



United Nations
Educational, Scientific and
Cultural Organization

UNEVOC

International Centre
for Technical and Vocational
Education and Training



mobile
learning
week

Skills for a
connected world

26-30 March 2018



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Boosting skills learning through mobile technology: the skills-pedagogy-technology nexus

UNESCO-UNEVOC workshop at the Mobile Learning Week 2018

26 March 2018, 9:45-11:15 AM, Room 6, UNESCO Headquarters, Paris, France

All workshop materials can be accessed through this link:
www.unevoc.unesco.org/l/565



Background

While technology changes quickly, technical and vocational education and training (TVET) is lagging behind. Mobile technologies can be important tools for teaching and for training future workforce. A study conducted by UNESCO¹ showed that further knowledge acquisition of teachers introduced to mobile technologies is proportionate to improving their ICT competence. The study also noted that student participation in the classroom increased when teachers use ICTs. The study supports the idea that mobile technologies can improve access to learning and to educational materials, for both students and teachers. In the world of TVET, there is a need for more evidence to show how teachers improve skills training and development with technologies.

In line with this, the UNESCO-UNEVOC International Centre is proposing to organize a workshop that will bring attention to the approaches and innovations in TVET-oriented practices that have adopted the use of mobile technology to improve the **skills and content** delivery by teachers and trainers. These initiatives will illustrate the synergy between mobile technology, teacher-trainers digital skills and pedagogy to be able to transform TVET teaching and learning environments.

The workshop will not discuss how important mobile is in teaching and learning but rather concentrate on the need for technology and teacher-trainer preparedness on skills training and vocational education.

This workshop aims to:

- a showcase innovative practices in improving teaching and training delivery in the field of TVET;
- b discuss the methodologies, lessons from experience and results of using mobile technologies;
- c raise awareness on the skills-pedagogy-technology nexus built around an integrated learning solution in TVET.

Workshop agenda

Activity	Duration (90 min)
Context Setting – Shyamal Majumdar	5 min
Brief introduction of each speaker	5 min
Skills development using pedagogy-technology: examples from TVET institutions in the UNEVOC Network	45 min
<ul style="list-style-type: none"> » Mobile teaching tools for rural training centres by Luis Cateura, Fundación Paraguaya, Paraguay » Learning in the Virtual World: smartphones and tablets are finding their way into vocational schools by Michael Härtel, Federal Institute for Vocational Education and Training (BIBB), Germany and Ronny Willfahrt, Technik - Verband Druck und Medien NordOst e.V. » Mobile learning and formal education: research actions for a connected education by Prof. Silvia Batista, Professor and Coordinator of the Master's Programme in Teaching with Technologies, Fluminense Federal Institute, Brazil 	
Other examples from TVET institutions in the UNEVOC Network and partner	10 min
Panel discussion (feedbacks are invited from the floor)	20 min
Conclusion	5 min

¹ <http://unesdoc.unesco.org/images/0025/002515/251511e.pdf>

Workshop moderator

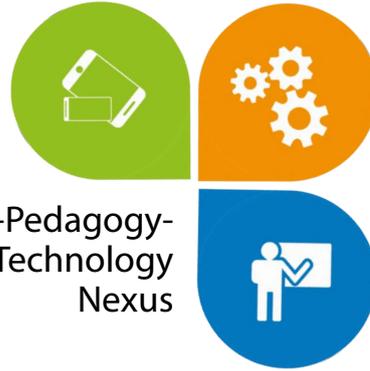


Shyamal Majumdar

Head of Office
UNESCO-UNEVOC International Centre
for TVET
s.majumdar@unesco.org

Shyamal has been the Head of the International Centre for Technical and Vocational Education and Training since May, 2011. Prior to taking up the position at UNESCO-UNEVOC, he served as the Director General of the Colombo Plan Staff College for Technician Education (CPSC), an inter-governmental organization for human resources development in the Asia-Pacific Region based in Manila, Philippines. He was also the Vice President of the International Vocational Education and Training Association (IVETA) and was Professor at the National Institute of Technical Teachers Training and Research (NITTTR) in Kolkata, India, where he originally comes from. Throughout his career, he has worked with GTZ, InWent (Both now GIZ), FAO, ADB, ADBI and World Bank in various capacities. He also published over 150 research papers and was engaged in more than 20 publications, editorial assignments and contributions by various national and international organizations.

