Experience from the Field:
Designing, Developing and Delivering Context-specific Mobile ICT for Education Solutions and Learning Content in Myanmar Secondary Schools

Antony Tam
ICT for Education Expert
UNESCO Myanmar
The project

https://www.youtube.com/watch?v=f5UgKnwRmWo
In Myanmar, mobile ACCESS is INCREASING...

- **2%** of the Myanmar population accessed the internet in 2014.
- **28%** of rural households in Myanmar have a mobile phone.
- **84%** of mobile devices owned by 15 to 24-year-olds are SMART PHONES.

Mobile Subscribers tripled between 2014 and 2015.

Internet users (per 100 people)
Our project

connect to learn
A GLOBAL EDUCATION INITIATIVE.

Our partners

* Not listed in order
Project overview

The first-of-its-kind ICT for education project using tablets in Myanmar classrooms

The first-of-its-kind project providing 3G mobile Internet connectivity to Government schools in Myanmar

A pilot project focusing on Grades 7 to 10 students of 31 schools in rural or semi-urban areas of Myanmar

Context-specific English and Life Skills mobile learning content

Innovative funding through public-private partnership
Contextual challenges

- Lack of teaching aids
- Lack of stable electricity supply
- Lack of ICT knowledge of school leaders and teachers
- Lack of 3G mobile Internet connectivity
- Lack of capacity of the Government officials to promote ICT for education
Initial solutions

- Development of English and Life Skills mobile learning content
- Solar panels to provide stable electricity supply
- ICT-pedagogy integration training to school leaders and teachers
- Provision of 3G mobile Internet connectivity
- Capacity building of the Government officials to promote ICT for education
Context-specific mobile learning content creation
Designing stage

<table>
<thead>
<tr>
<th>Challenges</th>
<th>Lessons learnt</th>
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<tbody>
<tr>
<td>1. Teachers lacking in ICT knowledge</td>
<td>• Easy to use mobile applications</td>
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<td></td>
<td>• Teacher professional development on ICT-pedagogy integration</td>
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<td>2. Teachers lacking in confidence in class management with ICT use</td>
<td>• Development of child-friendly application interface on tablets</td>
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<td>3. Teacher-centered pedagogy</td>
<td>• Tailor-made mobile applications with lesson activity instructions for teachers</td>
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Designing stage

Before:

THE NOBEL PRIZE

Every year in the newspapers we read about people getting Nobel Prizes. But what is a Nobel Prize? Who gives it? And what kind of people get Nobel Prizes?

The prize is named after Alfred Nobel, the Swedish chemist who invented dynamite, a high explosive to blow up anything. He was born in 1833 and died in 1896. At first, Nobel was not a wealthy man. However, after his discovery of dynamite, he became very rich by manufacturing and selling it, as well as other kinds of high explosive.

One day, Nobel fell ill and during his illness, he thought much about his invention and became sad. He was sad not because he had invented dynamite but because people were using his invention to kill one another. Therefore, before he died, he wrote a will (a paper written and signed by a person, telling others what to do with his money when he dies.) In that will, Nobel said that his money should be used to award prizes to people who have done outstanding work in peace, literature, physics, chemistry and medicine.

Since Nobel's death, prizes have been awarded every year by the Swedish government to men and women who have worked hard and have achieved outstanding success in those fields. They are chosen from all over the world and are large sums of money. These large sums of money are given to the outstanding workers to help them continue their work of improving the world. Thus, since that time, writers, physicists, chemists, doctors and those who work for peace have won Nobel prizes.

The highest award, which is usually a very large sum of money, is given to the person who has done the greatest service in the cause of international peace.

After:

Embedded Media

Since Nobel's death, prizes have been awarded every year by the Swedish government to men and women who have worked hard and have achieved outstanding success in those fields. They are chosen from all over the world and are large sums of money. These large sums of money are given to the outstanding workers to help them continue their work of improving the world. Thus, since that time, writers, physicists, chemists, doctors and those who work for peace have won Nobel prizes.

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Reader:

Text only

Vocabulary

Give us a passage word which means the same as each of the following:

1. high explosive
2. give a prize
3. go on
4. prize
5. or belonging to many nations

Built-in auto answer key

Exercises:

No answer key

Sets

Modern Mathematics is a fundamental discipline in which men and women develop new concepts that make possible our modern world.

The foundation of Set Theory was first laid down by George Cantor (1845-1918), and developed over the years by many famous mathematicians, including John von Neumann (1890-1957) who further refined it into a rigorous notation for representing sets.

Eyes on the teacher

If you can count the elements of a set and by so on until you reach a final element that set is called finite. When you cannot count the elements of a set you are dealing with an infinite set.

If you start listing the even numbers 2, 4, 6, 8, . . . you have started on an infinite set, you can never reach the last one. A set that contains no members is called the empty set or null set. It is denoted by the symbol ∅ and it considered a finite set.

Important!

