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A Social Partnership Model to promote Educators' Development in Mauritius through Formal and Informal Capacity-building Initiatives

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Abstract

This paper describes a social partnership model based on the living lab concept to promote the professional development of educators through formal and informal capacity-building initiatives. The aim is to have a broader impact on society through community outreach educational initiatives.

A Living Lab is an environment for user-centered innovation, based on the observation of everyday user practice and experience for solving problems but is also based on users' active participation, with an approach that facilitates their influence in the open and distributed innovation process (participatory design). It is defined as 4P innovation, namely, Public-Private-People-Partnership. The objectives are thus political and strategic, focusing on the social role of innovation, i.e., trying to totally realize human potential by increasing creativity.

In 2009, the Virtual Centre for Innovative Learning Technologies (VCILT) embarked on the SIDECAP project, funded by the EU-ACP in a consortium led by the Open University of the UK. The work of the VCILT in the context of the SIDECAP project was essentially focused on the repurposing of Open Educational Resources to fit in the local Mauritian Context. At the same time, the VCILT received an internal grant to work on the development of interactive learning materials using the integration of text-to-speech technology in instructionally designed PowerPoint presentations. During the same period, the Centre launched an innovative online training programme for in-service educators to allow them to top-up their qualifications in the field of educational and instructional technologies.

The set of activities described in the paragraph above, resulted in a succession of action-reflection cycles which developed into the concept of a Living Lab. We report the Living Lab setup at the University of Mauritius, by showing how the research activities at the VCILT led to a series of development and applications in a real-world context, related to the formal teacher training courses and informal continuous professional development of educators via the establishment of a social entity in a partnership with Microsoft Indian Ocean and French Pacific under the Partners in Learning Program. The model is referred to as a multiple-impact social partnership model. Therefore, there are three major components that would form the backbone of our Living Lab, namely, Research and Development, Teacher Education and, finally, the social entity that links the private and public sectors, and educators, in a social partnership.

Introduction

In 2001, for the University of Mauritius to get on the eLearning bandwagon, the Virtual Centre for Innovative Learning Technologies (VCILT) was created in a bid to modernize the distance education concept by fully utilizing the possibilities offered by IT-enabled networked systems and the Internet. Since its establishment, the centre has brought in some non-negligible innovations in the teaching and learning landscape. Inevitably, as with any innovative practices, it has also brought its share of disruption in the traditional university setting; what we term as ''constructive disruption'', especially with respect to the conception of pedagogy and educational practice in teacher education.

The educational philosophy behind the in-service teacher training courses at the University of Mauritius is inspired by Bob Moon's position in the 2010 issue of the Commonwealth of Learning *Connections* magazine. In the article "Time for Radical Change in Teacher Education", Moon argues that it is time to implement new technologies in teacher training courses so as to focus on the continuous professional development of educators. Adopting a very critical view of the so-called *brick-and-mortar* institutions for teacher training, Moon (2010) points out, "*there is absolutely no way the bricks-and-mortar institutions of teacher training created in the last century will be adequate for the 21st century needs".*

A Living Lab is an environment for user-centered innovation, based on the observation of everyday user practice and experience for solving problems but is also based on users' active participation, with an approach that facilitates their influence in the open and distributed innovation process (participatory design). It is defined as 4P innovation, namely, Public-Private-People-Partnership. The objectives are thus political and strategic, focusing on the social role of innovation, i.e., trying to totally realize human potential by increasing creativity.

In 2004, the first online course was launched (in a Masters in Educational Technology program, formerly Computer-Mediated Communication and Pedagogies), mainly targeting educators and training professionals in industry. In 2009, the top-up programme in educational and instructional technologies was run to bridge the gap between educators holding a teacher's diploma (qualified teacher status) and those eligible to join in a Masters programme. At the same time, the centre embarked on a few research projects related to education technology and pedagogies related to the integration of ICT in education. There was also a need to address the problem of capacity building of educators to equip them with the 21st Century teaching and learning skills.