Skill-Pedagogy-
Technology
Nexus



"The educational arena of mobile learning is still in its infancy.

While there are many institutions that are offering mobile courses,

an in-depth understanding of the pedagogical issues related to online education remains an unexplored frontier.

Many mobile courses are nothing but web pages combined with

e-mail and chat rooms without any pedagogical foundation. There is

a need to explore skill-pedagogy-technology-nexus to meet the

demand of the online millenium learner."

Workshop panellists



Luis Fernando Cateura

Program Manager Self-sustainable Schools, Fundación Paraguaya, Paraguay
lfcateura@fundacionparaguaya.org.py

Luis Cateura joined Fundación Paraguaya as manager for its microfinance office. He developed and piloted the women's village banking programme (2005-2006) and served as Director of the San Francisco Agricultural School, its flagship school. In addition to providing technical assistance to other schools in Latin America and Africa, Luis established Fundación Paraguaya's office in Tanzania and its programme for disseminating the Financially Self-Sufficient School model in the country. He is currently the Director of the Self-Sufficient Schools Programme. Prior to joining the Fundación Paraguaya, Luis held management positions in hotel companies and worked for the city government of Asuncion.



Related links

<http://www.fundacionparaguaya.org.py>

<http://www.fundacionparaguaya.org.py/?p=5611>

www.unevoc.unesco.org/I/541



Mobile teaching tools for Rural Training Centers

Fundación Paraguaya, in partnership with TVET Academy and UNESCO-UNEVOC, implemented a project that sought to improve agricultural technical education for youth in vulnerable situations in Paraguay. This initiative relied on a cost-effective innovation using instructional videos and the internet to increase the technical skills, pedagogy and motivation of teachers. The innovation is revolving into this attractive mobile teaching and learning system that can be utilized online and offline and has proven to be effective in reaching out to rural areas in Paraguay where broadband internet is not available.

This presentation will show that despite the advancement of technology, there are still learners who are not reached by the internet grid and that innovative practices such as this are able to provide training and education for them and connect them to the world.





Ronny Willfahrt

Consultant, Printing Professional
Technik - Verband Druck und Medien
NordOst e.V.
willfahrt@vdmno.de

Ronny, printing professional, works as a consultant representing the German Printing and Media Industries Federation for more than ten years. The printing industry is altering quickly and printers widely need to expand their traditional printing business with digital media services. Ronny is part of the SAL/SVL project since 2013. He is focusing to push the developed applications into practice, not only to display the printing industry's amenity and variety towards school graduates, but as well to improve its education in Germany.



Michael Härtel

Head of Division
Digital Media, Distance Learning,
Training Personnel
Federal Institute for Vocational Education
and Training (BIBB), Germany
Haertel@bibb.de

Michael heads the Division 3.2 of BIBB that is responsible for vocational education and training (VET) personnel in digital media and distance learning. It focuses on fostering quality assurance and quality development in vocational training, particularly by delivering training and equipping trainers in distance learning in VET.



Learning in the Virtual World: smartphones and tablets are finding their way into vocational schools

In 2013, the project Social Augmented Learning (SAL) was initiated as a nationally funded project in Germany. Its goal was to develop a learning application for the education of offset printers, running on mobile devices. With integrated AR technology, the app can make invisible processes visible. Animated 3D-models enable users to understand the interrelationships between different components, no matter if a associated machine is present or not. Additionally, learning gets "social" through the app, because it can be used collaboratively, including communication and sharing options.

