

Reimagine Education: ICT & Innovation in Timor-Leste

“Education First,
Education for All”
#Education Month

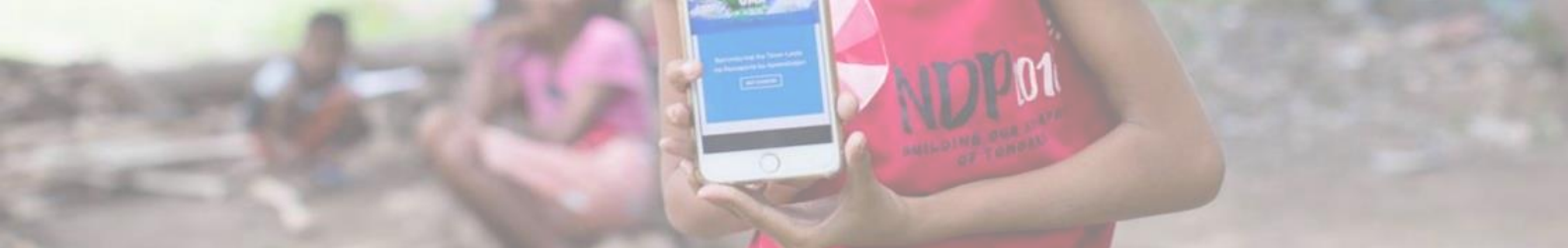


The Convention Centre of Dili (CCD)

26th and 27th of October 2020



unicef 
for every child



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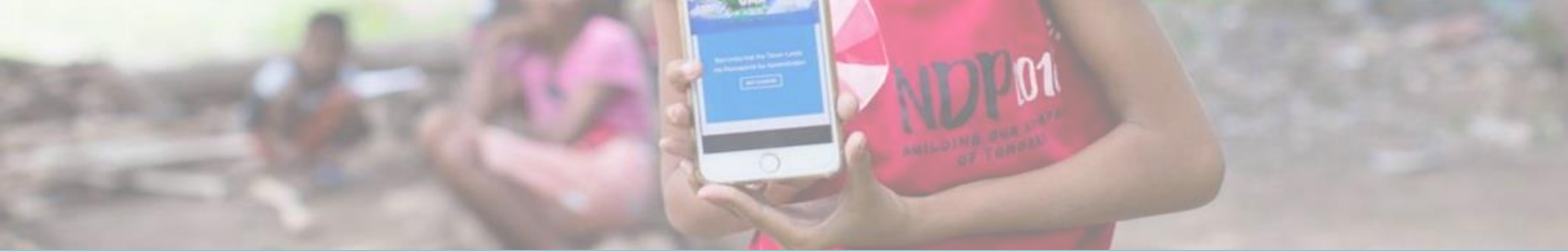
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Introduction

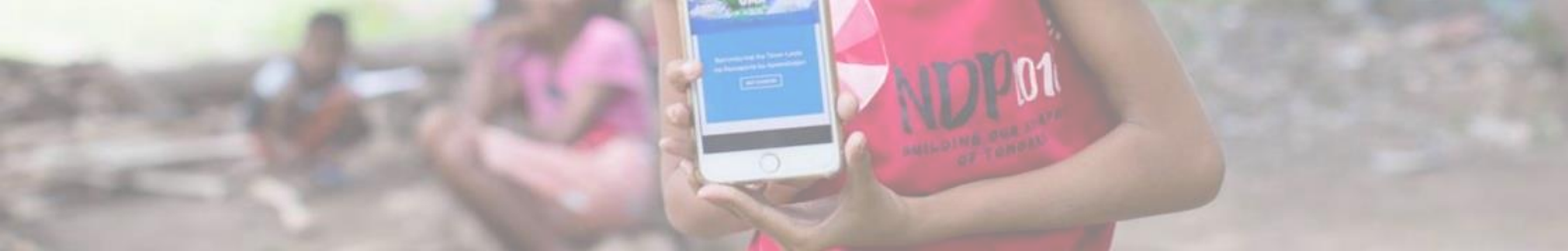
October celebrates the Education Month in Timor-Leste, and this year it was marked by the first conference and exhibition on ICT and Innovation in Education in the country, co-organized by UNICEF and the Ministry of Education, Youth and Sports (MoEYS). The COVID-19 pandemic created new challenges, as the closing of all schools across the territory manifested the need for technology, and, consequently, demonstrated the advantages it can bring for education. Upon the pandemic, a series of long-distance learning programs that would otherwise have taken longer to be put in place were conceived, developed and implemented in just a matter of weeks. It was in this context that the MoEYS, together with UNICEF and other partners worked relentlessly on transforming ICT in education in Timor-Leste. As such, they brought new perspectives on both the challenges and opportunities regarding ICT in education in the country.

In the era of digital communication, equipping children with the necessary tools to positively engage online, interpret and communicate digital information is essential in preparing them for the future. As such, we experience new innovative ways to not only incorporate technology in education, but also make use of it for enhanced learning experiences for all children. ICT has the potential to accelerate change, increase economic development and decrease inequalities. In promoting new approaches to education, technology can encourage the students' autonomy and accountability in their own learning, which in turn expands their horizons and improves their life prospects. However, many obstacles still stand in the way of the effective implementation of ICT-based education programs in Timor-Leste.

This conference focused on the many ways in which ICT is transforming education. By bringing together a network of experts, professionals and key stakeholders who work in promoting ICT in education, capacity building and skills development — both in Timor-Leste and across the globe — it created a platform for discussion, sharing experiences, implementing new ideas and finding solutions. Essentially, “Reimagine Education: ICT & Innovation in Timor-Leste” provided the opportunity to promote the development of ICT-based and blended learning programs in Timor-Leste through mutual learning and exploring potential collaborations.

The conference counted on the presence of the Ministries of Education, Higher Education, and Transport and Communications, as well as TIC Timor, educational administrative staff, teachers, scholars, students, development partners, embassies, higher education institutions, digital influencers and private sector delegates. Participants could interact in keynote presentations on transformative ICT-based learning initiatives, lightning talks on new ideas, roundtable discussions, activities and digital contests and exhibitions, including the demonstration of ICT-based education projects and services.

Some of the main discussions were around accessibility and access to the internet, social inequalities that might hinder some children's access to technology, and how children with learning disabilities can benefit from ICT in education.



Opening Session

1

The Opening Session set the tone for the Conference by underlining why ICT in education matters and the relevance of discussing the topic at this particular time. The session provided an overview of the rapidly changing landscape of technology, and the subsequent need for education systems to keep up with technological advances, as Timorese children and children around the globe will need digital, critical thinking and innovation skills to face the 21st century. The COVID-19 Pandemic substantially accelerated the use of digital learning platforms. In this context, the conference aimed to provide further insights into existing innovative projects for ICT in education, both in Timor and around the globe.

Karin Hulshof, Regional Director UNICEF East Asia Pacific remembered with joy the time she spent in Timor-Leste and regretted the fact she could not be physically present due to the current pandemic. She praised the ready and quick response by the Ministry of Education of Timor-Leste, upon the breakout of the COVID pandemic, when launching the *Eskola Ba Uma* (School Goes Home) initiative, which involved the adaptation of the national curriculum to TV and radio programs, as well as online learning. Ms. Hulshof noted how COVID-19 has exposed inequalities in education across the globe, where Timor-Leste has been no exception. She encouraged participants to imagine an ideal world by posing the question ‘What if...’ regarding the possibility that all children could be granted access to digital learning, acquiring digital literacy and transferable skills to better equip them for the future. UNICEF stands by the belief that education is a crucial investment for societies. In light of this, she adds, digital literacy should be in focus, as it is now needed for human resources development, and a failure to address this will increase poverty and inequality. This can be done, Ms. Hulshof suggests, through changing teaching methods to problem-based learning methodologies, promoting team-work and creative thinking, and enhancing communication skills, both online and offline. Reimagining education requires the ability to form strong and diverse partnerships, starting with children and adolescents themselves, the private sector, development partners, relevant ministries and departments. She urged

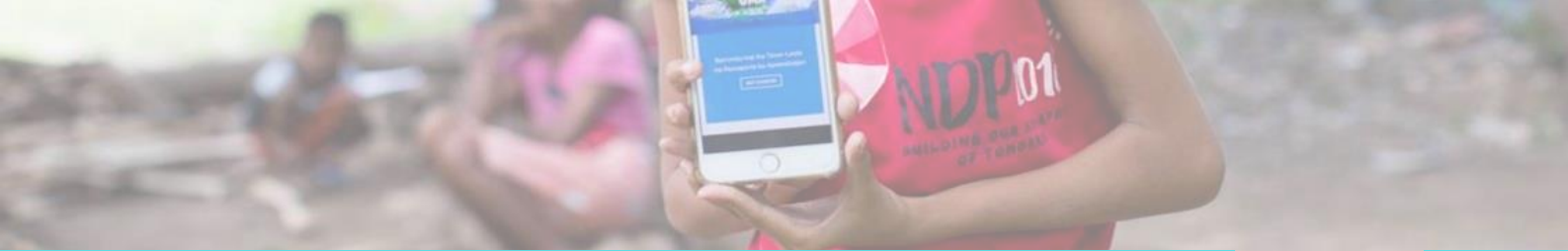
participants to seize the opportunity in disaster and let challenging times guide progress.

Valerie Taton, Representative UNICEF Timor-Leste initiated her speech by noting how the very nature of the conference — involving statements and experiences from across the globe through digital connection — was an illustration of the new digital world and what it has to offer. Ms. Taton emphasized the relevance of organizing the first conference on ICT and innovation.

“We are making history, and together, we can make the children of Timor-Leste be prepared for the future.”

Drawing on the experience from the COVID-19 pandemic in Timor-Leste, when thousands of children had to stay at home, Valerie Taton pictured a world where both teachers and students could benefit from learning through technology on a daily basis. Digital libraries, for example, can meet the needs of children with learning disabilities and promote inclusivity in the classroom, as well as transform a history or geography class with audiovisual interactive platforms. Additionally, as the Government of Timor-Leste plans on enhancing electronic platforms for governance, banking and other services, it is essential that the new generation has access to digital education. She urged participants to embrace this reality and work towards providing every child in Timor-Leste with the opportunity for a better future.

