Introduction

Studies have shown that the effective integration of information and communication technologies (ICT) into formal and community education classrooms can accelerate the development of skills such as communication, critical thinking, collaboration and problem solving. These findings have bolstered the demand for effective integration of ICT into educational settings and into teacher training. Furthermore, this has led to calls for changes to curricula to reflect the use of ICT in education.

In the Philippines, the Department of Education (DepED) is striving to implement reforms towards appropriate and effective use of ICT to broaden access to and improve the quality of education and to improve the efficiency of basic education service delivery. In 2000, the DepED implemented a system-wide computerization programme for public secondary schools, which includes initiatives such as the Personal Computers for Public Schools project and the Adopt-a-School programme. The DepED computerization programme is supported by ICT-related initiatives of other national government agencies, local government units, non-governmental organizations (NGOs), private firms, foreign governments, and international aid donor agencies. These initiatives include infrastructure projects and projects which train teachers in basic ICT literacy and in technology-integration pedagogy.

Among these initiatives is the “Intel® Teach” programme, a global initiative of Intel Corporation, which aims to train teachers in how to effectively integrate the use of computers into their existing curriculum in order to motivate students and increase their learning and achievement. In particular, the programme aims to enable teachers to implement inquiry and project-based learning.

The Intel® Teach Programme

Intel® Teach employs a teacher-led training system. The training course emphasizes the use of teaching strategies and practices which integrate technology into the existing school curriculum. The course aims to enhance teacher productivity and enable them to create technology-enhanced learning activities and to utilize the Internet as an information resource and a communication tool.

Designed for both pre-service and in-service K-12 teachers, including ICT lab teachers, programme participants learn optimal ways to integrate technology tools and resources into their own lessons and promote student-centred learning. The programme also supports the implementation of peer review and collaborative problem solving.

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The programme has trained over 4 million teachers in more than 40 countries to create learning environments in which students work collaboratively to develop skills that can be used to address real-world concerns. In the Philippines to date, over 74,000 secondary school (in-service) in-service teachers and pre-service teachers have benefited from the programme.

**Intel® Teach Programme in the Philippines**

The implementation of the Intel® Teach programme in the Philippines is a joint endeavour by the Philippines Government and Intel Technology Philippines Incorporated. It is implemented in co-operation with partner agencies from the government and private sectors.

The goal of the programme in the Philippines is to foster the building of communities of learning (CoL), defined as effective networks of productive exchange among a broad range of education stakeholders, including teachers, learners, education policy makers and managers, subject matter experts and education researchers, technicians and technologists, parents, government, the private sector, and civil society groups, in support of technology integration and within the framework of providing high quality education for all.

In 2001, the Intel® Teach Essentials Course was launched by Intel in co-operation with its programme partners, including the DepED, Department of Science and Technology-Science Education Institute (DOST-SEI), the University of the Philippines National Institute for Science and Mathematics Education Development (UP NISMED), and EduQuest Inc. In 2005, the Foundation for Information Technology Education and Development (FIT-ED) joined the partnership. Through concerted efforts, this programme has become a major teacher-training component of the government’s computerization programme.

The Essentials Course is a 10-day hands-on training programme employing the “train the trainer” model of delivery. The training is composed of 10 adaptable modules focusing on the development of a unit portfolio containing student learning activities with special emphasis on the inquiry approach, project-based learning and authentic assessment. The training is offered to both in-service teachers and pre-service students. Participants are taught how, when and where to incorporate technology tools and resources to achieve maximum student learning.

Training is conducted by a small pool of senior trainers from the UP-NISMED, selected in-service teachers and selected faculty from pre-service institutions. Each batch has a maximum of 25 participants from carefully selected schools, divisions and pre-service universities. In turn, these participants share what they have learned with other in-service teachers or pre-service teachers near to their location.

The programme enhances the learning process by:

- Using curriculum-framing questions (CFQs) to connect real life and content.
- Emphasizing learning objectives that develop higher-order thinking skills.
- Emphasizing students’ creation of products to demonstrate learning.
- Promoting authentic assessment and increased student participation in assessment.

Since the start of the 2005-2006 Philippines school year (SY), the programme has implemented a systems approach to ensure sustainability of efforts around ICT integration. The systems approach points to the recognition of all stakeholders within “communities” (e.g. principals, teachers, ICT
division co-ordinators, etc.) and has introduced innovations to link and promote ownership of the identified stakeholders. Innovations introduced to foster the formation of sustainable communities of learning (CoL) include competitive selection of schools and teacher education institutions (TEIs), introduction of planning and management strategic workshops within schools and divisions and provision of pedagogical support which created the links between many different players within and among the schools, divisions and TEIs.

This paper will focus on one of the innovative strategies that the programme employed in the Philippines: the implementation of a Pedagogical Support System (PSS). The discussion will describe the PSS, its rationale and objectives, and the challenges encountered and lessons learned.