In 2015, sophisticated VR-headsets were made available to customers. Virtual Reality opens new possibilities to interact with 3D-models that already had been developed for SAL. The initiators of SAL started the follow-up project "Social Virtual Learning" to integrate the models into an entirely virtual pressroom. Having added VR technology, learners now can directly interact with virtual machines. Technology does not make the use, it only enables access and insights to components that had been non-accessible before.

What makes the applications unique: applying the apps, it is possible to cut the dependence on real machines to gain an understanding of how printing presses work. The chains of limited press configurations in vocational schools gets cut, because it is possible to virtualize almost any machine, not only printing presses. And last, but not least, learners are free to explore technical processes themselves, which evolves their problem-solving skills.



Related links

<https://www.bmbf.de/de/media-video-7130.html>

<http://www.social-augmented-learning.de>

<https://drive.google.com/file/d/0B1F5qyVQ4B01WkZVUTQxS19CcHM/view?usp=sharing>

<http://www.social-augmented-learning.de/videos/>

<https://www.bibb.de>

<http://www.vdmno.de>

www.qualifizierungdigital.de

www.foraus.de



Mobile learning and formal education: research actions for a connected education

Features such as motivation, interactivity, mobility, among others, have been pointed out as some of the advantages of using mobile technologies in education. Mobile learning is the area of research which seeks out to understand the impact of such technologies in the educational context and is based on the conception that learning can happen anytime and anywhere. To adequate such vision to formal education requires proper strategies, considering that in the educational institutions, the time and the places for learning are generally well defined. Moreover, mobile devices, mainly smartphones, are criticized by teachers for causing problems, including distracting students. The "Learning with Mobile Devices" research project aims to investigate the contributions that the use of mobile devices may bring to the formal education. This project started in 2010, in IFFluminense, and has promoted research on: i) mobile learning and its contributions; ii) pedagogical resources for mobile devices and development environments; iii) pedagogical models using mobile devices; iv) learning experiences supported by the use of mobile phones and tablets; v) apps evaluation; vi) participation of high school students in activities using educational apps for tablets; vii) development and experimentation of didactic sequences supported by the pedagogical use of tablets; viii) use of institutional device versus BYOD (Bring Your Own Device) proposals. Currently, the research has analyzed the potential of Internet of Things for education by means of systematic literature revision. In general, the results are reflected onto actions in the classroom (High School, Graduation and Lato and Stricto Sensu Post-Graduation). Moreover, the elaborated resources are made available on the internet and the knowledge is shared with the community. In a broad way, the goal is to enable to better understanding of the various aspects of the mobile learning area.



Silvia Cristina Freitas Batista

Professor, Master's Programme in Teaching and Technology
Federal Institute of Education, Science and Technology Fluminense (Instituto Federal de Educação, Ciência e Tecnologia Fluminense - IFF)
silviac@iff.edu.br

Silvia is a professor at IFFluminense in Brazil and the coordinator of the Master's programme in Teaching and its Technologies. She also serves as a researcher for Computing in Education and the principal coordinator for the research on "Learning with Mobile Devices". She has a PhD in Computing in Education from the Universidade Federal do Rio Grande do Sul – UFRGS, Porto Alegre, Brazil and a Masters in Engineering Science (Production Engineering) from the Universidade Estadual do Norte Fluminense (UENF), Rio de Janeiro.



Gilmara Teixeira Barcelos Peixoto

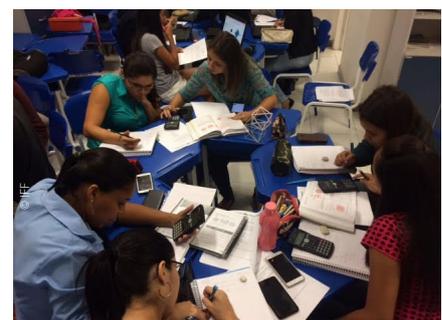
Professor, Master's Programme in Teaching and Technology
Federal Institute of Education, Science and Technology Fluminense (Instituto Federal de Educação, Ciência e Tecnologia Fluminense - IFF)
gilmarab@iff.edu.br