H.E. Armindo Maia, Minister of Education, Youth and Sports, recalled the initial moments of the pandemic, when the Government decided to immediately close all the schools in the country to avoid the spread of the virus. Overnight, children and university students were unable to go to school. This situation showed exciting opportunities that were ready to explore and proved that reimagining education is possible. Even though the use of digital learning in education might be an ambitious goal, it is possible when the private and public sector come together in a joint effort to build teacher capacity, infrastructures and develop the content for ICT-based learning.



Lightening talks on national projects & Discussion

2

The lightening talks introduced and shared the results of ICT-based projects implemented in Timor-Leste, as well as some of the challenges to implementation and how implementing entities have worked on overcoming them.

Erine Dijkstra, Country Director, ChildFund Timor-Leste shared her experience as a young child who used to visit the local library in The Netherlands with her parents and siblings, which encouraged her love for books and reading. She noted how most Timorese children have a different experience as they have very limited access to libraries. Ms. Dijkstra then introduced the new project SPARK, a digital library for all, supported by Australian Aid and ChildFund. The digital library, which can also be downloaded in an App for smartphones, currently holds more than 100 books in Tetum that have been previously approved by the Ministry of Education Youth and Sports. This system, which is easy to store and handle, allows access to multiple quality books for children to read both in the classroom and independently at home. With its diverse content and ready access, it allows children to access various quality, relevant and inspiring books and aims to encourage them to love to read.

Esther Correia, Education Technical Lead, Partnership for Human Development (PHD) introduced ALMA (Leadership Mentorship and Learning Support), a program implemented by PHD and funded by the Australian Embassy that supports and strengthens the education system in Timor-Leste. Ensuring equitable and inclusive quality education requires upscaling teacher quality and ensuring access to the curriculum for all children, in which ICT plays a fundamental role. Ms. Correia emphasized how it has been proven that ICT in education improves development, as long as it can guarantee durability and sustainability, adapted to the context of each country. However, it is not without its limitations. For example, UNESCO's recent review of mobile learning solutions for teachers reveals that ICT in education should not aim to substitute traditional and evidence-based teacher training and development, but rather support and enhance system

strengthening initiatives, both for teachers and the system as a whole. As such, ALMA supports the MoE Information Technology section in the area of information sharing, monitoring and evaluation to support the development of different forms of peer-to-peer networking. For example, ALMA provides school leaders and teachers with a tablet containing custom-built apps for collection, storage and submission of classroom observation data, retrieval and analysis of information. The tablets also contain the new curriculum, lesson plans and materials, as well as many electronic resources such as reports, activities and videos for capacity building.

Joanico Guterres Monteiro, IT Teacher, Becora Technic-Vocational Secondary School challenged participants to imagine an innovative new method for evaluation in schools that can be efficient, transparent and fun. The traditional evaluation method of classroom exams, Mr. Monteiro pointed out, is often a lengthy and expensive process, subjective to human error. The program Wondershare implemented by Becora Technic-Vocational School, on the other hand, provides an easier and accessible way to evaluate exams in a standardized approach. The program can be used for evaluation in the classroom in both theoretical and practical subjects, providing an errorless automatic and timely correcting system that saves resources and provides more safety and transparency. Additionally, it does not require any access to the internet and further promotes and develops ICT knowledge and practice for teachers.

Patricia Porras, Program Manager, ICT Education in Oecusse, UNPD, exposed the challenge of teaching ICT to children who might have never had access to a computer, or, rather, who might lack basic abilities to read or write, or often skip school to focus on other activities, such as fishing. Fomenting their curiosity, Patricia noted, is key.

“Curiosity is the root of learning”

Lightening talks on national projects & Discussion

Patricia gave the example of Marcia, a secondary school student who had never had access to basic technology before, such as computers or cameras. After only 9 days of training from UNDP's ICT education project, supported by UN-India Development Partnership fund, Marcia's curiosity enabled her to create a website about her school and communicate with students around the world. This program has provided ICT, Robotic and Computer Labs, Robots and Multimedia in Oecusse. Access to new technologies will encourage children to develop their professional future by preparing them to access and create alternative employment opportunities in the 21st century.

Marito Soares, Director, Media and Electronic Libraries, Ministry of Education, Youth and Sports, assumed his current position four days after schools closed in Timor-Leste due to the COVID pandemic. Mr. Soares had dreamt about the benefits of digital education in his country and soon implemented the first national online learning platform in Timor-Leste: The Learning Passport. Part of the *Eskola Ba Uma* distance learning initiative, the Learning Passport was the result of a partnership between UNICEF, Microsoft and the Ministry of Education, Youth and Sports. The platform features most books in the national curriculum and has so far registered more than 23.000 teachers and students, which has proven to significantly develop teachers' ability to use ICT in education. The Learning Passport also encourages inclusivity in education, by featuring sign language in video lessons, supported by PHD, and further adding extra learning materials for children with disabilities. The project now counts with support from the Massachusetts Institute of Technology (MIT) University in the USA and INSPER in Brazil.

Pedro Ximenes, Senior Advisor, HANDS program to INFORDEPE, introduced the HANDS program used for teacher training. HANDS uses a Blended Learning Approach, combining digital and traditional teaching methods, using both digital platforms such as Zoom and in person meetings. HANDS program provides tablets for teachers and access to the internet, as well

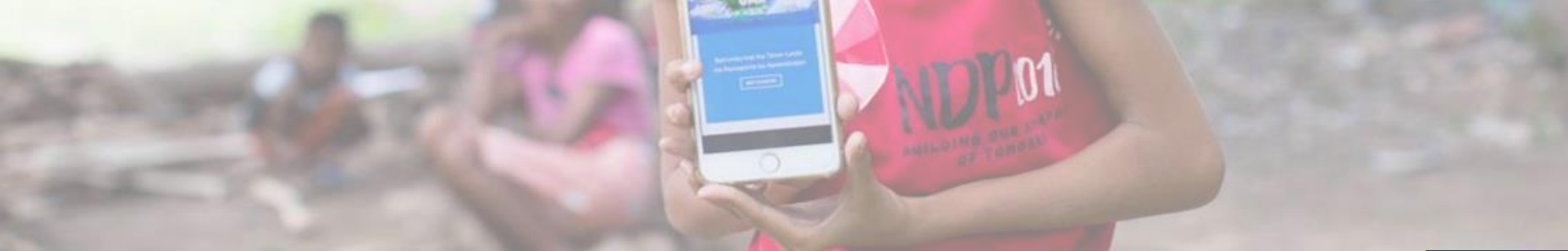
as access to a call centre for technological support. As Mr. Ximenes point out, the quality of teachers determines the students' success, and it is therefore fundamental to advance teacher training with technology. This program has trained more that 200 teachers, mostly women, with 85% participation rate.

Juanita Beling, Deputy Principal of the Secondary school and Coordinator of the Middle Years Programme at Dili International School spoke about the importance of integrating critical and creative thinking in the curriculum. Modern day subjects such as design, coding and robotics can bring a new light to education. At Dili International School, students are introduced to these subjects from an early age, and learn how to apply them in other traditional subjects. More importantly, the students learn the importance of collaboration to develop better ideas and products.

“Students discovered that they need collaboration to create better solutions and make their product more effective”

For example, in the robotics program, students taking the role of engineers have to work together with coders in order to develop a functioning robot. The success to this approach, Ms. Beling reveals, is that all students have an equal opportunity to participate and learn in all areas.

Father Isaias Abilio Caldas, Director, Colegio de Santo Inacio de Loyola, talked about the main challenges faced by everyone, especially children, in Timor-Leste during pandemic: feeling lonely and isolated. To address this problem, teachers at Colegio Santo Inacio de Loyola put forward the idea of using *WhatsApp* to communicate with their students, which eventually developed into a learning program through *WhatsApp* during the state of emergency. Children kept occupied and accompanied, even though internet access and disparities between rural and urban areas are still an obstacle. One of the students from the school intervened to share her positive experience during this program and urged the government to create more conditions for ICT in education.



Lightening talks on national projects & Discussion — Q&A

How are international agencies supporting the government to provide equal access to education in rural areas?

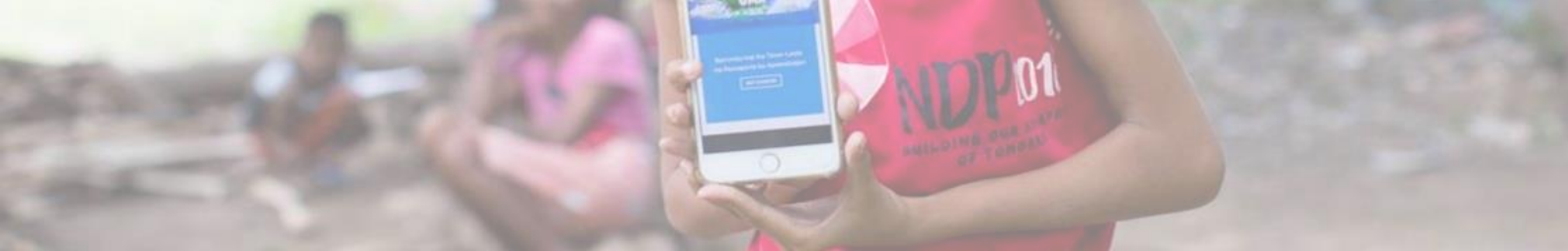
Esther Correia

This issue concerns equity in the use of technology. There are disadvantages to this new program, regarding, for example, teachers' ability to use tablets. Often, especially in rural areas, there is no connection, no *pulsa* (internet data), and no comprehension on how to use tablets. The answer is for teachers to work closer with mentors who are trained in technology and have a background in teaching, in order to advance inclusion of ICT education in rural areas. The program ALMA is being implemented in 10 municipalities and is focused, on this regard, in school deans and consulting with partners before implementation.

What challenges do you face when running the program Learning Passport and what do you dream for the future?

Marito Soares

The main challenge is the equipment necessary to run the program, for which we request the attention and support from the Ministry of Education, Youth and Sports. Our dream for the future of Learning passport is that all students can access online learning in all municipalities.



Key Note Speaker

Prof. Sugata Mitra, Professor Emeritus at NIIT University, Rajasthan, India, provided an enlightening overview of his findings on child learning and education throughout his career. In 1999, Prof. Mitra conducted an experiment called The Hole in the Wall (HIW), which consisted on embedding a computer within a wall in an Indian slum in Delhi. The experience was then repeated in other places. At a time when children were not yet familiarized with computers or the internet, the experiment proved that children can learn to use the internet on their own in the following conditions: (1) no supervision, (2) access to a safe and public space, (3) assembled in mixed groups composed of boys and girls, and (4) different ages. The experiment also proved the particular importance of working in groups. Posterior replications of the experiment showed that children are always prone to finding the answers to the questions put forward for them to answer through the use of the internet.