This was done in a novel approach using action-research cycles, combining research and development activities to design and develop online teacher education programs for in-service educators (Cycle 1 of an action research cycle), in line with the philosophy of 21st Century training needs (Moon 2010). The process led to the setting up of a Living Lab to expand the initiative to include non-formal outreach initiatives, to promote continuous professional development of educators at a larger scale in partnership with the private sector (represented by Microsoft Indian Ocean and French Pacific), and a social entity called Helping Our People (Cycle 2). The link between Cycle1 and Cycle 2 of this action research cycle is mediated by the people (represented by educators and the staff of the VCILT).

Theoretical Concepts

According to Conruyt (2013) when one instantiates it in a domain, a Living Lab includes public and private actors, companies, associations, and individual actors, whose objective is to co-design, to develop and to test life-size services, tools and new practices:

The aim is to take out the research of laboratories to make it come down in the daily life, often by having a strategic view on the potential uses of these technologies. All this takes place in cooperation between local authorities, companies, research laboratories, as well as potential users, via helping platforms for designing innovative services and analyzes of their usages. It is a question of favoring the culture of opening (open innovation), of sharing its networks and of involving the users from the beginning of the conception.

Cunningham et al. (2011) summarize the concept by referring to Living Labs as both a milieu (environment, arena) and an approach (methodology, innovation approach). They argue that it is a concept that refers to a Research and Development (R&D) methodology where innovations (services, products and application enhancements) are created and validated in collaborative, multi-contextual, empirical, real-world settings (Geerts, 2011:21), and seen as a new character in the open innovation chain (Lepik et al., 2010:1091).

From the above definition and explanation, it can reasonably be argued that the Living Lab concept has theoretical foundations related to the concept of Activity Theory, and Action Research. Activity-theory (Engeström 1987) is one of the main developments that

characterize contextual approaches to cognition. It is a theoretical framework for analysing human practices in context. An activity is reflected through actions as people interact with their environment. Activity theory has been successfully applied in different research domains (Taurisson & Tchounikine 2004; Korpela *et al.* 2001; Collins *et al.* 2001) as the main theoretical framework to model human activity systems and it is well adapted for contemporary modelling of educational contexts. Wilson (2006) argues that while activity theory cannot be seen as a predictive theory, it is a very appropriate conceptual framework providing a coherent terminology that can be shared by researchers, within which different theoretical perspectives can be employed.

MacIsaac (1995) postulates that Action Research is a "*reflective process of progressive problem solving led by individuals working with others in teams or as part of a community of practice to improve the way they address issues and solve problems*". Action research is basically research that leads to action that uses a spiral of steps, each of which is composed of a circle of planning, action, and fact-finding about the result of the action (Lewin 1948). Figure 1 illustrates a simple model of the cyclical nature of the typical action research process adapted from the work of MacIsaac (1995).