You will be expected to be familiar with the following sets of numbers:

1. The set \( \mathbb{N} \) of natural numbers, consisting of the counting numbers 1, 2, 3, . . . and so on.
2. The set \( \mathbb{Z} \) of integers, which contains the natural numbers, their negatives and zero.
3. The set \( \mathbb{Q} \) of rational numbers. A typical element of \( \mathbb{Q} \) can be expressed in the form \( \frac{a}{b} \), with \( a \) and \( b \) integers and \( b \neq 0 \). Some examples of rational numbers are \( \frac{1}{2}, \frac{3}{4}, \frac{5}{7} \) and \( \frac{0}{1} \), which is not a rational number.
4. The set \( \mathbb{R} \) of irrational numbers. The members of this set are all real numbers that are not rational numbers.
English language program:
Digitalized G7-10 English textbooks with enhanced interactive features are being used in project schools with positive feedback.

Key Features

a. **Media Enriched**
   i. relevant pictures and illustrations
   ii. paragraph-by-paragraph narration by native speaker
   iii. recording of native speakers to help pronounce words

b. **Highly Interactive**
   i. student response system
   ii. interactive activities such as flash cards
   iii. instructional tools

c. **Reinforced Vocabulary & Grammar**
   i. various types of vocabulary activities
   ii. comprehensive grammar rules & grammar question drills
Draft interactive learning objects and learning games to promote student-centred learning on:

- **Human rights and peace**
- **Leadership and communication**
- **Sexual and reproductive health**

**Lesson 10: Peace at home and school**

**Students will:**
- Develop and compare definitions of peace
- Identify attitudes and local actions that support peace
- Define peer pressure and bullying
- Reflect on how they can influence peace at home and school
- State why peace at home and school are important
- Self-assess their resilience, an important skill for promoting peace.

**Introductory discussion**

Students discuss the meaning of peace and how they can influence peace at school and home. Ask the class questions like:

1. What does peace mean to them? (Write down a class definition first, then compare it with dictionary definitions. If offline, definitions of peace, peer pressure and bullying are listed at the end of this lesson plan)
2. Why is peace important to them?
3. What are some ways students can support peace at school?
4. How can students help influence peace at home?
5. What does peer pressure mean? (See the definition provided at the end of this lesson plan if needed)
6. What does bullying mean? (See the definition provided at the end of this lesson plan if needed)

If online, students add their responses as comments in a Mashup discussion thread. If offline, students write their responses in bullet form.

**Teacher tip**

For questions 3 and 4, if students give their answers in short statements of one or two words, like "do chores" or "be kind", ask them to say a bit more by giving an example, like "if everyone at home does their chores, the family has more peace".
# Development stage

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<th>Lessons learnt</th>
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<td>1. No experienced local mobile content and application developer</td>
<td>• Cooperation between international education technology experts and enthusiastic local developers</td>
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<td></td>
<td>• Hackathon</td>
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<td>2. Content not context-specific enough</td>
<td>• Involvement of local experts, both academia, practitioners and the Government</td>
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<td>• Needs assessments and field consultations</td>
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<td>• Pilot testing and revisions</td>
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## Delivery stage

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| 1. Unstable Internet connectivity | • Availability of online and offline versions  
• Provision of local servers to store content |
| 2. Content being device dependent | • Development of mobile file formats accessible on various platforms  
• Cloud solutions |
| 3. Concern about sustainable use of mobile content | • Capacity building for the Government officials and teachers within the existing system  
• School leadership empowerment  
• Simulated classroom training |
Delivery stage

Technology solutions

Internet

- Cloud computing
- Content management
- Usage management and analytics
- Child-friendly interface
- Education platforms with course video’s, quizzes...etc.
- Online and Offline education libraries and encyclopedia: Wikipedia, Khan Academy...

CONNECT TO LEARN CLOUD

EXTERNAL EDUCATION PLATFORMS

School

- 3G
- Teacher Kit
- Charging cart
- Student devices
Unesco’s roles

- Work closely with them to implement the project
- Enhance the current curriculum in English and Life Skills
- Provide them with ICT-pedagogy integration training
- Provide them with school leadership training
- Provide them with ICT-pedagogy integration training
- Visit schools and provide ongoing support
- Develop and deliver context specific applications and learning content in English and Life Skills
Success to date

3100 Tablets in Schools
186 Teacher Laptops in Schools
22 Ministry of Education Team Members Trained
155 Teachers Trained
31 School Leaders Trained
272 Instructional Training Hours
Teachers are appreciative of ICT learning through sharing resources

“I can use ICT to improve my English class by projecting grammar exercises on the screen. Also, when I teach the chapter about earthquakes, I can show videos to the students rather than merely showing newspaper cuttings.”

Daw Ei Mon Aung, English teacher in Bago Region, 1-year teaching experience

“I learnt to use word processing to prepare my lesson plans and examination questions. In addition, with mobile Internet access, I can join some online teacher communities through which we can exchange teaching ideas and materials.”

Daw Thurein Aye, Computer teacher in Bago Region, 8-year teaching experience

“Not only can ICT improve teaching and learning, but it can also allow teachers to keep good records and track student progress. I will coordinate with the trained teachers in the school to transfer their ICT knowledge to other teachers.”

Daw Sein Kyi, Headmistress in Mon State, 36-year teaching experience
Summary: Success factors of ICT teaching and learning resource sharing in Myanmar

Relevant

Easy to navigate

Accessible sharing platforms

Improved Internet connectivity

Capacity building on effective sharing