priests

**6. What services does your Telecentres provide?**

We provide Math, Science, English and ICT learning including internet access

**7. Tell us about your area schools and their education?**

Siyambalanduwa is in the corner of Uva province and more close to Eastern province. People in this area are farmers and very poor. We also had terrorism problems until mid this year therefore Teachers don't like come to Siyambalanduwa. Our schools don't have enough education facilities, therefore students drop off from school quickly. ICT, Math, Science and English are very weak in our area.

**8. Do you think Telecentres can be used improve rural education?**

Yes, Because of our Telecentre students are learning ICT. There is no internet access and computer training until Monaragala which is 45km away. We have introduced e learning which help many students.

**9. What educational tools and technologies you use at the Telecentre?**

We are using Shilpa Sayura, Internet and ICT learning CDs

**10. How do you charge for providing your services?**

We charge Rs 600 for six months from students and provide ICT training free for unemployed young people. Internet access is free for students others we charge Rs 30 per hour. We charge Rs 30 for Science and Math Sessions.

**11. How open your services to people? Are there any restrictions?**

We provide e learning to all students and internet access is somewhat restricted for them due to some issues of using explicit web sites by some people. When students use internet we observe them other than that there are no restrictions.

**12. How does your Telecentre approach rural education development?**

We are providing e learning for students and teach them Math and Science. We are having a Skype English class and conduct Math and Science classes to Lahugala Nenasala students on Skype..

**12.1 Tell us more about using Skype for e learning?**

I met Mr. Hiran Fernando from Wattala, Colombo on Skype and he agreed to conduct English class on skype to us. Now we are learning English from skype. When Lahugala Nenasala manager visited our Telecentre, he asked me to start a Math and Science class to lahugala students. Now I am teaching Math and Science to Lahugala Telecentre students.

**12.2 How do you teach math and Science on Skype? What problems do you have?**

I am holding the web cam to the maggie board and teach lessons. I ask questions and students answer. When they want to show their books they make it close to the web cam. Both ends we use Shilpa Sayura. I email them questions. When internet is slow we have problems of communication.

**12.2 What changes have been resulted from e learning?**

I had a problem of speaking in English. Learning on Skype helped me speaking English. Many students are having opportunity of using computers now are E learning school subjects. Out of 102 students learned Math at Telecenter 80 passed Math in G.C.E O/L in 2008. It's a very high pass rate compared to results in the past. Most of they students study at the Telecentre are doing better in the school in Math and Science. Our Telecentre was closed before; we re-opened it with Shilpa Sayura, and now our Telecentre is making doing better?

**12.3 What do you mean by doing better?**

We are making about Rs. 50000.00 per month and students come to Nenasala. The people in the village are supporting and appreciating us.

**13. What are the problems you have in providing educational services?**

The internet is slow some times. We also have a space problem.

#### **14. What improvements would you suggest to make a difference in Telecentres in rural education?**

We like to teach Math and Science to through Skype to more Telecenters and improve English knowledge in the area.

### ***Interview 5.0***

**Tissa Senaviratna & Gamini Chamara**  
**August 2, 2009**

#### **1. Please tell your names, age and occupation?**

Tissa Senaviratna, 28, chief executive, e fusion private limited

Gamini Chamara, content director and M & Officer, e fusion private limited

#### **2. How long have you been involved in Shilpa Sayura?**

About four years

#### **3. Please tell me about Shilpa Sayura content coverage?**

We initially developed 8 Subjects Math, Science, Art, Dance, Music, Social Studies, Sinhala and English, later added Drama, Photography, Geography, General Knowledge

#### **3. Please tell me how the software was developed?**

It was developed from scratch to addressing local language technical issues based on our research on local languages for several years. It is developed on windows web services platform using ASP and client side technologies like Java, flash, Java Script etc .

#### **4. Why did not you use open source e learning systems freely available?**

We tested several open source e learning software like moodle, Claroline, aTutor but they did not support local language features we wanted. As well as we were focusing on rural students a special community with less technical capacity. We wanted a good platform to develop on. The open source software we tested did not suit our needs.

#### **5. But you could modify them to your needs?**

We can modify interfaces but architectural level modification is time consuming. It's better to start from scratch as we are looking to be independent of making changes.

#### **6 . Why the software was was not developed using open source?**

We tested Linux, mySQL plus PHP and Windows plus ASP combinations and found windows platform has better local language support. All Telecentres were also using Microsoft Windows platform. Our challenges were more on local language technologies at the beginning as well as our developers had good research background on developing on windows platform which saved us cost and time.

#### **7. What were your design concepts for software?**

Its' designed very simple to be user friendly for rural students. We wanted to have a large content database. The system runs on IIS web server an thin enough to run in even older computers like P1 & P1Is as well as on local area networks and also on internet. We made it open to run on any type of PC and network running Windows O/S. It has a content management engine, a testing engine which can use content of web deliverable formats text, graphics, applets, animations, audio and video.

#### **8. Please tell me how did you develop the content?**

We first studied the national curriculum to create a content map with the help of teachers, authored content by professional were developed into e formats by developers.

#### **9. How did you obtain content for Shilpa Sayura?**

The content came from most of the text bookls. Some content was obtained form recommended books. Some content were totally authored new. The audio, video content created and photos taken in field. Some authors gave us content from their creations. The indigenous content was obtained from old books and libraries.

#### **10. What was the reason for not developing Shilpa Sayura as an online System which is more open?**

We are addressing an issue of education faced by most rural communities. Most of them are not connected. Even connected they have very limited bandwidth. We want to reach most rural people who are isolated and we don't want technology, transportation, energy and communications issues to restrict our development. We are thinking Shilpa Sayura as a future e school, probably with 100 GB. It's too much for accessing on internet. In a local server it's much faster to run a video lecture.