When interacting in these environments, the experiments showed that children are able to organize themselves from a spontaneous order that naturally originates from their interaction — Self-Organized Learning Environments (SOLE). This suggests, according to Professor Mitra, that children are able to learn anything by themselves in a group, at their own pace.

The SOLE method should be carried out in the presence of an adult, not as a supervisor, but rather as a motivator, encourager, and a friend. This is what Professor Mitra called the “method of the grandparent”. For this experiment, volunteers acting as “grannies” would not teach, but rather have a conversation, ask questions, and children would look for the answers online. When children found themselves before an adult who asks for assistance on how to work with technology or find answers, they proved motivated and efficient in finding accurate information. The presence of an adult admiring the children seemed to have advanced the learning process.

In 2013, Professor Sugata Mitra won the TED prize, and 1 Million Dollars, and decided to try the experiment of SOLE across India, naming it the School in the Cloud.

Now, 20 years later, Professor Mitra declared, the experience is over and the lessons are learned. Nonetheless, one challenge remains to transmit to parents how children can learn without the support of a teacher. Teachers, however, tend to understand this process and are willing to use the system of the School in the Cloud inside their schools, when they have the facilities and resources.

**“Before, it was about how much we know.
Now, it is about how much we are able to
find out.”**

The method used in the School in the Cloud, according to Professor Mitra, has proven to improve the student’s competences that are most valued in the job market today: comprehension, communication and computer skills. Before, Professor highlights, the criteria on student and professional success was how much students know. In part, because they did not have any “assistance”. Now, it is about how much they are able to find out, using the now readily available assistance of the internet. Consequently, while the early education system required students to learn in advance about all areas previously known to knowledge, the curriculum should now focus instead on the unknown. That is, focus on the questions that not even the internet is able to answer.

As such, Professor Mitra argues, the future of learning lies in 3 main abilities for children to solve problems as they arise — the 3C’s: Computing, Comprehension and Communication. From this perspective, assessment would consist in the students’ computing skills to find accurate answers, simulating a real-life situation. This way, children will become engaged in finding new answers, as long as they are encouraged to use the ‘assistance’ of the internet to readily reach, assimilate and communicate existing knowledge.

Key Note Speaker — Q&A

Questions from the audience:

How would you define education?

Sugata Mitra

There are all kinds of definitions. This is not good because there should be just one universal definition. I propose instead a generic formula, by asking “what do we want out of education?”. Not what is education, but rather what we want out of it. The answer is that we want to engage our children and help them to live happy, healthy and useful lives. The old definition looks something like this: “Education is a process through which a person becomes this and this...”. Education should enable people to live happy, useful and healthy lives. The goal is to build a curriculum in these three words.

How do we teach values such as honesty, if we are to allow student to search for answers online during assessments?

Sugata Mitra

There is a long list, and each educator understands it differently, so I’ll leave that to you. I say that whatever it is you teach that does not help the students to lead useful, happy and healthy lives is a waste of time. This is not hard to do. The issue is how do we teach. An interesting exercise is to ask children: what do you think? It leads to a discussion and children will remember it for a long time, instead of talk about rules and what they must or must not do — this is obsolete, we need to shift it into a gentler and engaging discussion approach.

What are the challenges you face in implementing ICT in education?

Sugata Mitra

We should be able to solve a problem when we see it, even if we have no prior knowledge, by using the internet. And for that we need to measure three abilities:

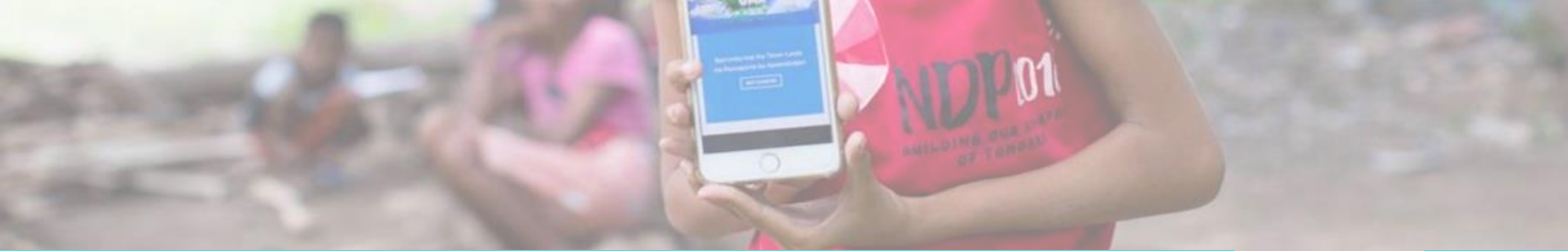
- 1) Computing: Looking for the right things and finding what we want through the right devices.
- 2) Comprehension: Having reached the right information, we need to be able to generally comprehend it, by reading quickly and understanding see if it useful, relevant and what are the references.
- 3) Communication: Being able to tell others what we found.

Developing these three abilities in children throughout their education will prepare them for life in the 21st century. Everything is changing: what needs to be known is no longer evident in today’s world. We need to equip children with abilities to solve problems just in time, instead of stuffing them with information they may or may not need to know.

What innate abilities do students need to have to form themselves in SOLE? What abilities do teacher need to have in such environments? What is the role of the teacher in the concept you propose?

Sugata Mitra

Suggestion: allow them to use the internet, drive the classes with questions — instead of “I know this, and you listen”, convert into “can you find out and tell me?”. You don’t have to pretend that you know everything, you can say that there are thing you don’t know as well, that the students can help you find out. The teachers’ job is to transmit the message: “You go there and I will come with you”, instead of “I will drag you there”.



Panel on Digital Literacy

4

The panel discussion focused on digital literacy, ICT in the school curriculum, lifelong learning, teacher learning, higher education, challenges and myths associated with ICT in education.

Prof. Geiza Marques Oliveira, Universidade Nasional Timor Lorosa'e (UNTL) opened the panel by defining ICT as the technical equipment combined with the software that allows us to find, store, assimilate, and share information. Prof. Oliveira noted that in Timor-Leste, as the number of cellphones owned by families keeps growing, the number of computers is reducing. This reality is reflected in the profile of her students, of whom only 10% own a laptop. As such, digital literacy among young Timorese is limited, as well as their ability to use online resources in a responsible, productive manner, focused on critical thinking. Additionally, both teachers and students meet many challenges with online learning due to the language barrier. Tetum is not yet a language used in ICT, and most students demonstrate only superficial knowledge of a second language. One of the steps towards solving this problem, according to Prof. Oliveira, is to reinforce the use of Tetum language, complemented by the use of a second language for this purpose, may it be Portuguese, English or Indonesian. An additional recurrent challenge to online education in Timor-Leste is the limited and expensive access to the internet.

Arlindo Pinto, Vice President for INFORDEPE, talked about adapting the traditional methods for teacher training to the digital era. The National Institute for Training of Teachers and Education Professionals (INFORDEPE), created in 2011, has been investing in the use of technology in teaching, especially since 2016 through support by HANDS and ALMA programs. Mr. Pinto clarified that advances such as the use of tablets for the monitoring and evaluation of teachers in the classroom. INFORDEPE transformed the Pandemic and the State of Emergency in Timor-Leste in an opportunity to more quickly advance the digital use in teaching, such as organizing the distribution of tablets for teachers, as

well as training in ICT and the use of Zoom, and other platforms, with the support of UNICEF.

Roberto Martins, Adviser to the Ministry of Education (MoE) shared the curriculum reform in secondary education under development by the MoE. Preliminary research shows a significant gap in students ICT ability between public and private schools. The solution, Mr. Martins explains, is to redefine the national curriculum in secondary education towards a more digitally literate approach that better prepares the students for the reality of higher education and the job market. As such, this change refers to disciplines and subjects, as well as teaching methods. The new student-centered learning advances communication skills through a project-based learning and portfolio assessment. This, however, requires improved internet connection, ICT facilities and teachers training.

Pedro Gonçalves, National Curriculum Coordinator at MoE provided some insights on the various forms that ICT learning can take beyond online platforms, whether through Radio, TV, or even SMS. He exemplified some of the work done by the Ministry of Education's UCN (National Curriculum Unity) in creating audio-visual material that supports teachers. For example, regarding pronunciation and vocabulary in Portuguese, as well as Tetum, through audiobooks and songs. Mr. Gonçalves proceeded to frame the benefits of audio-visual material in learning for students with learning disabilities. He concluded emphasizing the role of ICT in facilitating inclusivity in education, whether at school or at home.

Panel on Digital Literacy

Mabilde Esteves, Coordinator of CAFE School, Academic Learning and Training Centre in Dili, described the opportunity provided by ICT to bring education and learning closer to children, bringing the learning process into their own homes. CAFE, a bilateral project between the Portuguese and Timorese Governments with the aim of assisting the development of the national curriculum in Timor-Leste, has adopted various platforms such as Zoom and WhatsApp to promote electronic and digital use in education, explains Ms. Esteves.

Teachers at CAFE are engaged in developing teaching methods and approaches, together with Timorese colleagues, to increase both teachers and students' abilities in digital technology. Ms. Esteves identifies the main challenges in introducing ICT in education the few students involved, which is due to limited access to these technologies by many students. As a recommendation, Mabilde adds, new digital technologies should be adapted, translated and integrated in the national curriculum in order to guarantee equal access and opportunities for everyone.

Panel on Digital Literacy — Q&A

Teachers do not know how to speak the teaching language: Portuguese — how can they teach their students properly?