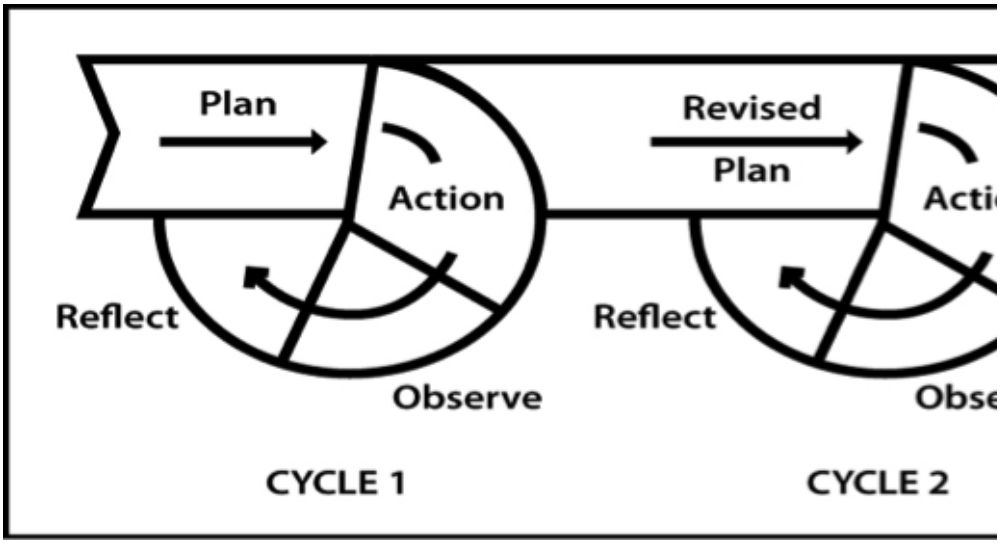

Figure 1: Action Research Cycles

With reference to a Living Lab, action research becomes an appropriate overall framework to evolve the cycles of activities leading to user and field-testing in real-life situations while activity theory provides the right model for studying human interaction and behavior throughout each cycle of activity, using the change laboratory method as the main instrument to deal with the issue of process change and improvement.

The Living Lab (MISP)

MISP is essentially an integration of the Research and Development model described above that has governed our applied research activities in education technology, and the community engagement model described above with the establishment of the Helping our People Entity. It is based on Whitehead's (2012) education research philosophy for social change through action research and the Living lab paradigm for Teaching and Learning (Conruyt 2013).

A Living Lab is an environment for user-centered innovation, based on the observation of every-day user practice and experience for solving problems, but also based on their active participation, with an approach that facilitates their influence in the open and distributed innovation process (participatory design). It engages all concerned partners in real-life contexts, and aims to create sustainable usage values (Kareborn et al. 2009). It is defined as 4P innovation, namely Public-Private-People-Partnership. The objectives are thus political and strategic, focused on the social role of innovation, i.e., trying to totally realize human potential by increasing creativity (Conruyt 2013).

The MISP model fits in the 4P innovation framework where the Public sector is represented by the VCILT and the University, the Private Sector is represented by Microsoft Indian Ocean and French Pacific or other actors in the future, with the People being academics, educators, and Youth volunteers (students). The beneficiaries and the partnerships among these actors are mediated through a collective social movement called Helping Our People.

The Research and Development Model (Cycle 1)

The Research and Development Model (Cycle 1) is based on a practitioner-oriented concept where research and development essentially become the drivers for practice-oriented enquiries to improve teaching and learning systems. It aims at field experimentation to test new practices, which are then formalized into teaching methods that can be cascaded down to educators for classroom application. The educators at the receiving end also become engaged in an action-reflection cycle where the feedback is fed into the system for continuous improvement and refinement of teaching techniques and the application of ICT tools in day-to-day practice. The model is conceptually elaborated in figure 2 below using the MOT Taxonomy (Paquette 2003).

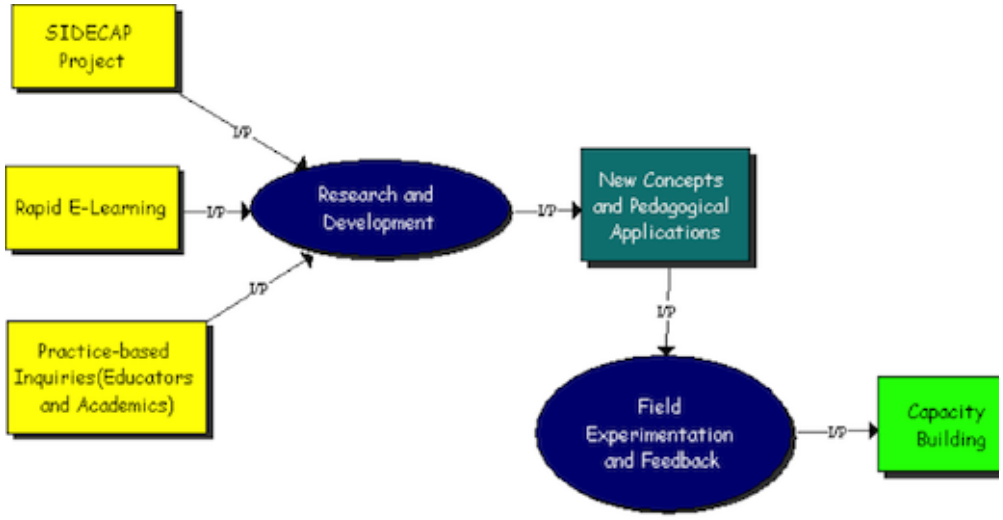

Figure 2: The Research, Development and Application Model and the Action-Reflection Cycle

(i) The VCILT and Teacher Education

In 2004, the first online course was launched (in a Masters in Educational Technology program, formerly Computer-Mediated Communication and Pedagogies), mainly targeting educators and training professionals in industry.