#### **11. What degree of openness made available in Shilpa Sayura?**

In terms of software design it's very open, easily modifiable and maintainable and portable as well as scalable. We had to use Microsoft windows O/S as our platform as many Telecentres were already having it and provided best local language Unicode support. We used web technologies as it's more open for future development. The content had many types of complex licensing. Covering 8 subjects for 6 years of learning is a massive effort. We were constrained with time and resources. Most of the content we produced is on creative commons and indigenous content is on public domain. Some content like music the authors have kept the rights. However it did not matter as we were not doing a commercial project.

#### **12. Do you think openness in content and technologies has risks?**

Openness helps fast replication of technologies sometimes it creates same thing more than necessary like Linux has many versions of same. The cost of developing open content is more as authors has to share their intellectual rights and charge extra. With regards to education, it's hard to create open content as some lessons require use of specific material. When we develop content for National curriculum we have to abide by policy and teaching guidelines, if we allow content to be modified by users we can't keep track with National curriculum. Some content is considered as explicit when Kids are accessing them, the same content is considered as health

education when youth are accessing. It's a cultural difference. So in a single system we have issues keeping the same content for open access.

### **13. How do you implement Shilpa Sayura?**

We made partnerships with Telecentres who had access to rural communities. We build their capacity to provide e learning. We initially implemented Shilpa Sayura in 20 Telecentres in Deep South and later expanded it to 50 Telecentres in Uva Province. Then we further expanded to 100 more Telecentres in northern, central and north western parts.

### **14. What impact do you see in Telecentres from Shilpa Sayura**

When we started Shilpa Sayura there was no local language education content on computers. We pioneered local language technology since 2000. Shilpa Sayura is one of the good outcomes. With Shilpa Sayura Telecentres are attracting rural youth and creating revenue. Many Telecentre operators have been developed from our capacity building. We also transfer technology knowledge to them and it helps them to do better ICT training and address technical issues. Many Telecentres which were closed re-opened with Shilpa Sayura. When we went to Uva province only 28% of Telecentres were operational, after two years now 85% of Telecentres have become operational. We also observed that many youth are developing from using Shilpa Sayura Telecentres.

### **15. How do you provide technical support for Shilpa sayura?**

When we initially started we deployed our staff. Lately Telecentre operators joined us to develop a local support structure. We have a help desk, online forum phone and email support system. Now most of the support requests are handled locally.

### **16. What obstacles or problems you have with Shilpa Sayura?**

The curriculums change every year at least for two grades. We need to keep the content updated and The learners are demanding more enhancements learning in instructions and advanced content.

### **17. What improvements would you suggest to the project?**

Covering more subject, content and replication in more locations and developing a social entrepreneurship model.

### ***Interview 6.0***

Yamuna Ratnayake, President of Shilpa Sayura Foundation  
Sep 27, 2009

#### **1. Please tell me your age and occupation?**

46, ICT & English Teacher

#### **2. How long have you been involved in Shilpa Sayura?**

I was involved from project beginning in 2005

### **5. How did you get involved in the project?**

When Shilpa Sayura was initiated by e fusion pvt ltd, I helped them to form a group of teachers to advice on the school curriculum and coordinated content review process.

### **3. What was the reason for Shilpa Sayura Development?**

There are more than 50% of students in rural areas of Sri Lanka failing G.C.E O/L examination resulting drop outs from school. They don't have adequate teachers, labs and other resources to study. Shilpa Sayura was initiated address this issue with local language learning at rural Telecentres..

### **4. What made you select Telecentres rather than schools?**

We wanted to reach most rural areas and students who are in isolated communities. The Telecentres were setup in those areas. There is lot of complexities involved in working with education authorities and Telecentres were more open for working together. As the funding was provided from ICTA which also created the Telecentre project

### **5. How do you approach rural education development with Shilpa Sayura?**

We work with Telecentres and provide local language content and technologies to them to enable e learning in their communities. We are involved in education research to develop rural education. We try to find better ways to provide knowledge using ICT. We provide Shilpa Sayura free to Telecentres and build their capacity to introduce their own programs.

### **6. How do you implement e learning in villages?**

We provide content, technology, training and technical support for Telecentres. They select how they will implement e learning as each community has their own needs.

### **7. How did you ensure the openness in the project?**

When I joined we were participant only. As the project progressed many people collaborated and played important roles needed for success. Then we formed Shilpa Sayura Foundation to create a platform for more participation. Now Shilpa Sayura is more transparent and more inclusive. The board of directors in the foundation represents Teachers, Developers, Telecentre managers, parents and students.

### **8. How did openness help Shilpa Sayura?**

Openness helped creating more social acceptance and participation. It helped more volunteering and reduced costs of operation and local support. Openness helped us to work with Telecentres to creating collaborative partnerships. Shilpa Sayura started as a private sector initiative, now a Foundation formed by partners where Teachers, Developers, Telecentre operators and Students have become the owners of the development. As an example we were able to win Singapore lien I3 Challenge, participating as Shilpa Sayura Foundation owned by participating community.

### **9. Do you think openness has risks?**

I think openness has some risks. Earlier Shilpa Sayura project decisions were made by few people in private sector, it was efficient and unanimous. Now as a foundation more people are involved and some times decision making takes too long and creates problems when we have gaps in knowledge. Sometimes openness dilutes

control and focus. It's hard to create a single shared vision, everybody have there own perspectives.

### **10. What are your challenges?**

There is a demand from more Telecentres as well as from rural schools now. We need to build local support capacity for expansion. There is also continues process for evaluation of curriculum, content development and review. We also have to keep pace with new technology developments. Currently we are operating on a donor assisted model, we have to find ways to become a social enterprise.

### **11. What are your future plans?**

We have created a new platform for rural education development. There are many talented students coming up. We like to help them to develop ICT careers. We are thinking of developing a trust to help them.