Geiza Oliveira

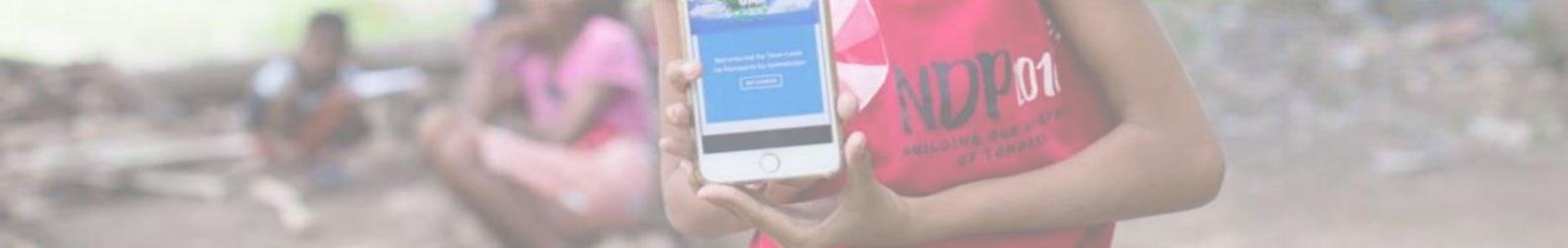
Quoting Taur Matan Ruak in his speech when he became president, Timorese speak a lot of languages, but they cannot speak either one of them with full literacy. And is this an obstacle for Timorese to enjoy reading. Language is an obstacle to the learning process and it is urgent to address this problem. Languages need to be taught from the root. This step calls for political consciousness and national consensus. It is urgent to choose one language only to serve as standard, as Tetum alone cannot be used for certain subjects not to provide online literacy.

Pedro Goncalves

Portuguese and Tetum are both official languages, according to the Law. Portuguese is the language of teaching, since some disciplines such as science cannot be taught without the support of a second language besides Tetum. but we also support other languages, such as other mother tongues. I would like to clarify that it is not the case that all teachers cannot speak Portuguese, but I would say instead that less teachers speak Portuguese. In Timor people understand Portuguese, they just don't speak it, and there are ways to counter this., such as changing the national curriculum or encourage the youth to listen to music in other languages.

Online Learning: Expanding Horizons for Youth

After the Panel on Digital Literacy, the Timorese band OVID16 came on stage to perform one of their hits. After the performance, they shared the story of their professional career growth. In the beginning, they tried writing songs and uploading them on YouTube. They started to have more subscribers every day and eventually the songs went viral. They are grateful to social media for allowing many people to access and enjoy their music.



Lightening talks on international projects & Discussion

5

The Lightning talks introduced and shared the results of some ICT-based projects implemented in other countries that may be of interest in the context of Timor-Leste.

Thalita Amalia, Director of Programme Operations at Solve Education Foundation introduced the non-profit organization, focused on providing marginal children and youth with practical education and employment opportunities.

“Technology should be able to reduce the gap of inequality, particularly in education”

The solution to inequality in education, Ms. Amalia argues, lies in our pockets — smartphones. Technology should be accessible to people from all socioeconomical backgrounds, and thus Solve Education provides platforms that are easily accessible by both teachers and students. One of the apps developed by Solve Education, Dawn of Civilization, is a multi-subject game app that can be played both online and offline from any smartphone. The way to deliver content is to partner with teachers and invite them to digitalize and gamify the content. In the content development platform, Content Plus, they can have access to game design templates and choose which one to adapt to their own content. They can additionally monitor and evaluate their students’ learning behaviors and progress through Learnalytics, as understanding receptivity to these programs is essential for their success.

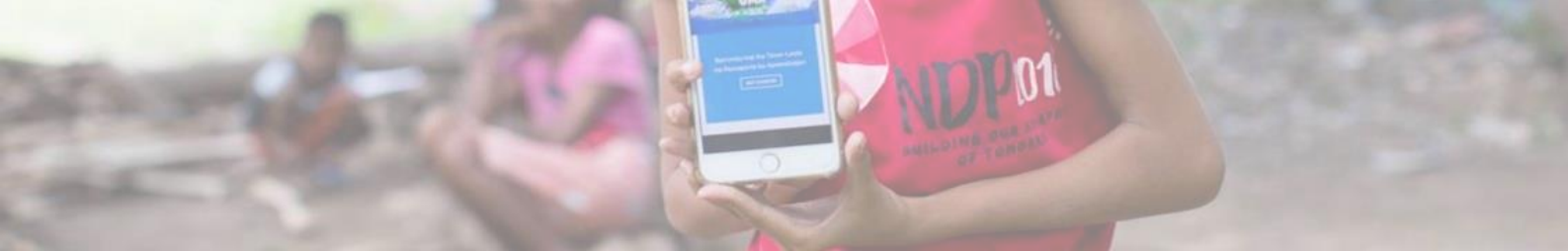
Jeremy Schwartz, founder and Executive Director of World Possible, introduced a solution to lack of connectivity in hard-to-reach locations where access to the internet is either expensive, unreliable or non-existent. World Possible is a non-profit organization that focuses on delivering educational content to the most remote areas when it comes to access to the internet. RACHEL — Remote Area Community Hotspots for Education and Learning — is a device that can store hundreds of digital copies of some of the best learning sites in the world. As such, just one

RACHEL device can establish wireless connection with any other device, from a laptop to a tablet or smartphone, and provide access to its content: learning websites such as Wikipedia, podcasts and Tedtalks, etc. without needing connection to the internet. Furthermore, RACHEL store updates of a digitalized version of the national curriculum. In Timor-Leste, schools like Baucau Secondary School, Aubaca Junior, Golgota Primary, Aubaca Primary school are already using RACHEL.

Wycliffe Otieno, Chief of Education and Adolescent Development, UNICEF South Africa opened his talk by mentioning the need for education to involve children in the learning process and stimulate their curiosity. In what Mr. Otieno described as a “learning crisis” — referring to an inefficient learning system despite all the capital invested — there is still a gap in critical skills such as problem-solving, creativity, communication, collaboration and critical-thinking — all which technology has the potential to address. As such, sharing the experience in South Africa, UNICEF has implemented a Virtual School Program for children, parents and care givers that has reached 1 million hits, as well as a ECD mobile app and a capacity training at scale, reaching more than 200.000 teachers. In order to reimagine education, Mr. Otieno argues, accelerating the delivery of learning content is key, especially in deeply unequal societies such as South Africa.

“Reimagine education means accelerating the delivery of learning content for children”

For this, a few things are necessary, such as at scale implementation, with strategic partnership including the private sector and providers, government leadership and inclusivity.



Lightening talks on international projects & Discussion

Anbita Nadine Siregar, CEO, Yayasan Generasi Maji Berkarya (Generation Girl) introduced the non-profit working to improve STEM education towards making it more diverse and accessible through student and teacher training. The program Generation Girl focuses on diversifying STEM fields in Indonesia and create more female leaders. The results from this program show that beneficiaries show the will to continue learning more, since they are given a safe space within a community that helps girls explore all different life options, promote cultural change and show role-models. The program Pengaj Belajar, the program for teachers focuses on assisting teachers' transition to online learning environment (due to COVID-19). Ms. Sinegar shared the organizations' lessons learned in this process, starting with (1) Knowing your audience, (2) Communication is key, (3) Stick to the foundational skills, in a world of constantly changing technology.

Xuefeng Chen, Education Specialist for ECD, UNICEF China, introduced the program "Morning call for Babies", an on-line Psycho-social support for parents and children aged 0-6 during the COVID-19 pandemic. During the lockdown, parents and children faced many challenges and needed support to have more meaningful activities. In response, UNICEF developed this program, consisting of a morning call where children would sing and dance while virtually interacting with other children across China, followed by a teacher outlining the activities for the day. The programs were focused on using family resources, such as readings by grandmas and social emotional learning content, such as games. The 6.4 million views on the videos show that people are engaging and using the packages, as well as parents sharing videos of them playing with their children.

Lightening talks on international projects & Discussion — Q&A

What were the values for progress in ICT-based learning in the countries where these projects were implemented?

Thalita Amalia

Beneficiaries in ASEAN countries amount to 40.000 We work with non-profit organizations on the ground who share our vision and work with beneficiaries' groups, mostly low performing school with limited access to technology. In this partnership, we build and provide technology and work with the organizations to benefit middle schools' children up until college students in rural areas. We also conduct research in collaboration with universities to evaluate the impact. One of the case studies in a College showed that every week, 50% of students who played the game improve their learning without encountering any problems.

Wycliffe Otieno

The program targeted both teachers and parents, so the reach depends on the category of the learner: 1) tackling content — around 8.000 schools in South Africa, 150.000 students reached. We have been able to reach 200.000 parents but hope to reach one million parents. Regarding online capacity building we have trained more than 200.000 beneficiaries. This is not to say that this is the final reach, as our intention is to make a more holistic approach, where we hope to reach 13.2 million South Africans.

To what extent is this app interactive? How do students interact and ask questions?

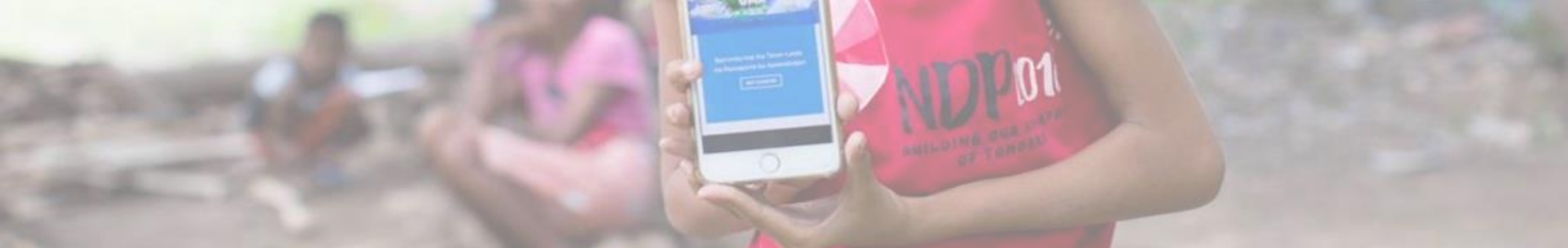
Thalita Amalia

The App can be played online, which allows simultaneous interaction since students can talk to each other online, or offline they can interact with their peers and teachers.

How would you characterize? Is it a game that complement schools or a LMS?

Thalita Amalia

Both. The app is a free game for children developed with educators. The second is an LMS Learnalytics for facilitators and teachers that can evaluate the progress on children's learning behavior on the app. The app and the LMS are linked. The kids can interact in an engaging way that makes learning fun for children.