Gilmara has graduated in Science with specialization in Mathematics. She received her Master's Degree in Engineering Sciences, focused on Production Engineering, in 2004, from the Universidade Estadual do Norte Fluminense (UENF), Rio de Janeiro. She received her Ph.D. in Computer Education from the Universidade Federal do Rio Grande do Sul – UFRGS, Porto Alegre, Brazil, in 2011. She is a professor at IFFluminense, Brazil and currently, the associate coordinator for the Master's Degree in Teaching and its Technologies. She is also a primary researcher for Computing in Education.



Related links

- <http://nie.iff.edu.br>
- <http://portal1.iff.edu.br/pesquisa-e-inovacao/pos-graduacao-stricto-sensu/mestrado-profissional-em-ensino-e-suas-tecnologias/apresentacao>
- <http://portal1.iff.edu.br/nossos-campi/campos-centro/cursos/pos-graduacao/docencia-no-seculo-21>
- <http://plataforma.nie.iff.edu.br/projetomlearning/>
- <http://licenciaturas.centro.iff.edu.br>
- <http://portal1.iff.edu.br>



Other initiatives from the UNEVOC Network and partners



Aldrich Mejia

ICT Programme Assistant, Multimedia Developer. Focal Point for Caribbean Network Cluster
aldrich.mejia@unesco.org
unevoc.network.lac@unesco.org

Aldrich joined UNESCO-UNEVOC in August 2012 as IT Programme Assistant and Multimedia Developer. He is responsible for web and multimedia development, network administration, user support and in assisting and implementing ICT in TVET programmes. He is also responsible for coordinating the UNEVOC Network cluster in the Caribbean.

Prior to joining UNESCO-UNEVOC, Aldrich gained years of experience in IT while working for an intergovernmental regional organization in Asia for skills development and capacity building in TVET.



Contact person for e-TESDA

Ma. Susan P. Dela Rama
 Executive Director, e-TESDA Unit
 Technical Education and Skills
 Development Authority, Philippines
mspdelarama@tesda.gov.ph
www.e-tesda.gov.ph
www.tesda.gov.ph



Distance learning through video conferencing

A UNEVOC Centre in Canada, Cégep de la Gaspésie et des Îles, campus de Carleton-sur-Mer has successfully incorporated video conferencing in their teaching learning system. Utilizing the technology enables them to break the limit of space between their four different campuses. Using blended and mobile learning approach, students can access lectures and trainings through their mobile devices, not only from their campuses, but also from anywhere else in the world. This technology saves a lot of teacher and students' time as it greatly reduces their need to travel in between campuses.



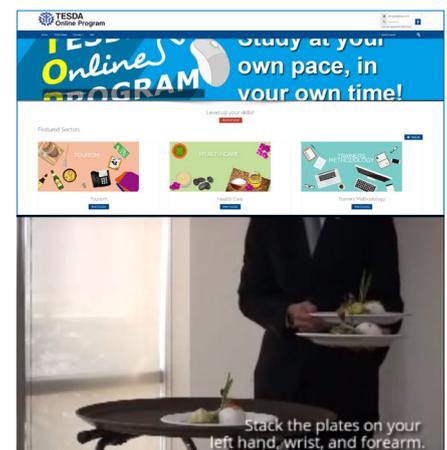
Contact person for Cégep

Pierre-Luc Gagnon
 Research project manager
 Cégep de la Gaspésie et des Îles,
 campus de Carleton-sur-Mer
 Canada
plgagnon@cegepgim.ca
www.cegepgim.ca