## **Form 1.0**

### **Student questioner**

Date

Location

### **Students Questionnaire**

1. Name
2. Age
3. Grade
4. Male/Female
5. What educational tools do you use at Telecentre?
6. Which tool do you prefer most?
7. How often do you use them?
8. What subjects do you learn?
9. What different you find in Telecentre to your school?
10. How do you learn, self or group or both?
11. What Subjects you take external tuition?
12. Do you find e content is better than your text book content?
13. What achievements have you made using Telecentre education?
14. What problems do you face using e content?
15. What improvements do you suggest?

#### Data Abbreviations

MT	Math
SC	Science
EN	English
HI	History
DN	Dancing
MU	Music
SI	Sinhala
TM	Tamil

ICT Information and Communication Technology  
PH Photography  
VB Visual Basic

## Student questioner Data Part 1

No	Telecentre	Age	Grade	Language	Gender
1	Talakumbura	10	5	Sinhala	M
2	Talakumbura	13	8	Sinhala	M
3	Talakumbura	15	10	Sinhala	M
4	Talakumbura	19	12	Sinhala	M
5	Talakumbura	13	8	Sinhala	M
6	Talakumbura	12	8	Sinhala	M
7	Talakumbura	10	5	Sinhala	F
8	Talakumbura	12	8	Sinhala	M
9	Talakumbura	15	8	Sinhala	M
10	Talakumbura	14	9	Sinhala	M
11	Talakumbura	14	9	Sinhala	F
12	Talakumbura	15	10	Sinhala	F
13	Talakumbura	14	9	Sinhala	M
14	Talakumbura	16	11	Sinhala	M
15	Talakumbura	16	11	Sinhala	M
16	Talakumbura	15	11	Sinhala	F
17	Talakumbura	13	8	Sinhala	M
18	Talakumbura	15	8	Sinhala	M
19	Talakumbura	13	8	Sinhala	M
20	Talakumbura	14	8	Sinhala	M
21	Talakumbura	15	10	Sinhala	F
22	Talakumbura	15	10	Sinhala	M
23	Haldumulla	14	9	Sinhala	F
24	Haldumulla	12	7	Sinhala	M
25	Haldumulla	13	8	Sinhala	M
26	Haldumulla	13	8	Sinhala	M
27	Haldumulla	13	8	Sinhala	M
28	Haldumulla	11	6	Sinhala	M
29	Haldumulla	13	9	Tamil	F
30	Haldumulla	13	8	Tamil	M
31	Haldumulla	13	8	Tamil	M
32	Haldumulla	13	8	Tamil	F
33	Haldumulla	13	8	Tamil	M
34	Haldumulla	13	8	Tamil	M
35	Haldumulla	14	9	Tamil	M
36	Haldumulla	14	9	Sinhala	F
37	Haldumulla	14	9	Tamil	F
38	Haldumulla	13	8	Tamil	M
39	Hingurukaduwa	15	10	Sinhala	F
40	Hingurukaduwa	14	9	Sinhala	F
41	Hingurukaduwa	14	9	Sinhala	F
42	Hingurukaduwa	15	10	Sinhala	M
43	Hingurukaduwa	14	9	Sinhala	F
44	Hingurukaduwa	13	8	Sinhala	M
45	Hingurukaduwa	14	9	Sinhala	M
46	Hingurukaduwa	17	12	Sinhala	M
47	Hingurukaduwa	12	8	Sinhala	M
48	Hingurukaduwa	12	8	Sinhala	M
49	Hingurukaduwa	14	9	Sinhala	F
50	Hingurukaduwa	15	10	Sinhala	M
51	Hingurukaduwa	12	8	Sinhala	M
52	Hingurukaduwa	12	8	Sinhala	M
53	Hingurukaduwa	11	7	Sinhala	F



54	Hingurukaduwa	13	8	Sinhala	F
55	Hingurukaduwa	13	8	Sinhala	F
56	Hingurukaduwa	14	9	Sinhala	F
57	Hingurukaduwa	13	8	Sinhala	F
58	Hingurukaduwa	11	6	Sinhala	F
59	Hingurukaduwa	12	7	Sinhala	M
60	Nagala	15	10	Sinhala	F
61	Nagala	15	10	Sinhala	F
62	Nagala	15	10	Sinhala	F
63	Nagala	15	10	Sinhala	F
64	Nagala	15	10	Sinhala	M
65	Nagala	15	10	Sinhala	M
66	Nagala	15	10	Sinhala	M
67	Nagala	15	10	Sinhala	F
68	Nagala	15	10	Sinhala	F
69	Nagala	15	10	Sinhala	F
70	Nagala	15	10	Sinhala	F
71	Nagala	15	10	Sinhala	F
72	Nagala	15	10	Sinhala	F
73	Nagala	16	11	Sinhala	F
74	Nagala	15	10	Sinhala	M
75	Nagala	16	11	Sinhala	M
76	Nagala	15	10	Sinhala	F
77	Nagala	15	10	Sinhala	F
78	Nagala	15	10	Sinhala	F
79	Nagala	15	10	Sinhala	F
80	Nagala	16	11	Sinhala	F
81	Nagala	15	10	Sinhala	F
82	Etampitiya	14	9	Tamil	F
83	Etampitiya	15	10	Tamil	F
84	Etampitiya	15	10	Sinhala	M
85	Etampitiya	14	9	Tamil	M
86	Etampitiya	13	8	Tamil	F
87	Etampitiya	11	7	Tamil	F
88	Etampitiya	9	5	Tamil	F
89	Etampitiya	14	9	Sinhala	F
90	Etampitiya	15	10	Sinhala	F
91	Etampitiya	14	9	Sinhala	F
92	Etampitiya	11	7	Sinhala	F
93	Etampitiya	13	8	Sinhala	F
94	Etampitiya	15	10	Tamil	M
95	Etampitiya	12	7	Tamil	M
96	Etampitiya	14	9	Tamil	M
97	Etampitiya	14	9	Sinhala	M
98	Etampitiya	12	7	Tamil	F
99	Etampitiya	14	9	Sinhala	M
100	Etampitiya	15	10	Sinhala	F
101	Etampitiya	14	9	Sinhala	F
102	Siyambanduwa	11	7	Sinhala	F
103	Siyambanduwa	11	7	Sinhala	F
104	Siyambanduwa	12	8	Sinhala	F
105	Siyambanduwa	12	8	Sinhala	F
106	Siyambanduwa	12	8	Sinhala	F
107	Siyambanduwa	12	8	Sinhala	F
108	Siyambanduwa	11	7	Sinhala	F
109	Siyambanduwa	12	8	Sinhala	M
110	Siyambanduwa	11	7	Sinhala	M
111	Siyambanduwa	11	7	Sinhala	M
112	Siyambanduwa	11	7	Sinhala	F
113	Siyambanduwa	12	8	Sinhala	M
114	Siyambanduwa	11	7	Sinhala	F
115	Siyambanduwa	13	9	Sinhala	F