The course was offered using an innovative teaching and learning model focusing on an activity-based pedagogy to promote the acquisition of competencies and development of skills among educators (Santally and Raverdy 2006; Santally 2012).

In 2009, due to an increasing number of requests from in-service educators who did not meet the requirements to enroll in the Masters course, the VCILT team introduced another innovation in the teacher training system with the Honors' Bachelor's online degree in Educational and Instructional Technology, targeted mainly towards Primary School educators who have a Diploma in Education and/or a Teacher Training Certificate and ten years of teaching experience (Cooshna-Naik et al. 2011). It was at that time a first step towards the implementation of a formal recognition of prior learning as an alternative entry route to university studies.

While the VCILT is a real-world entity existing in a brick-and-mortar institution, the introduction of online learning through a reconceptualization of the teaching and learning process has led to a departure from traditional teacher training methods. The model of online instruction is based on a three-phased approach, namely, the knowledge acquisition phase, the knowledge application phase and the knowledge construction and reflective practice phase (Santally & Senteni 2004). In the knowledge construction and reflective phase, emphasis is laid on collaborative work, where the learner becomes an important agent in the learning process (Hannafin & Land 1997) while the role of the teacher/lecturer undergoes a paradigm shift from the knowledge holder to the manager, orchestrator and facilitator (Schneider 2003).

In an endeavor to bring a transformative approach to promote the educational philosophy we had adopted, a three-fold method was applied. The first aspect was to inculcate a new

educational culture in aspiring educators who have embarked on a university degree course of study. The second aspect was to provide a route for in-service educators to upgrade their qualifications (better income, and promotion prospects) through an innovative degree in education technology by transforming them into digital migrants, and the third element was to influence policy makers by demonstrating that technology has increased access to education and has transformed traditional practices.

(ii) The SIDECAP Project

This Project is a European Union (EU) funded project, as part of its ACP-EU Cooperation Programme in Higher Education (EDULINK). SIDECAP stands for Staff Improvement in Distance Education for Caribbean, African and Pacific universities. There are five institutions involved in this project, namely, the Open University of the UK (project leader), the University of the Highlands and Islands Millennium Institute (UHI) in Scotland, the University of Mauritius (UoM), the University of the West Indies of Trinidad & Tobago (UWI) and the University of the South Pacific (USP). The VCILT piloted the SIDECAP project on behalf of the University of Mauritius for the period 2008-2012. The involvement of the VCILT at the level of the project mainly looked at the repurposing of open educational resources to fit into different learning and educational contexts.

A lifecycle model for the repurposing of OERs was proposed (Santally 2011) which has been applied to the design and development of online programmes at the VCILT. The resources that were produced during experimentation in the SIDECAP project were then disseminated as an online continuous professional development course for Mauritian Educators. The course, which can reasonably be considered a µOOC (Micro Open Online Course) attracted about 300 educators in 2010. The pool of educators who followed this course eventually regrouped into a socially connected pool of potential future students to feed into the formal teacher training courses of the university. The project also investigated the issues surrounding the *Copyleft* licensing schemes in terms of reuse, repurposing and value-addition of existing open educational materials.

The main outcome of the SIDECAP project was that the models and methods that were developed and experimented ensured the initial sustainability of the online learning courses of the VCILT. As a result, in three years the student population increased from 10 to 300 and a total of eight parallel cohorts of students enrolled in four different online programmes of studies. The ongoing in-service teacher training programmes were updated to reflect the latest progress, such as the inclusion of a module on the design and development of OERs and a module on copyright and intellectual property issues in education.