**Piloting the Pedagogical Support System**

Since 2001, more than 50,000 high school teachers in the Philippines have been trained in how to integrate technology into the subject they teach. Results of end-of-training evaluations show that a significant number of these teachers greatly appreciated the new strategies and skills they gained from the 10-day course. An evaluation of the impact of the programme on student learning and teaching practices showed, however, that out of 1,271 respondents surveyed, only 16.6% fully implemented the technology-enhanced unit plan they developed during the course (SEAMEO Innotech, 2004). Periodic programme evaluation revealed that the achievement of programme goals were hampered by several inter-related factors topmost of which were the following:

- Poor content and pedagogical knowledge of many public high school teachers.
- Poor technology skills of teachers.
- Lack of post-training pedagogical support for teachers as they strived to master new teaching practices (FIT-ED, 2006).

To address this gap, a Pedagogical Support System (PSS) was set up in July 2005 as one of the programme’s post training activities. Its overall goal was to help teachers, teacher educators, content supervisors, and department heads integrate into their own “Communities of Learning” to dynamically sustain the use of technology in school curricula to maximize student outcomes.

As a pilot project, it aimed to provide instructional support to new Master Trainers (MT) during unit implementation to help overcome challenges in Unit plan implementation as well as to help MTs prepare for the conduct of their own school-based Participant Teacher (PT) Training. Specifically, it sought to enable new MTs to:

- Enhance the Unit plan they developed during training.
- Implement the Unit plan.
- Reflect on and evaluate Unit plan implementation.
- Revise the Unit plan for future implementation.
- Prepare for the school-based Participant Teacher Training.

Provision of support in the pilot PSS had two components: the Instructional Support and the Participant Teachers’ Training Support. The **Instructional Support** aimed at helping MTs implement their technology-enhanced Unit plan in class. The **Participant Teachers’ Training Support** prepared MTs to deliver the Essentials Course in their school or division. Each component included a reflection and evaluation session that enabled all Support Providers and the new Master Trainers to recommend changes aimed at improving the PSS processes and tools.
**Scope**

As a pilot project, the PSS was intended for the new 68 MTs trained under the programme the previous May (10 to 20 May and 23 May to 3 June 2005). These MTs were DepED secondary school teachers selected by the implementing agency, the Foundation for Information Technology Education and Development (FIT-ED). They came from 10 selected divisions all over the country; specifically Bulacan and Tarlac (Region III), Batangas, Laguna, and Cavite (Region IV-A), Davao City (Region XI), Lanao del Sur II (ARMM), Makati City, Quezon City, and Pasig-San Juan (NCR).

The Support Providers (SPs) were selected from the programme’s pool of practitioners in the MT’s division, nearby division, or region and had received enhancement training on the latest curriculum. Members of the PSS Development Team from UP NISMED also served as SPs for MTs from the divisions of Makati City, Quezon City, Pasig-San Juan, Batangas, and Cavite since there were no available and qualified Intel® Teach practitioners near the area. The support scheme was limited to instructional support in unit plan enhancement and implementation, and PT Training preparation.

The Project was piloted in the 2005-2006 school year and covered a unit plan implementation that took place between October 2005 and March 2006, while PT Training support included training activities conducted from October 2005 to May 2006. Support was likewise extended to MTs who implemented their Unit plans before the PSS started and was matched to the stage of implementation the MTs were, at the time the SPs reached them.

The instruments used to gather data in the delivery of the PSS were intended mainly for use by SPs and MTs. Hence, learning’ derived from this project were largely based on the written accounts provided by these two key players.

**Project Duration**

The Project was undertaken over 12 months, from July 2005 until June 2006, and was carried out in three phases. The first phase comprised of the pre-implementation activities. Activities in this phase included assessment of support needs, profiling of Unit plans, identifying an SP for each MT, developing the PSS tools, and conducting orientation sessions for SPs. The second phase was the pilot run and included validation of the instruments developed in Phase 1. The pilot began in October 2005 and ended in May 2006. The activities were grouped into two components and are described in detail in the next section. The third phase was the reflection and reporting phase which started in February and ended in May 2006. This included debriefing sessions with SPs, gathering of completed instruments and SP reports, project reflection and reporting.

**The Pedagogical Support Process**

The Pilot PSS had two components: the Instructional Support and the Participant Teacher Training Support. Figure 1 illustrates the process.
The **Instructional Support** consisted of an array of activities, resources, and services carried out in three stages namely:

- *Stage 1*: Unit plan Enhancement
- *Stage 2*: Unit plan Implementation
- *Stage 3*: Reflection and Evaluation

Each stage included a reflection and evaluation component that enabled all Support Providers and new Master Trainers to recommend proposed changes to the tools and processes in the PSS.

**Stage 1: Unit Plan Enhancement** consisted of unit plan clinics, provision of access to supplementary resources, and face-to-face, telephone and email consultations.

The bulk of support was provided during this stage. During the unit plan clinic, the assigned SP reviewed and gave feedback on the following aspects of the MT’s unit plan:

- Curriculum-framing questions
- Emphasis on higher order thinking skills in learning objectives
- Incorporation of Project-Based Learning ideas or inquiry approach
- Appropriateness of selected technology (i.e. ability to maximize learning)
- Appropriateness of assessment strategy (e.g. authentic, increased student participation)
- Ability of learning activities and student support materials to scaffold and maximize student learning
- Implementation plan.

Support providers likewise reviewed the accuracy and currency of content of all sample technology-based student outputs, teacher support and student support materials. They identified areas for improvement and assisted in the revision.