A systems approach to Digital Education

6

Paulo Santiago, Head of Policy Advice and Implementation Division, OECD Paris reinforced how COVID-19 made it necessary for countries to implement digital education policies. OECD, the Organization for Economic Cooperation and Development, performs research and analysis to help more than 120 countries develop policies based on evidence. In this context, a systems approach to ICT in education offers a perspective on the range of areas that need to be considered when developing policies on education. This approach, as Mr. Santiago explained, has 4 pillars:

(1) Governing and resourcing ICT in education

This implies, firstly, to make sure to include digital knowledge and skills as learning goals across all curriculum areas, integrated within the reality of the 21st century. Secondly, to govern the use of ICT in education, by planning on how to implement digital skills in the population. For this, three things are needed (1) digital strategy on ICT infrastructure, digital learning environment, etc.; (2) fostering digital competence; and (3) bridging digital divides. Additionally, government needs to distribute responsibilities, regulate the protection of personal data and intellectual property, partner with the private sector and involve families and communities. Furthermore, the government needs to establish a digital infrastructure in education, by coordinating across all areas of government, such as defining devices, defining the target population, finding ways to resource it, arranging for public procurement procedure and maintenance costs.

(2) Using ICT in education

Expanding hardware alone does not enhance student performance, and thus the need for supporting learnings, teachers and education managers in the classrooms. Computer-assisted instruction with blended learning approach, for example, can be a cost-effective solution for delivering instruction. Mr. Santiago mentioned some of the more recent trends in technology and how they can be used in education, such as online laboratories, artificial intelligence and how its adaptable to personalized learning,

for example, for children with disabilities, or to analyze data. Regarding inclusion, as technology allows for personalization of learning, it tends to have greater benefits for the lower performing students, whether it be in multigrade classes, children with special needs or living in remote locations.

“Results are more impactful if ICT is used as a complement in assisting teachers rather than a substitute”

However, teacher learning and support with ICT still needs improvement in effective training and creation of innovative and collaborative environments.

(3) Developing capacity for ICT in education

On this regard, Paulo Santiago mentioned the possibility of creating a central agency to provide coordination, technical leadership, capacity building and monitoring, as the example for digital learning platforms (e.g. *Eskola Ba Uma*). In terms of teacher training, capacity development in digital literacy and technology is key. Teachers need to be trained within a competency framework to guarantee the quality of teaching. Essentially, developing capacity for ICT in education calls investment on leadership and autonomy of the use of ICT.

(4) Monitoring ICT skills and the use of ICT in education

Digital skills should be learning goals in themselves. The impact of the use of ICT in education is scaling up. For example, there is a digital divide between boys and girls that ICT in education can address. Monitoring the digital gap – access to digital devices

A systems approach to Digital Education — Q&A

Question from the audience:

In 2014, there was a world summit on information society where recommendations were put forward for countries to install ICT in many institutions for people who couldn't access it. In Timor, the education system might be the only institution where people are able to access ICT. To what extent were other countries of the same development level as Timor-Leste able to complete this goal?

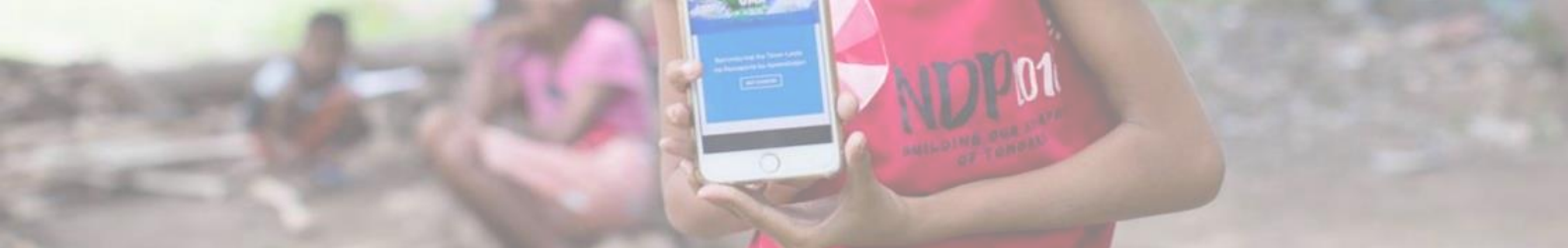
Paulo Santiago

In order to make good use of ICT, we need infrastructure. Infrastructure is a necessary condition, but it is not enough. This depends on the ability to get a system from donors and international organizations. In terms of budget, I understand there are other priorities (many classrooms with big number of students). There is still a need to invest in schools' basic infrastructures and resources, but teacher's capacity and quality of the teachers comes first. The role of the teacher is still the most important part of learning. Once you have a budget, however, the second step should regard priorities in ICT. ICT is more impactful when in substitute of lower quality teaching. Therefore, firstly, the investment should go to the areas of most need to prevent the digital gap. The potential to personalize teacher and learning is very attractive in technology. Secondly, where to relocate the resources — the quality of the teachers is lower in remote areas. Can't do that if ICT is a complement because you still need good educators to use it. Train educators that have a particular role in supporting schools in a strong way and use them as a multiplier in schools. While technology can substitute lower quality teachers it does not mean that we should not invest in quality capacity building. The teacher is, however, the one that will make the most difference. We should introduce ICT alongside the capacity building of teachers.

How far should we use online assessment to evaluate learners' achievements in terms of achieving the goals (due to limitations) although it gives us many opportunities as well?

Paulo Santiago

I wouldn't say that technology should be focused on assessing teachers' learning. However, it can be part of the schools' process on reviewing the work of teachers. Because when technology is not properly used, it can also hinder learning. There should be external support to schools. In a country where there is lower capacity, the proximity of external support is very important. As such, building an agency that can provide support and give little by little some sort of autonomy can be an option.



RoundTable on Connectivity

7

The roundtable discussed the present panorama regarding connectivity in Timor-Leste, the main challenges the country faces, what it needs and what can be done to identify potential opportunities for collaboration. The session counted with the speakers present in person and available for Q&A.

Abel Pires da Silva, National Parliament of Timor-Leste mentioned 5 important points that we need to look at to improve ICT in education:

(1) Infrastructure: the need for a satellite connection with Australia or Indonesia for faster internet. Additionally, the need to decide on optic fiber or wireless connection.

(2) The issue of what main second language to use.

(3) Need to prioritize which schools need to have access first.

(4) Focus on Apps that can support teachers and students in the learning and research areas, while granting equal access to everyone despite weak connectivity across the territory.

(5) Politics: need to unlock the open-source system in ICT to all ministries.

Mr. Pires da Silva appeals to UNICEF with MoE to create a national ICT literacy program in Timor-Leste.

Gaspar Araujo, Ministry of Transports and Communications (MTC) pointed out that Timor-Leste is the 6th country with the most limited internet connectivity in the world. MTC is working together with connection providers such as Timor Telecom and Telkomcel to address this issue. The Ministry is also under current negotiations with the governments of Australia and Indonesia to improve connectivity in Timor-Leste. It is also planning for a program for 2021 to install free internet connection, financed by the Government, in every school and health center across all municipalities. Studies show that 39% of Timorese population already have access to the internet.

Andre Marques, TIC Timor mentioned how ICT can be a key tool for government functioning and public service. At the present moment, some ministries already use TIC to provide internet in their buildings. TIC already has a policy to unify the services to improve integrated service. Although there is a law decree about ICT system, at the moment the system is still not centralized. As such, it still need collaboration between government institutions and developing partners in order to guarantee a good system.

Ladislau Saldanha, Timor Telekom, raised the issue of investment. Despite having 3 operators, Timor-Leste has a small population, which does not provide much incentives for big investments. Tax is also another issue for investors, as, according to Mr. Saldanha, it is not favorable to investment in the area of telecommunications, and he further laments that the Government of Timor-Leste has not found a solution to this problem. Timor Telekom, Mr. Ladislau argues, is committed to supporting greater connectivity in Timor-Leste and, as one of its programs, currently provides free internet for a great number of schools. As such, the representative of the company reveals they feel excluded in that the discussions did not mention the involvement of internet providers.

Yogi Rizkian Bahar, Telkomcel, provided technical insights on internet provision, as well as competition in the industry. Mr. Bahar mentioned that Telkomcel submarine cables have been installed around Indonesia. Installing 2 fiber optics connecting to more than one country will reduce both the cost and risk of this operation and increase competitiveness in the telecommunication business. Additionally, limited frequency license can also have an impact on the speed of internet connectivity, which is why Telkomcel is recommending increasing the frequency for better internet connection. Regarding the company's contribution to ICT in education in Timor-Leste, Mr. Bahar mentioned that Telkomcel is now collaborating with the University UNTL regarding a downloading system for the digital library.

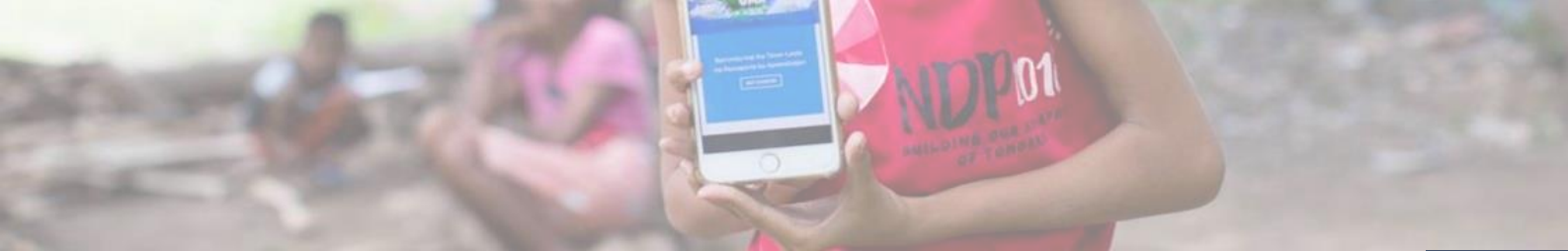
RoundTable on connectivity

Trần Văn Bằng, Telemor mentioned that most operators in Timor-Leste are currently relying on the support from the government to be able to install submarine cables for better connectivity. Mr. Văn Bằng argues that it is the Government's responsibility to create better policy that is flexible for ICT and appealing for investors and enterprises.

Mr. David Montalvao, Gardamor, identified three relevant points: education, quality of teachers and basic infrastructure. Gardamor, Mr. Montalvao argues, is ready to work together with the Ministry of Education to enhance learning approaches for students during the pandemic, such as e-library, e-commerce and e-books.