116	Siyambalanduwa	11	7	Sinhala	M
117	Siyambalanduwa	13	9	Sinhala	F
118	Siyambalanduwa	12	8	Sinhala	F
119	Siyambalanduwa	12	8	Sinhala	F
120	Siyambalanduwa	12	8	Sinhala	F
121	Siyambalanduwa	12	8	Sinhala	F
122	Siyambalanduwa	12	8	Sinhala	M
123	Siyambalanduwa	12	8	Sinhala	M
124	Siyambalanduwa	12	8	Sinhala	F
125	Siyambalanduwa	12	8	Sinhala	F
126	Siyambalanduwa	12	8	Sinhala	M
127	Siyambalanduwa	12	8	Sinhala	M
128	Siyambalanduwa	12	8	Sinhala	M
129	Siyambalanduwa	11	7	Sinhala	F
130	Siyambalanduwa	11	7	Sinhala	F
131	Siyambalanduwa	11	7	Sinhala	F
132	Siyambalanduwa	12	8	Sinhala	M
133	Siyambalanduwa	12	8	Sinhala	M
134	Siyambalanduwa	12	8	Sinhala	F
135	Siyambalanduwa	12	8	Sinhala	F
136	Siyambalanduwa	13	9	Sinhala	M
137	Siyambalanduwa	13	9	Sinhala	M
138	Siyambalanduwa	13	9	Sinhala	M
139	Siyambalanduwa	13	9	Sinhala	M
140	Siyambalanduwa	13	9	Sinhala	F
141	Siyambalanduwa	13	9	Sinhala	F
142	Siyambalanduwa	14	9	Sinhala	F
143	Siyambalanduwa	13	9	Sinhala	F
144	Siyambalanduwa	11	7	Sinhala	M
145	Siyambalanduwa	11	7	Sinhala	M
146	Siyambalanduwa	11	7	Sinhala	M
147	Siyambalanduwa	12	8	Sinhala	F
148	Siyambalanduwa	12	8	Sinhala	F
149	Siyambalanduwa	11	7	Sinhala	F
150	Siyambalanduwa	12	8	Sinhala	F
151	Siyambalanduwa	12	8	Sinhala	F
152	Siyambalanduwa	12	8	Sinhala	M
153	Siyambalanduwa	12	8	Sinhala	F
154	Siyambalanduwa	11	7	Sinhala	M
155	Siyambalanduwa	11	7	Sinhala	F
156	Siyambalanduwa	11	7	Sinhala	F
157	Siyambalanduwa	13	9	Sinhala	M
158	Siyambalanduwa	12	9	Sinhala	F
159	Siyambalanduwa	13	9	Sinhala	F
160	Siyambalanduwa	13	9	Sinhala	F
161	Siyambalanduwa	13	9	Sinhala	F
162	Siyambalanduwa	11	7	Sinhala	M
163	Siyambalanduwa	11	7	Sinhala	M
164	Siyambalanduwa	11	7	Sinhala	F
165	Siyambalanduwa	11	7	Sinhala	F
166	Siyambalanduwa	11	7	Sinhala	F
167	Siyambalanduwa	11	7	Sinhala	F
168	Siyambalanduwa	11	7	Sinhala	F
169	Siyambalanduwa	11	7	Sinhala	F
170	Siyambalanduwa	11	7	Sinhala	M
171	Siyambalanduwa	11	7	Sinhala	M
172	Siyambalanduwa	11	7	Sinhala	M
173	Siyambalanduwa	11	7	Sinhala	F
174	Siyambalanduwa	11	7	Sinhala	F
175	Siyambalanduwa	13	9	Sinhala	F
176	Siyambalanduwa	13	9	Sinhala	F