(iii) The Rapid e-Learning Methodology

Rapid e-learning is a term that has emerged from the concept of rapid development as applied to the software development industry. The key is to acquire the ability to develop and deploy high quality interactive multimedia e-learning courses, which are generally short to medium length learning units in a minimum amount of time (Brandon 2005). Rapid e-learning is an emergent methodology that has recently gained momentum as more and more user-friendly authoring tools are being developed.

In 2008, in parallel to the SIDECAP project, the VCILT embarked on a research and development project aiming at creating video lectures through the integration of two simple technologies, namely, Microsoft PowerPoint and Text-to-Speech. The project gradually evolved by 2010 into the rapid e-learning methodology which allowed for the development of interactive learning materials in a reduced time period and with minimal technical computing skills. Furthermore, a training and development methodology has been put in place by the research team to disseminate the technique in an extensive two-day workshop to educators and education practitioners. The rapid e-learning project emerged as a research and development project that led to the development of a service with respect to the development of interactive learning materials.

In 2010 the VCILT secured a consultancy to digitize six courses for the Hamdan-bin-Mohamed e-University of Dubai and in 2011, the technique was applied in a project funded by the Commonwealth of Learning to develop interactive materials in the local language for its Lifelong Learning for Farmers, and its Women Empowerment programme in Mauritius. In 2012, the technique was disseminated in India at the Makerere University in Uganda for the Commonwealth of Learning, and in two international professional development workshops in South Africa and in Mauritius for African educators and academics.

The rapid e-learning methodology was integrated within the work that was carried out in the SIDECAP project, as the methodology was specifically adapted to fit in the value-addition

process of the proposed lifecycle for OER development and reuse. This resulted in a set of video lectures that were developed and hosted on an open channel on YouTube. The rapid e-learning methodology is currently being further developed to apply for mobile and portable devices to support mainly the Windows 8, Android and IOS platforms.

The 4P Connection (Cycle 2)

1. *The Microsoft Partners-in-Learning Program*

The rapid e-learning project created a link tunnel between the SIDECAP project, the in-service educators and the Microsoft Partners-in-Learning (PIL) Program (www.pil-network.com) in Mauritius. The Microsoft PIL program is managed by the Microsoft Indian Ocean and French Pacific branch, based in Mauritius and the aim is to promote the integration and the use of information and communication technologies in the classroom, with the main focus on the primary and secondary education sectors. The PIL network provides educators with ongoing training and free tools as well as access to a broad range of technologies and lesson plans to improve classroom practices. This is in line with the very essence of the article of Moon (2010) based on the belief that "*education and training should be an entitlement for all teachers at all stages in their careers"* and that research has demonstrated that when *"this entitlement is honored, learners achieve more and schools improve".*

The rapid e-learning methodology relies intensively on Microsoft PowerPoint as the prototyping and development workbench. This methodology with the ability of the team to cascade it down to educators to empower them to develop their own learning materials has prompted Microsoft to fund the training of an initial 50 educators on the technique in 2012.

The idea is to decentralize the content development process to enable educators to develop curriculum related materials in a shorter time-span than it would normally take a small, dedicated team of content developers, as is currently the practice under the *Sankoré* Project, an initiative of the Franco-British Summit and the Government of Mauritius. While interactive whiteboards has been deployed in the primary schools with each school being equipped with a *Sankoré classroom*, the Minister of Education and Human Resources announced the Phase II of the project to start after August 2013 whereby Mauritius was supposed to receive about 520 interactive whiteboards and digital equipment from the French Authorities (Government Portal 2013).

The main advantage of shortening the time spans for the development of interactive and digital learning materials that would fit in the context of the deployment of interactive whiteboards in schools is that technology becomes obsolete very fast. A study by Bahadur and Oogarah (2013) revealed that very few educators were actually using the interactive whiteboards, and that it was unclear that those who were using them in our schools were actually doing so in an effective way. It was furthermore revealed that educators had acknowledged a lack of necessary skills and competencies to fully utilize the equipment as well as the necessary technical support to ensure correct operation. It was also noted that much of the equipment was not functioning and/or had been damaged by students.