Afonso Soares, National Director of Planning and Inclusion, ICT Policy & Planning, Ministry of Education, Youth and Sports, described how the Ministry of Education started using ICT in 2009, and still regards it today as an important method to assist and ensure the quality of teachers. As such, the Ministry plans to use ICT in four main areas: (1) collection, analysis and management of data and systems; (2) communication and sharing of information; (3) management of the classroom and pedagogy; (4) quality of teachers. Regarding the quality of teachers, for example, the HANDS program supported by Australian Humanitarian Partnership (PHD), focuses on improving teachers' digital literacy and use of ICT in education. The Ministry is additionally developing online training for teachers and access to a digital library. The EMIS system provides a harmonized platform that connects data from various areas in just one place, facilitating planning and implementation to include ICT components in basic education programs. The project BEST, financed by Global Partnership for Education already approved and currently awaiting implementation focuses on Infrastructure and training for ICT. essentially, Mr. Soares argues, ICT in education enhanced by all these programs and initiatives will improve international competitiveness for Timorese students.

Afonso de Almeida, Vice-President, National Institute of Science and Technology (INCT) mentioned a study carried out during the State of Emergency revealing that only 38% of students are able to access online classes against 52% who were unable due to limited access to the internet. 8% did not have any access to the internet. Mr. Almeida also mentioned the socio-economic background of parents, which also limits students' access to online learning opportunities. As a solution, Mr. Almeida calls for a common platform as an information and research center that is accessible to all despite these limitations.



RoundTable on connectivity — Q&A

Questions from the audience:

When will the progresses you mention be implemented and achieved?

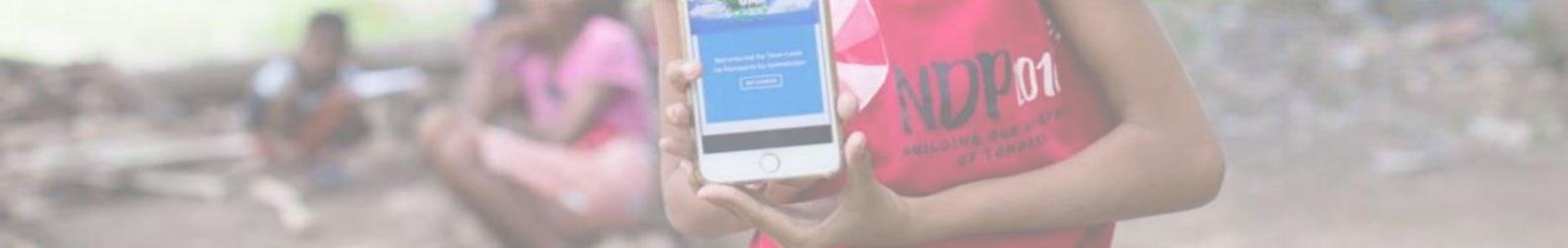
Abel Pires da Silva

Regarding the budget, it is still not enough for implementation. If we want to be part of ASEAN, we need to develop technology and ICT in order to be competitive amongst other member countries. As the budget is still now enough to implement such improvements, we need to reach out to the Ministry of Education to advance a way to get these funds.

When are these promises to be implemented?

Gaspar Araujo

This question needs to be asked to the Ministry of Education. The MoE needs to create strong conditions for Timor-Leste to join ASEAN. The money to invest in education is still not enough, but we have to find other solutions offered by partners with or without money. We need to change our mentality regarding computer use. If we want to drive change than we need to adapt to new times.



This session introduced participants to design methodologies with the purpose of encouraging rethinking approaches to education.

Amy Smith, Founding Director of MIT D-lab, Massachusetts Institute of Technology (MIT), started her presentation with an activity that encouraged participants to engage in her presentation through technology: all participants should access a website on their smartphones and answer two questions: (1) How are you feeling today? (2) What animal do you feel like today?

Next, Mr. Smith exemplified the approach to designing curriculum through the choreography of learning. Choreography, she explained, is based on sequence, timing and movement of activities in a lesson. As such, Amy Smith asked the audience to stand up and learn the choreography exemplified by children on the screen — Gumboot dancing from South Africa. This dance, Ms. Smith explained, emerged during Dutch Colonialism: as the Dutch forbade enslaved South Africans from talking or using percussion of traditional instruments, they created this dance to communicate with each other.

The variables of this learning activity included (1) demonstration, (2) learning of the step, (3) learning of the history; which equates to learning how it was, what it was, and the various options for learning the lesson. This, Ms. Smith argues, suggests a different way of approaching teaching methods and curriculum. That is, a mix of theory and practice that engages learners and makes lessons more fun. For this purpose, multiple media combined has proven to allow students to retain more information, while, for example, only 30% of read information is actually captured.

With this in mind, in order to get students to engage, it is crucial that teachers learn to identify whether they are being passive, active or interactive in the learning process. On this regard, when it comes to teaching remotely, teachers must build a community feeling amongst their students in a human approach.

For example, in the beginning of the pandemic when no students were present at MIT, they would show appreciation when teachers interacted with them remotely, asking how they were feeling. This, they argued, made them feel closer to learning and more engaged.

Regarding ICT in education, Ms. Smith points out, technology might facilitate engagement, but it often takes more time to prepare a remote lesson than one face-to-face. As such, it is also important to get feedback from the students in order to learn and adapt, still during the process of designing lessons.

In creating curriculum materials, Ms. Smith explains, there are different ways to engage with the students. The three design paradigms in terms of development work and ways people engage are (1) Design for the end users, (2) design with co-creation; (3) design by teaching the users to become designers.

“In some cases, students themselves created their own activities, and they found that was how they learned the most.”

As such, the best way for students might be by teaching and creating activities for themselves or other students, which applies to curriculum design. For this, including the intangibles elements of design is paramount; empowerment, pride, happiness and joy.

In conclusion, curriculum design calls for a mix of design paradigms and students’ engagement in the way curriculum materials are created. During the pandemic, Amy Smith adds, she discovered a great potential in remote learning, as imposed physical distance became smaller due to how we engage in ICT. It has changed the way we learn and now, we can think about bringing education to a higher number of people though ICT.

Design Methodologies— Q&A

Questions from the audience:

How can the use of videos have an impact on curriculum design?

Pedro da Silva Ximenes | Escola 28 de Novembro

Amy Smith

I like having relevant videos as part of the curriculum because if it's just standing pictures you are not engaging as much as you could with students. A lot of what I teach is around technology so it's better to see a machine in motion that just pictures. I personally think that adding videos in the lesson is valuable. But you should try to change media every 7 or 8 minutes, depending of what your overall plan is. Maybe use shorter videos. I teach International Development and Humanitarian Aid, so, for students to understand what is happening in another country, they need to see videos (it would be a homework assignment, for example). I am favorable to integrating media in lessons.

Since the methodology is much more practical than developing thinking, can this impact intelligence? Is it possible that we are developing skills instead of knowledge?

Antonio Pinto | Escola 28 de Novembro

Amy Smith

I think so. Even though I'm at MIT, the best university for computer science, I personally don't like computers. I come at this from a different perspective than may people. To make it an interesting lesson from the students you have to use different platforms, learning new things and experimenting (try, fail and improve). Try it, gain the confidence. There is so much potential in remote learning to make things so much more interesting. One thing that is difficult for many teachers, is that you have to take your personality out of the picture. The delivery methods become more important. The better you become at using them, the better your lesson will be, it can be through simple things. Embrace the opportunity to be a learner again.

Regarding your choreography approach to curriculum development, is it applicable to all levels of education or would you recommend different approaches for different levels of education (due to children's stages of development)?

Alex Sarmento | National Advisor, Ministry of Education, Youth and Sports, MEJD education infrastructure, nominated a project manager that'll be funded by GPE -BEST)

Amy Smith

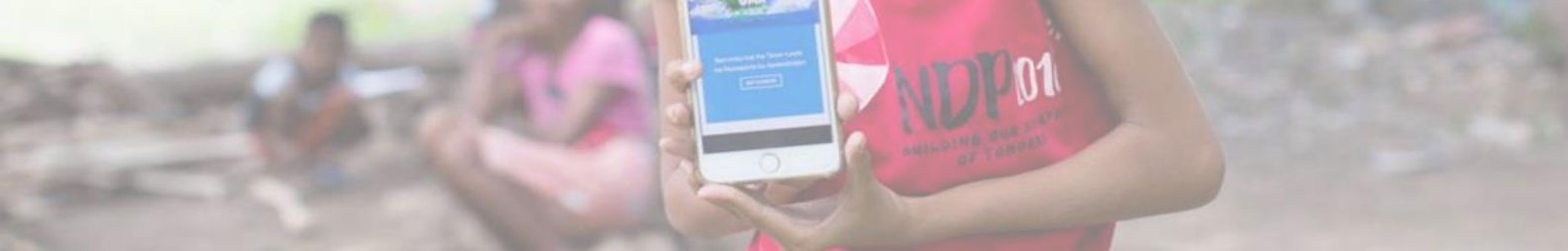
I believe the content is only one part of the lesson. The choreography is the other part. The material sometimes is there but it is not necessarily dancing. I believe that what gives life to the content is the choreography, how the students are engaging with the content, regardless of age. The way you present and build the information is important. Every teacher comes up with their own choreography and their own style. But the choreography is what brings life. If they have been passive for too long, you need to do something interactive. "How are students engaging with other students and the content?" is what you need to ask.

Would you be able to point us to real-life projects that were developed using your methodology?

Abel da Silva | member of the Parliament, chairing the infrastructure department

Amy Smith

I have a colleague at Michigan university developing ICT and looking for projects to engage students. I can make that connection with you. We are working on a series of modules to bring STEM in ICT learning modules with UNICEF partnership.



Teaching online during COVID-19

9

Irineu Gianesi, Dean, Academic Affairs INSPER University, presented the experience of INSPER Institute of Education and Research — a private nonprofit university in Sao Paulo with around 6 thousand students — with remote learning during COVID-19.

As in many places, all classes were cancelled due to the COVID pandemic in INSPER, Mr. Gianesi invited his colleagues to find solutions for remote learning. As the idea of remote learning created some skepticism around its effectiveness, a monitoring team was established at the university to follow this process. Furthermore, lecturers attended four days of digital literacy training before applying the remote learning methods to their modules. Some faculty members developed their own approach for distance learning after the training. Distance learning always requires previous preparation by the instructors.