## Student questioner Data Part 2

No	Education Tools	Favorite	Hours	Subjects Learned
1	SS, AP	SS	8	MT, SC, EN, HI
2	SS, AP	SS	8	MT, SC, EN, HI
3	SS, AP	SS,Internet	7	MT, SC, EN, HI
4	SS, Internet	SS	8	SI, BC, HI
5	SS	SS	8	MT, SC, EN, HI
6	SS, AP	SS	8	MT, SC, EN, HI
7	SS, AP	SS, Webs	6	MT,SC,EN, SI
8	SS	SS	8	MT, SC, EN, HI
9	SS, AP	SS	8	MT, SC, EN, HI
10	SS, AP	SS, Internet	6	MT,SC,EN
11	SS, AP	SS	8	MT,SC,EN, SI
12	SS, AP	SS	7	MT, SC, EN, HI
13	SS, Internet	SS	8	MT, SC, EN, HI
14	SS	SS	8	MT,SC,EN, SI
15	SS	SS	8	MT,SC,EN, SI
16	SS, Internet	SS	8	MT,SC,EN, SI
17	SS	SS	8	MT, SC, EN, HI
18	SS, AP	SS	8	MT, SC, EN, HI
19	SS	SS	8	MT, SC, EN, HI
20	SS, AP	SS	8	MT, SC, EN, HI
21	SS, AP	SS	7	MT, SC, EN, HI
22	SS	SS	8	MT, SC, EN, HI
23	SS, PPT	SS	8	MT,SC, DN
24	SS	SS	8	8 Subjects
25	SS, internet	SS	8	SC
26	SS, internet	SS	8	SC
27	SS, Internet, Word	SS	8	8 Subjects
28	SS	SS	6	8 Subjects
29	SS, AP, PPT	SS	8	MT,SC, DN
30	SS, AP	AP	8	MT, SC, TM
31	SS, AP, PPT	AP	8	MT, SC, TM
32	SS, AP	AP	8	MT, SC, TM
33	SS, AP	AP	8	MT, SC, TM
34	SS, AP, PPT	AP	8	MT, SC, TM
35	SS, AP, PPT	AP	8	MT, SC, TM
36	SS, AP, PPT	SS	8	MT,SC, DN
37	SS, AP, PPT	AP	8	MT, SC, TM
38	SS, AP	AP	8	MT, SC, TM
39	SS, internet	SS	8	MT,SC, DN, HI, ICT
40	SS, internet	SS	8	SC, MT, SI, HI
41	Internet, AP	AP	8	EN
42	SS, internet	SS	8	MT, SC, EN
43	SS, internet	SS	8	MT, SC, SI, HI
44	SS	SS	8	MT, SC
45	SS, internet	SS	8	SC, MT, HI, MU
46	SS, VB, Music	SS	24	ICT, MU
47	SS, Internet	SS	12	MT, SC, ICT
48	SS, Internet	SS	12	MT, SC, ICT
49	SS, Internet, English	SS	8	MT, SC, ICT, MU
50	SS, Internet, English	SS	12	MT, SC, ICT, EN
51	SS, Internet	SS	12	MT, SC, ICT
52	SS, Internet	SS	12	MT, SC, AT
53	SS, English	SS	8	MT, SC, SI, DN
54	SS, English	SS	8	MT, SC, EN, MU
55	SS, English	SS	8	En, MT, SC, SI, DN

56	SS, English, Internet	SS	12	EN, MT, SC, SI, Dancing
57	SS, English	SS	8	MT, SC, EN, MU
58	SS, English	SS	8	SC, EN
59	SS, Internet	Internet	8	SC, EN
60	SS, Internet, Learning CD	Internet	8	ICT, DN, PH
61	SS, Internet, e Books		8	ICT, MT, SC, HI, TM
62	SS, Internet, e Books	Internet	8	MT, SC, PH, DN
63	SS, Internet, e Books	Internet	8	ICT, MT, SC, HI
64	SS, e Books	SS	8	MT, SC, EN, ICT
65	SS, Internet, e Books	SS	8	MT, SC, EN, ICT, MU, HI
66	SS, Internet. e-Books	SS	8	MT, SC, EN, ICT, MU, HI
67	SS, Internet. e-Books	Internet	8	MT, SC, ICT, EN
68	SS, Internet. e-Books	E Books	8	MT, SC, EN, ICT HI
69	SS, Internet	SS	8	MT, SC, HI, DN, EN, HI, PH, AG
70	SS, Internet. e-Books	E Books	8	MT, SC, HI, DN, EN, HI, PH, AG
71	SS, Internet, e-Books	E Books	8	MT, SC, HI, ACC, EN, HI, PH
72	SS, Internet. e-Books	SS	16	MT, ICT, PH, DN
73	SS, Internet. e-Books	SS	16	MT, ICT, PH
74	SS, e Books, Encarta	SS	16	MT, SC, ICT, HI, PH
75	SS, CDs, e Books	SS	16	MT, ICT, PH, EN
76	SS, Encarta, Internet, e Books	SS	8	ICT, HI, REL
77	SS, Encarta, Internet, e Books	SS	8	ICT, HI, DR, PH
78	SS, Encarta, Internet, e Books	SS	8	MT, SC, EN, HI
79	SS, Internet. e Books	SS	8	ICT, EN, HI
80	SS, Internet	SS	16	MT, ICT, PH, DN
81	SS, e Books	SS	8	MT, SC, HI, DN, EN, HI, PH, AG
82	SS, AP	AP	8	MT, TM
83	SS, AP, Internet	AP	8	SC, EN
84	SS, Internet	SS	8	MT, EN
85	SS, AP, PPT	AP	8	SC, EN
86	SS, AP, Internet	AP	8	TM, SC, EN
87	SS, AP, PPT	AP	8	EN, ICT
88	SS, AP	AP	8	EN, SC
89	SS, AP, Internet	SS	8	MT, ICT
90	SS, AP, Internet	SS	8	MT, ICT
91	SS, AP, PPT	SS	8	MT, ICT
92	SS, AP	SS	6	MT, SC, MU
93	SS, AP	SS	8	MT, SC, EN
94	SS, AP, Internet	AP	8	SC, EN, TM
95	SS, AP	AP	8	SC, ICT
96	SS, AP	AP	8	EN, SC
97	SS, AP	SS	8	SC, TM
98	SS, AP, PPT	AP	8	EN, SC
99	SS, Internet	SS	8	MT, SC, ICT
100	SS, AP	SS	8	MT, SC, EN
101	SS, AP, Internet	SS	8	MT, SC, EN
102	SS	SS	6	EN, SC
103	SS	SS	12	MT
104	SS	SS	8	EN
105	SS	SS	8	SC
106	SS	SS	6	SC
107	SS	SS	8	SC
108	SS	SS	12	ICT
109	SS	SS	8	MT, SC
110	SS	SS	8	MT
111	SS	SS	6	MT, MU
112	SS	SS	12	MT
113	SS	SS	16	MT, EN
114	SS	SS	16	MT, ICT
115	SS	SS	8	MT