2. *The Social Entity – Helping Our People*

The government, in 2003, launched the ZEP project in a coordinated effort to deal with the learning difficulties faced by children coming from poor localities. Mahadeo and Gurrib (2008) report that within the framework of the ZEP project, children are entitled to: (i) pedagogical innovations with respect to teaching and learning; (ii) improved provision with respect to their diet; (iii) a health programme for all of them; (iv) a teaching support kit; (v) a monitoring system with new indicators; (vi) a databank to keep the policy dialogue active and (vii) involvement of the local community. It is within such a social engagement context that the non-governmental organization Helping Our People was established to act in a broader context in line with the Living Lab philosophy.

The concept of Youth Empowerment has been embodied in the functioning of the organization in two ways. The first one is to take undergraduate, full-time, university students and train them through capacity-building projects to assist in and to ultimately lead technical teacher-training workshops, and, to inculcate a culture of social values and voluntary work to contribute to the welfare of society and student surroundings in general. Youth Empowerment is conceptually defined at the level of the organization in Figure 3 below.

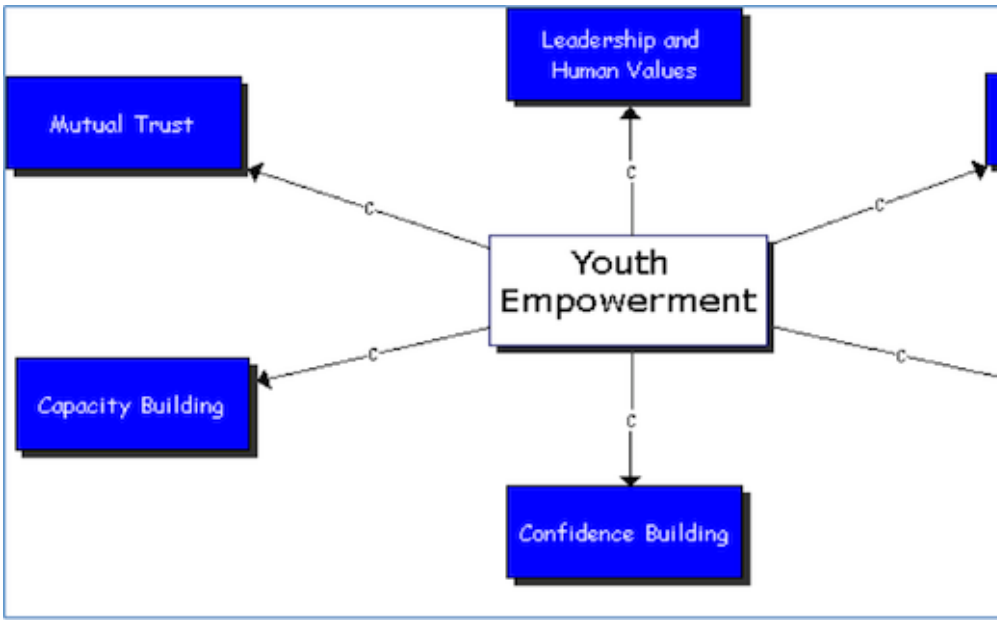

Figure 3: Conceptual Model for Youth Empowerment

As can be seen, the core values and elements rely on the establishment of mutual trust between youth and their mentors, the development of leadership and human values by providing opportunities to become autonomous and confident, and to get access to new openings through ongoing capacity building.

A First Account of Field Activity

In this section we describe a first application of the MISP model for the year 2013. The activities are divided into two categories, namely, the socially oriented professional activities that originate from the capacity building feature of the research and development model presented in Figure 1, and the Social Community Service element of the Helping Our People entity.