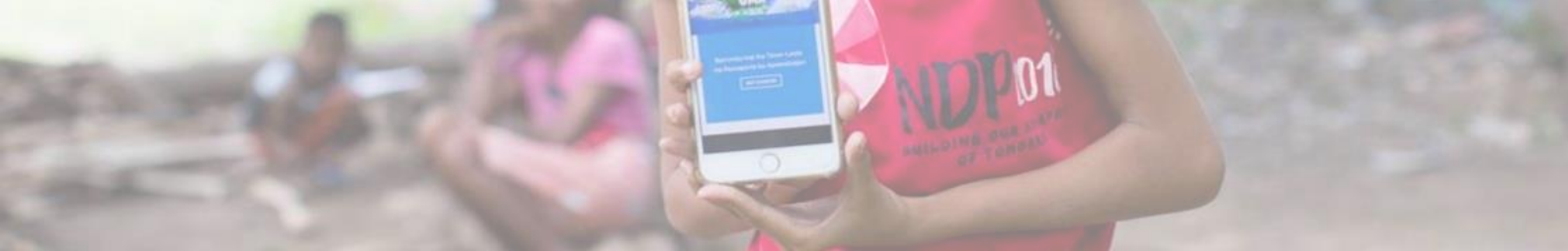
During the distance learning process, the monitoring revealed the following challenges: students complained on the lack of social interaction, as well as the amount of work that they do during the remote learning. For this, they suggested longer breaks in between classes, and using smaller group discussions on how to manage students

wave of training to the lecturers to revise the previous plan and increase student engagement. As such, redesigning along the process according to feedback is key. To increase participation, the university found that utilizing rapid response devices through asking questions on students' mobile phones and expecting them to answer swiftly can be a good approach. For this, online Apps such as WhatsApp were used. For exam questions, on the other hand, open ended questions are prepared in order to stimulate the students' critical thinking skills, as well as emotional and self-esteem development.

In conclusion, remote or distance learning is always possible, although it requires extra efforts on its initial process. Human creativity and curiosity, Mr. Gianesi notes, are essential when applying remote learning. Engagement is one of the critical aspects in achieving success in remote learning.

Some of the practices by INSPER University in applying the distance learning method were to provide a second

Note: Q&A was skipped on this session due to time limitation



Q&A: Internet safety and Ethical use

10

As a mother and journalist what would be a worry to you regarding your children's use of the internet?

Zevonia Vieira | Journalist

As a journalist, I campaign for digital literacy and safe practices. I have covered many cases of young girls and women who were sexually abused and harassed through or due to internet mal-practice. As a mother, I believe we need to control children's access to the internet.

The digital world has both positive and negative aspects. Through the internet, children can access information from all around the world. However, the digital era has made traditional and creative outdoor activities close to non-existent. Through open-communication, I explain to my children why they can't access and use certain apps, websites and videos. During COVID-19, I would search for materials that could support my children's learning process, but they also had time-limits when using online materials. I don't allow my children to use social media as there are many cases where people become addicted to it, affecting their physical and mental health. This open-communication between parents and children makes the relationships more honest and understanding.

Schools should also teach digital literacy to students starting from a young age, to prevent cases of incest, sexual abuse, harassment derived from the unsafe use of the internet (porn, harassment through chat, etc.).

As a digital creator, influencer and youtuber, do you feel that it is safe for children the access to social media in Timor-Leste?

Juliana Marques Cabral | Business Advisor at Market Development Facility (MDF) and Online Teacher

I believe it is safe for children and youth to access and use the internet and YouTube, but it also depends on the intentions behind it. The truth is that children like learning from YouTube videos because it is fun and

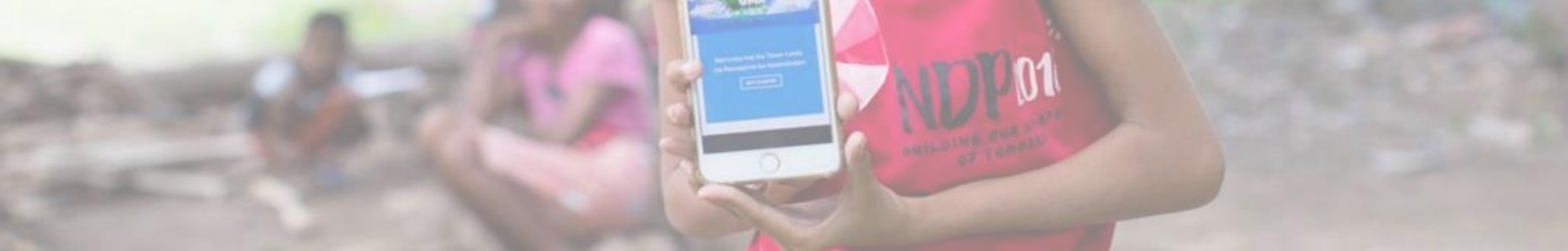
interactive. So, it is up to parents to control and limit what their children see. Some things parents can do:

- (1) Create a Gmail account based on the age of your children — YouTube's algorithms will recommend videos based upon the child's age.
- (2) Restrict sites and videos on the settings.
- (3) Download YouTube kids and similar child-friendly apps tailored towards the younger audience.
- (4) List videos you don't want them to see (the algorithm will not recommend related videos later on).
- (5) Check history and list as "not interested" on videos you don't want to receive recommendations for. Do the same for google and restrict sites by using filters or website blocker.

As an activist focusing on gender and violence, do you think that access to internet is safe for women and children in Timor-Leste?

Juvita Pereira Faria | Activist

I see that the use of social media has both positive and negative aspects. In today's world, there are more risks on internet for women than for men. For example, during COVID-19, I talked to many victims (15 in total) who were sexually harassed through WhatsApp and Facebook messages and also abused by partners they had met on social media. Many people also are threatened on social media, since women and girls have low digital literacy and knowledge on safe practices when using social media. Timorese society does not encourage the youth to think neither critically nor constructively. As such, we must produce positive discussions that can bring positive outcomes to youth. We should discuss the positive aspects of the internet at home and in groups. There should be education and open communication in families, communities and groups to continue providing good information to our youth



Q&A: Internet safety and Ethical use

Do you have data on how many children who use social media have been impacted negatively by it?

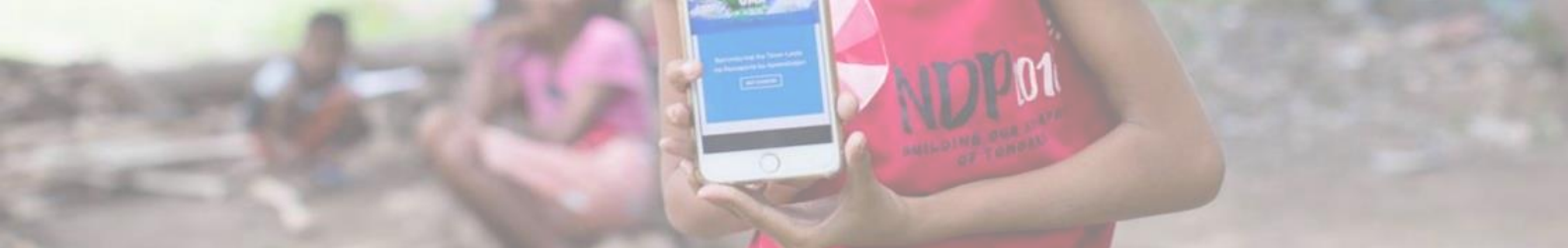
Zevonia Vieira

AJTL (Association of Journalists in Timor-Leste) works with the press council and donors on how to give training to university students and young journalists on digital literacy. For monitoring purposes, we did an investigation on incest in rural areas and found out that Ermera, where there is no education on internet use, shows the most cases of incest related to social media, bullying and hate speech. We don't have percentages so far, but next year we plan to monitor how many youth and children use social media and what are the impacts. LGBTQI, in particular, are also victims of bullying on Facebook according to our findings that can be found on our Facebook page. We encourage UNICEF and the government to work with internet providers to make a family protected app for children and youth that parents can control. Digital literacy survey shows that many people from lower social-economic backgrounds do not understand the concept of digital literacy.

What are the platforms used by women that most lead to sexual assault and harassment?

Juvita Pereira Faria

In the cases that I presented, the platforms used were mostly Facebook and WhatsApp. It is a big risk for our young girls because there is a lack of digital information on safe practices. Timor has a gap on digital literacy. The youth do not use the internet for much other than to chat and look for relationships on Facebook. Men should also know how to have positive communication on social media and respect women. Many times, men send intimate photos and threats to women. Men should be conscious, and women should use it safely.



Lessons learned during COVID-19

11

Juan Pablo Giraldo Ospino, Education and Innovation Specialist at UNICEF Headquarters, started his talk by contextualizing UNICEF support to people during the pandemic around the world, as it provided an opportunity for dialogue on the potential of technology to bring people together. In many cases, Juan Pablo argues, children were not able to access school or, in school but not learning. Technology has the potential to provide infinite pedagogical and technical opportunities. In the goal for reimagining education, UNICEF's universal agenda proposes to have every single child and young person with access to World Class digital learning solutions and experiences. For this, issues regarding connectivity, devices, affordable data and content and engagement need to be addressed.

In South Korea has 30 years of institutional experience in digital education: connecting schools, generating digital tools, platforms and content, training teachers, and leading the policy and programs for digital learning. When the pandemic hit, Mr. Ospino reveals, the country was able to quickly collect resources to adequately respond, which reveals that digital learning should be a long-term goal, commitment and investment.

Uruguay created in 2007, a program that was part of a global movement "One laptop per child". As such, it provided devices to every single student in the country. However, this did not lead to automatic improvement of the student's digital literacy capacity. Uruguay learned it takes long-term commitment, they needed to change what they were doing, engage teachers in a more active manner, beyond teacher training and capacity building. The tools need to be very simple and intuitive. And teachers need to be engaged as the co-creators of the program.