116	SS	SS	6	EN
117	SS	SS	6	EN
118	SS	SS	6	EN, ICT
119	SS	SS	6	MT
120	SS	SS	6	MT
121	SS	SS	6	MT, SC
122	SS	SS	6	SC
123	SS	SS	6	SC
124	SS	SS	6	SC
125	SS	SS	6	MT
126	SS	SS	6	MT
127	SS	SS	6	MT
128	SS	SS	6	MT
129	SS	SS	6	MT
130	SS	SS	6	MT
131	SS	SS	6	MT
132	SS	SS	6	MT
133	SS	SS	6	MT
134	SS	SS	6	MT
135	SS	SS	6	MT
136	SS	SS	6	MT
137	SS	SS	6	MT
138	SS	SS	6	SC
139	SS	SS	6	MT, SC
140	SS	SS	6	MT, SC
141	SS	SS	6	MT, SC
142	SS	SS	8	MT, SC, ICT
143	SS	SS	6	MU
144	SS	SS	6	MT, SC
145	SS	SS	6	MT, SC
146	SS	SS	6	MT, SC
147	SS	SS	6	EN
148	SS	SS	6	MT
149	SS	SS	20	SC
150	SS	SS	20	MU
151	SS	SS	16	EN
152	SS	SS	8	MT
153	SS	SS	6	SC
154	SS	SS	6	MU
155	SS	SS	6	MT
156	SS	SS	6	EN
157	SS	SS	16	MU
158	SS	SS	8	SC
159	SS	SS	8	MT
160	SS	SS	8	MU
161	SS	SS	8	MT, SC, MU
162	SS	SS	6	MT
163	SS	SS	6	MT
164	SS	SS	6	SC
165	SS	SS	6	SC
166	SS	SS	6	SC
167	SS	SS	6	SC
168	SS	SS	6	MT
169	SS	SS	6	MU
170	SS	SS	6	SC
171	SS	SS	12	SC, MU
172	SS	SS	12	MT
173	SS	SS	12	MT
174	SS	SS	12	MT
175	SS	SS	12	SC
176	SS	SS	12	SC

## Student questioner Data Part 3

No	Difference of Telecentre	Learning Method	External Tuition	e Content
1	Extra Learning	Group		Yes
2	Extra Learning	Self, Group		Yes
3	Self Learning, Practical	Self, Group	SC, MT	Yes
4	Self Learning	Self, Group	SI,HI	Yes
5	Extra Learning	Self, Group		Yes
6	Extra Learning	Self, Group		Yes
7	Self Learning, Extra Learn	Self, Group		Yes
8	Learn subjects n.a in pirivena	Group		Yes
9	Extra Learning	Self		Yes
10	Easy Learning	Self, Group	SC, MT	Yes
11	Easy Learning	Self, Group	SC, MT	Yes
12	Self Learning, Extra Learning	Self, Group	SC, MT	Yes
13	Extra Learning	Self, Group		Yes
14	Self Learning, Extra Learning	Self, Group	SC, MT	Yes
15	Self Learning, Practical, Extra subjects	Self, Group	SC, MT	Yes
16	Self Learning, Practical, Extra subjects	Self, Group	SC, MT	Yes
17	Extra Learning	Self, Group		Yes
18	Extra Learning	Self		Yes
19	Learn subjects n.a in pirivena	Group		Yes
20	Extra Learning	Self		Yes
21	Self Learning, Practical	Self, Group	SC, MT	Yes
22	Self Learning	Self, Group		Yes
23	More information than school	Self	MT	Yes
24	More information than school	Group	MU, EN	Yes
25	Self learning	Self	MT	Yes
26	Self learning	Self	EN, MT	Yes
27	More information than school	Group	EN, MT	Yes
28	More information than school	Group		Yes
29	More information than school	Self, Group		Yes
30	Self Learning	Self, Group		Yes
31	Self Learning	Self, Group		Yes
32	Repeat learning	Self, Group		Yes
33	Extra Learning	Self, Group		Yes
34	Repeat learning	Self, Group		Yes
35	Repeat learning	Self, Group		Yes
36	Repeat learning	Self, Group		Yes
37	Repeat learning	Self, Group		Yes
38	Self Learning	Self, Group		Yes
39	Extra Learning	Self, Group	MT,SC,EN	Yes
40	Extra Learning	Self, Group	MT, SC, EN	Yes
41	Extra Learning	Self	MT, SC, EN	Yes
42	Easy Learning	Self, Group	MT,SC,EN	Yes
43	Easy Learning	Self, Group	MT,SC,EN	Yes
44	Extra Learning	Self, Group		Yes
45	Easy Learning	Self, Group		Yes
46	Advance Learning	Self, Group		Yes
47	Extra Learning	Self, Group		Yes
48	e Education	Self, Group		Yes
49	Extra Learning	Self, Group	MT	Yes
50	Advance Learning	Self, Group	MT	Yes
51	Extra Learning	Self, Group		Yes
52	Extra Learning	Self, Group		Yes
53	Education	Self, Group		Yes
54	Education	Self, Group		Yes