e-TESDA

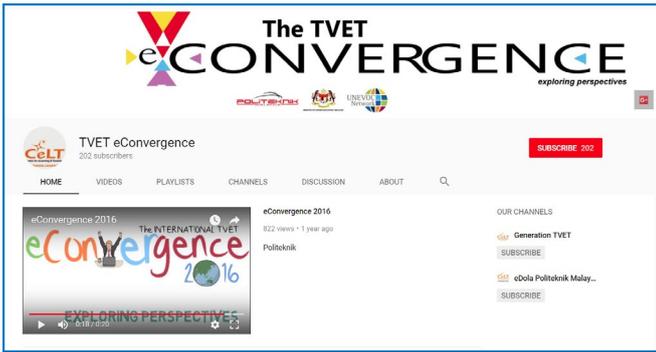
The Philippines is one of the biggest labour-exporting countries in the world. Most of these workers are women employed in low-skilled positions such as domestic helpers or boutique sales attendant and are very much susceptible to exploitations.

In order to give opportunities to overseas workers to develop their skills while working abroad, the Technical and Education and Skill Development Authority of the Philippines (TESDA), a UNEVOC Centre in the Philippines, developed an online learning platform that provides self-paced learning for its users. It is used in a blended learning approach in formal training programmes offered by TESDA but more uniquely, it targets Filipino overseas workers to develop their careers further. Instead of remaining domestic helpers for life, they can go through the coursewares, learn



new skills and afterwards, undergo formal assessment by TESDA conducted in its training centres in the country or through satellite assessment events conducted abroad. This entitles them to receive sought after National Certificates asked for by domestic and international employers.

eConvergence



The TVET International eConvergence is an online aggregation of ideas via talks presented by both educators and students in the TVET education stream, uploaded in the YouTube Platform. The Department of Polytechnic education (Instructional and Digital Learning Division) invites TVET learners and educators within the Malaysian Polytechnics to join the competition and create video contents on themes they propose for the year. This initiative hopes to form a greater TVET learning community wherein TVET education consciousness is promoted as students and educators develop their English communication and presentation proficiency while creating the contents.

Learning happens while the students together with their educators produce video contents, and at the training places or classrooms when these contents are used.

2017 eConvergence Concept, Rules and Regulation
<https://drive.google.com/file/d/0BypbuvdCBbFOS3o5ZzRMUVFHRHM/view>

Using mobiles for Open Distance Life-Long Learning of farmers

Lifelong Learning of Farmers is an initiative started by Commonwealth of Learning with non-governmental, private and financial institutions in 2009 in India, in order to help facilitate learning for farmers in rural communities to help them better manage their enterprises, including by setting up loans from commercial banks.

In LF3, organized farmer groups such as farmer associations are identified to serve as partners to execute the project activities. Within these groups, the partner NGO will train and help trainees to make proposal to secure a low-interest loans from banks after submitting proposals. Part of the loan includes the cost to purchase a low-priced mobile phone, if the farmer has none, which is crucial in the delivery of learning in this project. The NGO will train the farmers in using mobile phones alongside a special sim card provided by a partner local network provider. Voicemail lessons are developed by the NGO in consultation with knowledge experts based on the needs analysis of the farmer groups. Three voicemail lessons are sent to the group every day during the entire duration of the project, and is followed-up by peer learning with the group during their regular meetings.

In this initiative, the farmers regularly repay their bank loans and non-performing assets of bank decreased. Farmers' income increased dramatically and encouraged them to setup their own enterprises.

In this informal way of delivering knowledge to non-traditional learning recipients, the mobile technology combined with the paradigm shift is the key to the success of the initiative.

<https://www.col.org/search/all/learning%2520for%2520farmers>



Secretariat for eConvergence CeLT

Center for eLearning & Teaching (CeLT)
 Department of Polytechnic Education
 Ministry of Higher Education, Malaysia
 Secretariat email econvergenceone@gmail.com
<http://www.celtpoliteknik.org>

Contact person for Commonwealth of Learning

James Onyango
 Education Specialist: Agriculture & Livelihoods
 Commonwealth of Learning (CoL)
jonyango@col.org
www.col.org