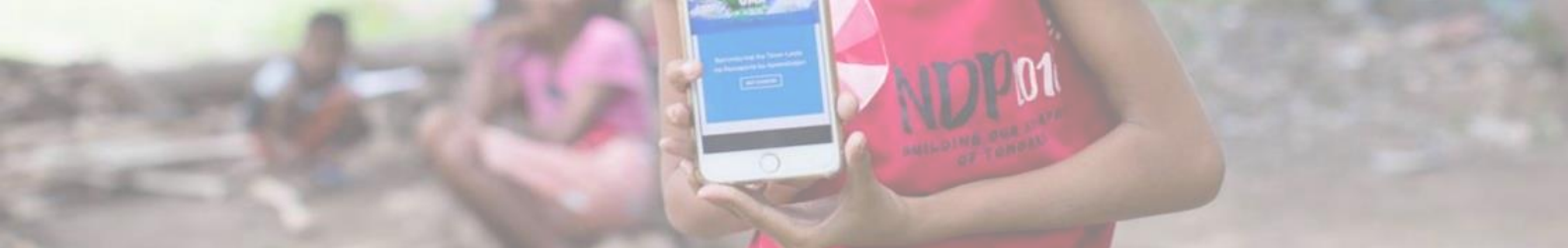
Lessons learned: once you invest in technology and infrastructure alternative delivery systems of education. Asking the question of are we improving learning? It is important. But it is more important to note that this investment improves the resilience of

the system. So, if there is a disruptive shock in the future, the countries that had already invested in their systems will be able to have a stronger, more seamless and faster response.

In learnings from Mongolia, investment in technology requires knowing the context. In Mongolia, learning from home was made by transforming the whole curriculum for every single subject, from preschool until the last year of upper secondary school, to run on 18 different TV channels from Monday to Friday. cannot be too long, between 20 to 25 minutes maximum. The lesson learned from Mongolia's case is that it is important to identify the kind of technology that better fits your context. That is, learning to leverage the technology that you already have accessible to all students, teachers and parents might be the best suited in a particular context.

In Jordan's case, equity was at the center. With the support of UNICEF and leadership of the Government, the country provided remote learning to refugee children living in camps: printing materials combined with access to digital tools, etc. Particularly for children with disabilities, appropriate materials were printed to learn at home, combined with video lessons on how to use the, in the absence of teachers, for the caregivers to be able to use. The idea of combination of different methods is important in all cases.

Finally, Juan Pablo highlighted Timor-Leste's effort as a global example, with the *Eskola Ba Uma* using many technologies combined to bring education to children at home. The next step, Juan Pablo notes, in thinking about the future of education is to understand how to engage the government and the private sector in getting ICT and technology to support education.



Brainstorming session: Inspire Change in Timor-Leste

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Scott Whoolery, Deputy Representative, UNICEF Timor-Leste, began with an experiment involving the participants by asking who could explain Newton’s Second Law of Motion. After one of the participants explained, Scott asked how he had known the correct answer. The participant responded: “I googled it”.

To apply Newton’s Second Law of Motion to the development of ICT in education in Timor-Leste, three elements should be considered: Mass, Force and Velocity.

ICT in education, Scott argues, is a great empowerment tool, as it allows everyone to think and search for answers. It facilitates the sharing of more information with others, as well as exploring and collaborating with others. Education in the present, as such, is very different from what was experienced in the past, by providing something that did not exist before.

It is therefore important to focus on the elements that help to accelerate ICT in education. There needs to be a wider discussion about what would fundamentally advance ICT in education, when imagining this change in Timor-Leste.

Scott Whoolery put forward another challenge to imagine change, regarding connectivity, access to tools, capacity building, content creation, etc., by leaving the following open questions:

- How can we apply more force to the same mass to make it move forward? What are the actions that can apply that additional force to accelerate ICT in Education? What are those key activities, actions and investments?
- To increase acceleration is to reduce mass, which will reduce resistance — What are the key obstacles that needs to be addressed?
- How to work together to come up with actions and ideas?

Answers from the audience:

Silverio Pereira

Change: Employing young teachers with more knowledge and familiarity with ICT.

Action: Training and capacity building for students, teachers and school directors.

Challenge: The remaining mentality regarding the role of education — the Government does not apply a sufficient percentage funds for education in the GSB.

Ligia | Catalpa

Change: Widely introduce ICT in education.

Action: To get more investment. Communication is key to prevent program overlap between government and development partners. There should be government investment for Digital Literacy in the National Curriculum and free internet access, as well as a clear and well-elaborated ICT policy.

Challenge: Political impasse is hindering progress.

Ricardo Pereira | JICA

Change: National Curriculum integrating more ICT at primary levels so children learn from a young age.

Action: More investment in capacity building, infrastructure.

Challenge: Parents’ knowledge and awareness in ICT.

Aderito | UNTL

Change: Improve connectivity infrastructure.

Action: Create a Decree Law on digital use.

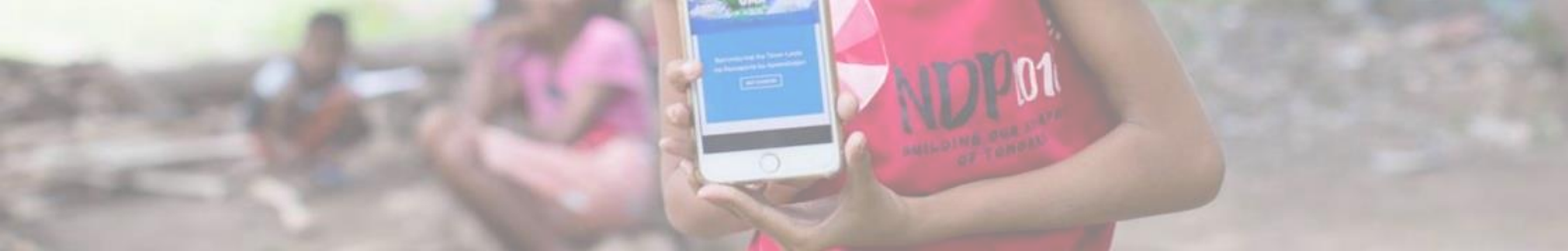
Challenge: Differences in ideas and policies. Perception towards ICT differs from one person to another. For end users, many aren’t aware of best practices and uses of ICT.

Rui Corte Real | UNTL

Change: Hire younger teachers with knowledge in ICT. INFORDEPE needs to conduct more trainings and capacity building.

Action: General State Budget to allocate more funding towards Education. Invest in infrastructure.

Challenge: Government does not allocate enough funding towards education.



Results from questions to the audience

During the conference, two questions were exposed on several boards across the room for participants to leave *Post-it* notes with their answers. The results were the following:

1st Question: When you first head the title for this conference, what were the first 2 or 3 words that first came to mind?

Development

Innovation
 Learning
 Cooperation
 Change
 Equity
 Sharing
 Curriculum
 Solution
 Computing
 Engineering
 Resilience
 Language
 Partnership
 Future
 Equal rights
 Experience
 Agility
 Knowledge
 Research
 Information
 Policy
 Security
 Inclusivity
 Opportunity
 Free Will
 Adaptation
 Challenge
 Objective
 Investment
 Software
 Motivation
 Solution
 Leadership
 Habits

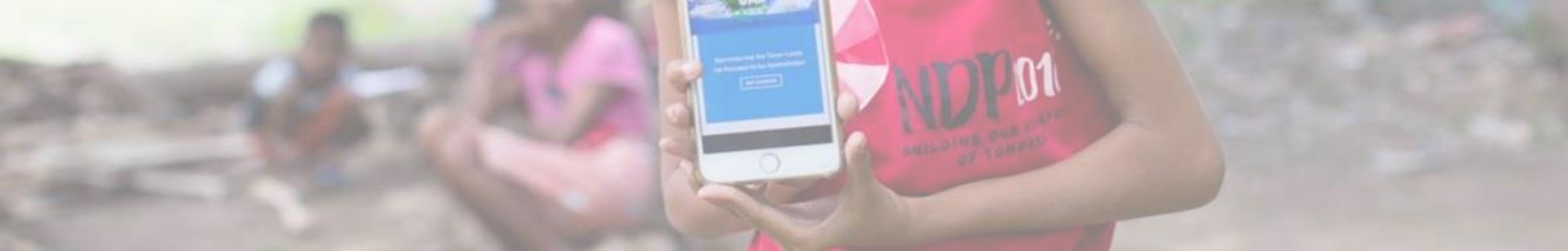
2nd Question: On a scale of 1 to 5, one being not proficient and 5 being highly proficient:

- How would you rate your own digital literacy skills?

Average Answer: 3,6

- How would you rate the level of digital literacy in Timor-Leste?

Average Answer: 2,5



Results from the questions to the audience

By the end of the conference, participants were asked to leave their recommendations on concrete measures to improve ICT in education in Timor-Leste. The main results were the following:

Training:

- Provide better training to teachers to improve the quality of teachers.
 - o Train all teachers on ICT at INFORDEPE.
- Reinforce the learning of languages for both teachers and students:
 - o provide access to trilingual glossaries on Moodle;
 - o introduce self-learning materials in Portuguese and English using sound recordings, for example.
- Teach ICT at community-learning centers in all municipalities (life-long learning).
- Train teachers on project-based learning.
- Select a good learning management system, such as Moodle, and install on the Ministry's website so it is accessible for everyone.
- Provide parental guidance and training for parents to accept and understand the benefits of technology and how to use it.

Curriculum:

- Consult experts to reform the national curriculum to include ICT in the context of Timor-Leste.
- Include ICT in all levels of the national curriculum for children all ages:
 - o Introduce ICT in early education;
 - o Start ICT from 4th grade.
- Introduce critical-thinking and design disciplines and methodologies.
- Change from the conventional system to an online system (E-education).

Accessibility:

- Everyone has to have access to ICT in education.
- Provide ICT and free internet for all school levels.
- Provide cheaper and fast internet for all.
- Provide fiber-optic cables in Timor-Leste.

Investment:

- Government must commit to invest in education.
- Increase state budget percentage for education.

Leadership and security:

- Develop a well-established ICT policy.
- Call on Government to assume leadership and change mindset.
- Create and ensure security in digital technology.

Facilities/devices:

- Strengthen infrastructure and resources.
- Provide good libraries and IT courses in all universities and schools.
- Commission the costumer's associations to procure good quality and affordable desktops and laptops for schools.
- Provide reliable electricity in all schools.
- Provide ICT devices for all students and teachers.
- Create ICT labs in schools.

Partnerships:

- Improve communication between partners and the Ministry to prevent the overlapping of programs (e.g., ALMA, HANDS, HATUTAN and Eskola Ba Uma).
- Collaborate in sharing training materials and devices in between programs that have similar purposes.
- Work together on trainings for school leaders and teachers amongst existing programs — HANDS, ALMA, UNICEF.