55	Education	Self, Group		Yes
56	Extra Learning	Self, Group		Yes
57	Extra Learning	Self, Group		Yes
58	ICT Education	Self, Group		Yes
59	Extra Learning	Self		Yes
60	Easy to learn	Group	MT, SC, EN	Yes
61	Advance Learning	Group	MT, SC, EN	Yes
62	Extra Learning	Group	MT, SC, EN	Yes
63	E Learning	Group	MT, SC,EN	Yes
64	E Learning	Group	MT, SC, MU, EN	Yes
65	ICT & E Learning	Group	MT, SC, HI	Yes
66	ICT & E Learning	Group	MT, SC, HI	Yes
67	ICT & Internet	Group	MT, SC, EN	Yes
68	Self Learning	Self, Group	MT,SC, EN	Yes
69	Learning on Internet	Self, Group	MT, SC, SI	Yes
70	E Learning	Group	MT, SC, SI	Yes
71	E Learning	Group	MT, SC, DN, EN	Yes
72	Extra Learning	Self, Group	EN,MT,SC	Yes
73	E Learning	Self, Group	ICT, MT, HI, SC	Yes
74	Internet for further learning	Group	MT, SC, EN	Yes
75	Extra Learning , Internet	Self, Group	EN,MT,SC	Yes
76	Extra Learning , Internet	Self, Group	EN,MT,SC, ICT	Yes
77	ICT & E education	Self, Group	EN,MT,SC, ICT SC, HI, MT, SI,	Yes
78	Extra Learning	Self, Group	EN MT,SC,EN, CM,	Yes
79	Self Learning	Self, Group	HI	Yes
80	E Learning	Self, Group	ICT, MT, HI, SC	Yes
81	Extra Learning	Self, Group	MT, SC, MU, EN	Yes
82	Improving Knowledge	Self, Group		Yes
83	Extra Learning	Self, Group		Yes
84	E Learning	Self, Group		Yes
85	Self Learning	Self, Group	MT	Yes
86	E Learning	Self, Group		Yes
87	Extra Learning	Self, Group		Yes
88	E Learning	Self, Group		Yes
89	Easy Learning	Self, Group		Yes
90	E Learning	Self	MT,SC, EN	Yes
91	E Learning	Self, Group		Yes
92	Self Learning	Self, Group		Yes
93	Self Learning	Group		Yes
94	E Learning	Self, Group	MT, SC	Yes
95	Extra Learning	Self, Group		Yes
96	Self Learning	Self, Group		Yes
97	Repeat learning	Self, Group		Yes
98	E Learning	Self, Group		Yes
99	Easy Learning	Self, Group		Yes
100	Repeat learning	Self	MT	Yes
101	Self Learning	Self, Group		Yes
102	Interesting	Group	MT	Yes
103	Enjoyable	Group	MT	Yes
104	Enjoyable	Self, Group	MT	Yes
105	Interesting	Self, Group	MT	Yes
106	Interesting	Self, Group	EN	Yes
107	Self Learning	Self, Group	SC	Yes
108	Self Learning	Self, Group	MT	Yes
109	Self Learning	Self, Group	EN	Yes
110	Enjoyable	Self, Group	MT	Yes
111	Enjoyable	Self, Group	MT	Yes
112	Interesting	Group	MT	Yes
113	Interesting	Self, Group	MT	Yes
114	Interesting	Group	MT	Yes

115	Self Learning	Self, Group	SC	Yes
116	Self Learning	Group	SC	Yes
117	Self Learning	Self, Group	MT	Yes
118	Self Learning	Self, Group	MT	Yes
119	Self Learning	Self	MT	Yes
120	Self Learning	Self, Group	MT	Yes
121	Self Learning	Self, Group	MT	Yes
122	Self Learning	Self, Group	MT	Yes
123	Self Learning	Self, Group	MT	Yes
124	Self Learning	Self, Group	MT	Yes
125	Self Learning	Self, Group	EN	Yes
126	Enjoyable	Self, Group	EN	Yes
127	Enjoyable	Self, Group	EN	Yes
128	Enjoyable	Self, Group	EN	Yes
129	Enjoyable	Group	EN	Yes
130	Enjoyable	Group	EN	Yes
131	Enjoyable	Group	EN	Yes
132	Enjoyable	Self, Group	MT	Yes
133	Enjoyable	Self, Group	MT	Yes
134	Enjoyable	Self, Group	MT	Yes
135	Self Learning	Self, Group	MT	Yes
136	Self Learning	Self, Group	MT	Yes
137	Self Learning	Self, Group	MT	Yes
138	Self Learning	Self, Group	MT	Yes
139	Self Learning	Self	SC	Yes
140	Interesting	Self	SC	Yes
141	Interesting	Self, Group	SC	Yes
142	Interesting	Self, Group	EN	Yes
143	Interesting	Self, Group	EN	Yes
144	Interesting	Self, Group	EN	Yes
145	Interesting	Self, Group	MT	Yes
146	Interesting	Self, Group	MT	Yes
147	Interesting	Self, Group	EN	Yes
148	Interesting	Self, Group	MT	Yes
149	Interesting	Group	SC	Yes
150	Enjoyable	Self, Group	ICT	Yes
151	Interesting	Self, Group	MT	Yes
152	Self Learning	Self, Group	SC	Yes
153	Self Learning	Self, Group	ICT	Yes
154	Enjoyable	Group	MT	Yes
155	Interesting	Group	EN	Yes
156	Self Learning	Group	SC	Yes
157	Interesting	Self	MT	Yes
158	Self Learning	Self, Group	EN	Yes
159	Enjoyable	Self, Group	EN	Yes
160	Self Learning	Self, Group	MT	Yes
161	Enjoyable	Self, Group	EN	Yes
162	Interesting	Group	MT	Yes
163	Interesting	Group	MT	Yes
164	Interesting	Group	SC	Yes
165	Interesting	Group	SC	Yes
166	Self Learning	Group	EN	Yes
167	Self Learning	Group	EN	Yes
168	Self Learning	Group	MT	Yes
169	Self Learning	Group	MT	Yes
170	Self Learning	Group	MT	Yes
171	Interesting	Group	MT	Yes
172	Interesting	Group	SC	Yes
173	Interesting	Group	MT	Yes
174	Interesting	Group	MT	Yes
175	Self Learning	Self, Group	MT	Yes
176	Self Learning	Self	MT	Yes