Interactive Materials Development Training in Mauritius

The training was conducted through funding from Microsoft Indian Ocean and French Pacific under the Partners-in-Learning umbrella. Two batches of 24 and 21 participants were trained during the period 15th-19th April 2013. The training targeted educators of the primary and secondary sector and the title of the training was, “Interactive Materials Development for the Digital Classroom”. The training was focused on the development of skills and the acquisition of competencies by the participants. As such two techniques of instructions were used: (1) instructor-led tutorials, and (2) an independent self-executed learning activity by the participants. This approach ensures that all participants have achieved the minimum expected learning outcomes after the training session.

Partners-in-Learning Network Initiation in Rodrigues

Under the existing partnership between Helping Our People and Microsoft Indian Ocean and French Pacific, for the promotion of the Partners in Learning Program among educators, a two-day training in June 2013 for Educators in Rodrigues had been organized in collaboration with the ICT Centre of Excellence in Rodrigues. There were 26 participants in the training. All participants are educators based in Rodrigues. The educators were exposed to the use of Microsoft PowerPoint as a platform to develop interactive learning resources. They were then introduced to the Partners in Learning Network where they carried out activities such as registration and completion of a profile, participation in online discussions, and sharing of learning resources and tools.

The 2013 Educational Technology Seminar

The seminar of the year 2013 was centered on action research and the use of ICTs in the classrooms. The seminar was organized in collaboration with Microsoft Indian Ocean and French Pacific Ltd. Seventy-five educators attended the one-day workshop where Professor Jack Whitehead talked about action research and the principle of researching, inquiring on and improving one's own practices, while Professor Noel Conruyt from the University of Reunion spoke on the living labs concepts in the context of teaching and learning. This

workshop was a follow-up to the training sessions conducted in April 2013 under the support of Microsoft in the Partners in Learning Network (www.pil-network.com) program. Educators were trained to develop their own interactive learning materials and to use the Partners in Learning Network as a common educational social network and sharing platform.

The Partners-in-Learning Network Boot Camp

The purpose of this boot camp is to sustain the initiatives started with respect to the professional development of educators conducted in April and June 2013, respectively. It is now proposed to engage the next logical cycle of action research, that is, moving from the training cycle to the production cycle. This is in line with future plans to set up a Living Lab model for teaching and learning in Mauritius. The production cycle took the form of an intensive boot camp of three days, where 25-30 educators came together and produced educational resources related to the curriculum using Microsoft Partners in Learning Pedagogical Tools. These resources were then be uploaded to and shared on the Partners in Learning Network site. The educators involved in this boot camp participated in the Expert Educator competition of Microsoft.

Reflective Discussion

In developed countries, Finland serves as an excellent example, and it is widely said and demonstrated that research has been the driving force behind innovation that led to the socio-economic developments of the countries through industrialization, the design and development of new products and services to the global markets (OECD 2010). Research and development in the context of developing countries should also embody community service as an important and key element to promote social justice and alleviation of poverty.

In a country like Mauritius where free primary, secondary and tertiary education has been a landmark in the socio-economic development and political stability of the country, it is deplored that research in education for development has long been a sideline issue, despite having three public universities and one dedicated institution for teacher training.

Recently the concept of 'Maurice Ile Durable (MID)' has been put forward as the new leitmotiv for promoting socio-economic development, social justice and education in a framework respecting the environmental eco-system. Such an ecosystem that the MID concept is trying to promote is perfectly in line with the concept of Living Labs put forward in the implementation of the MISP model. The Living Lab is essentially a research lab that fundamentally departs from the closed and restricted nature of research laboratories working on 'closed' innovation, as opposed to the concept of an 'open' user-centered innovation system where all stakeholders form an integral part of the process. Hence the 'living' concept being embodied and replacing the term research in research labs.

Conclusion

Living Labs are emerging as a new model to support co-creative, human-centric and user-driven research, development and innovation in order to better cater to people's needs. Mauritian society, amid the concepts of a sustainable Mauritius, is at a junction where traditional models of research and development have started to show their limits in sustaining a modern society that can effectively address growing challenges like education reforms, poverty alleviation, global economic crises, and environmental protection. The MISP model, although operational at a micro-level and at an infancy stage, tries to embody the new open innovation concepts as proposed by the Living Lab ecosystem, and can serve in the longer term as an example for other initiatives.

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