## Student questioner Data Part 4

No	Achievements	Obstacles	Improvements
1	Using Computers to learn	No Pirivena content	Need Pirivena content
2	Learn PC, More Knowledge	No Pirivena content	Need Piriven content Need more time, computers, advance content
3	Quick and Easy Learning	Not enough computers	Increase Time, A,L Content
4	Practical Learning	Need more time	Add piriven content
5	Using Computers to learn	No Piriven content	Add Pirivena content
6	Using Computers, Extra knowledge	No Pirivena content	Need more time, advance content
7	E Learning, More Knowledge		Add Pirivena content
8	Using Computers	No Pirivena content	Add Pirivena content
9	Using Computers to learn	No Pirivena content	Add Pirivena content
10	Using Computers to learn	Need more time	Increase Time & Content
11	Easy Learning	Need more time	Increase Time & Content
12	Quick and Easy Learning	Not enough computers	Increase Time & Content
13	Using Computers to learn	No Pirivena content	Add Pirivena content
14	Quick and Easy Learning	Not enough computers	Increase Time & Content
15	Learn PC, More Knowledge	Need more time	Increase Time & Content
16	Learn PC,More Knowledge	Need more time	Increase Time & Content
17	Using Computers to learn	No Pirivena content	Add Pirivena content
18	Using Computers to learn	No Pirivena content	Add Pirivena content
19	Using Computers	No Pirivena content	Add Pirivena content
20	Using Computers to learn	No Pirivena content	Add Pirivena content
21	Quick and Easy Learning	Not enough computers	Need more time & content
22	Using Computers to learn	No Pirivena content	Add Pirivena content
23	e Vesak Competition 2nd Place	Difficult to find pictures	More Science
24	Win Competition Certificates	Difficult to find pictures	More Awareness
25	Learn PC,More Knowledge		More content
26	Win Certificates	Need more pictures	More computers
27	Win Certificates		More Learning Time
28	Using Computers to learn		more pictures
29	Using Computers to learn	No Tamil Content	More Learning Time
30	Using Computers to learn	No Tamil Content	More Learning Time
31	Using Computers to learn	No Tamil Content	More Learning Time
32	Practical Learning	No Tamil Content	More computers
33	Using Computers to learn	No Tamil Content	More Learning Time
34	Using Computers to learn	No Tamil Content	More Learning Time
35	Using Computers to learn	No Tamil Content	More Learning Time
36	Using Computers to learn		More computers
37	Using Computers to learn	No Tamil Content	Shilpa Sayura in Tamil
38	Using Computers to learn	No Tamil Content	More Learning Time
39	Using Computers to learn		Add videos
40	E Learning, More Knowledge		Lecture Room
41	E Learning, More Knowledge		More computers
42	Using Computers to learn		Add All subjects
43	Quick and Easy Learning		Add Sound
44	Using Computers to learn		Extra Subjects
45	Using Computers		Add more sounds
46	e Learning		Advanced ICT
47	ICT learning		More facilities
48	ICT learning		Provide laptops

49	ICT learning		Lecture Room
50	e Learning		More Computers
51	e Learning		More facilities
52	ICT learning		More facilities
53	e Learning		More facilities
54	e Learning		More facilities
55	e Learning		Provide laptops
56	ICT learning		More facilities
57	ICT learning		Lecture Room
58	e Learning		
59	e Learning		Provide laptops
60	E Learning	Technical problems	Add Sounds
61	E Learning	Technical problems	Add Sounds
62	Extra Learning	Technical problems	More organized lessons
63	E Learning	Technical problems	More organized lessons
64	Using Computers to Learn	Technical problems	More organized lessons
65	ICT learning	Technical problems	More organized lessons
66	Extra Learning	Technical problems	organized lessons
67	E Learning	Technical problems	according to grades
68	e Learning	Technical problems	More multimedia
69	ICT learning	Technical problems	Add Sounds
70	Using Computers to learn	Technical problems	Ordered Lessons
71	Using Computers to learn	Technical problems	Add Sounds
72	Using Computers to learn	Technical problems	Add Sounds
73	E Learning, More Knowledge	Technical problems	Add Sounds , Order
74	E Learning, More Knowledge	Technical problems	Subjects
75	Extra Learning	Technical problems	Add Sounds. Order
76	Self Learning	Technical problems	Subjects
77	Extra Learning	Technical problems	Add all subjects
78	Improve Weak Subjects	Technical problems	Add all subjects , Add
79	Improving ICT Knowledge	Technical problems	Sounds
80	E Learning, More Knowledge	Technical problems	Add Sounds
81	ICT learning	Technical problems	Add Sounds
82	Using Computers to learn	No Tamil Content	Add Sounds ,order
83	Extra Learning	No Tamil Content	subjects
84	e Learning		Add Sounds ,order
85	Improving ICT Knowledge	No Tamil Content	subjects
86	e Learning	No Tamil Content	Add Sounds. Order
87	Improve Weak Subjects	No Tamil Content	Subjects
88	Improving ICT Knowledge	No Tamil Content	More organized lessons
89	Extra Learning	English Knowledge	Add Tamil Content
90	Using Computers to learn		Add Tamil Content
91	E Learning, More Knowledge	English Knowledge	Add Tamil Content
92	Using Computers to learn		Add videos
93	ICT learning		Add Tamil Content
94	Using Computers to learn	No Tamil Content	Add Tamil Content
95	e Learning	No Tamil Content	Add Tamil Content
96	Extra Learning	No Tamil Content	Add Tamil Content
97	Extra Learning	Technical problems	Electronics
98	e Learning	No Tamil Content	Add Tamil Content
99	Improving ICT Knowledge		Add more Subjects
100	Improve Weak Subjects		Add Sounds
101	ICT learning		
102	Improve Weak Subjects	Technical problems	Online Learning
103	Improve Weak Subjects	English Knowledge	Online Learning
104	Improve Weak Subjects	English Knowledge	Online Learning
105	Using Computers to learn	English Knowledge	Online Learning



168	Improving Weak Subjects	English Knowledge	Online Learning
169	Improving Weak Subjects	English Knowledge	Online Learning
170	Improving Weak Subjects	English Knowledge	Online Learning
171	Improving Weak Subjects	English Knowledge	Online Learning
172	Improving Weak Subjects	English Knowledge	Online Learning
173	Improving Weak Subjects	English Knowledge	Online Learning
174	Improving Weak Subjects	English Knowledge	Online Learning
175	Improving Weak Subjects	English Knowledge	Online Learning
176	Improving Weak Subjects	English Knowledge	Online Learning