# EmpowerICT: eLearning for in-service Teacher Education and Support

Charalambos Vrasidas,
- Knowledge Director
Associate Professor –
Intercollege
cvrasidas@cait.org

Michalinos Zembylas,
Knowledge Director
Associate Professor –
Intercollege
zembylas@msu.edu

Jose Marie B. Legaspi,
Knowledge Director
jml274@columbia.edu

***Abstract***

*The goal of this paper is to discuss the theoretical framework behind empowerICT™. EmpowerICT™ is a professional development program that focuses on integrating ICT in teaching and learning in primary and secondary education. It consists of teacher training modules, support documents, suggested activities integrating ICT in education, outcomes based assessment, an online portal, and ongoing support. The vision behind this project is to develop a community of teachers integrating ICT in their classrooms in which they will share expertise and support each other in the Asia Pacific region. The project has been launched as a pilot in Thailand and Philippines in collaboration with the local Ministries of Education.*

## 1 Introduction

Schools and teachers are asked to integrate Information and Communication Technologies (ICT) in their everyday practice. It is often argued that technology in education will make schools more productive and efficient, will improve teaching and learning, will provide authentic and engaging learning experiences, and will better prepare students for the workforce. International organizations such as the International Society for Technology in Education, UNESCO, and the European Commission, have established guides, plans, and standards for the use of ICT in education and training.

Although there is dramatic growth in the availability of technology to schools, there is a great deal of evidence that teachers do not use technology as expected (National Center for Education Statistics, 2000). The availability of technology is essential. Teachers are more likely to integrate ICT into their classrooms if they have access to adequate equipment and a solid technology infrastructure. In the Asian context, there is a great discrepancy among countries with regards to the availability of ICT for classroom use. In a recent report on the use of technologies in education in Asia and the Pacific 2003-2004, Farrell and Wachholz (2003) report several trends in the use of ICT for education. Among these trends are: the ICT infrastructure, the need for combining old with new technologies, the use of mobile technology, the use of knowledge management systems, the development and use of learning object repositories, and a growth in open schools. There are reasons for the limited use of technology other than the simple lack of equipment, and these reasons will likely be extremely difficult to address. They touch on the realities and culture of the everyday classroom and on teachers' knowledge, skills, beliefs, and

expertise (Cuban 1986, 2001; Vrasidas & Glass, in press). Teachers are asked to find ways to successfully integrate ICT in their classrooms, but often with minimal preparation and support.

In the first part of this paper we discuss several of the factors and issues involved in effectively preparing teachers to integrate ICT in teaching and learning. Then we focus specifically on the pedagogical framework behind EmpowerICT™. Our goal is to present the research and theory on which this framework is built on.

## 2 A Framework for Integrating ICT in Teaching and Learning

### 2.1 Teacher Preparation

A commonly cited obstacle to ICT integration is the lack of teachers' content, technology, and pedagogical knowledge. Because of a lack of pedagogical knowledge, teachers often fail to take advantage of what technology affords and instead use computers to teach in traditional ways. According to a recent report by McMillan Culp, Honey, and Mandinach (2003), *A Retrospective on Twenty Years of Education Technology Policy,* "Teacher professional development has been one of the enduring themes across the past twenty years and is often highlighted … as the single most important step toward the infusion of technology into education" (p. 12).

### 2.2 Technology and the Culture of Schooling

According to Cuban (1993), the principal reason for the limited use of technology in schools is the dominant culture of schooling and teachers' beliefs about how schools should be organized, and what teaching, learning, and knowledge are, rather than a lack of funds for technology, indifferent administrators, and limited teacher skills. Efforts at technology integration provoke a variety of responses from teachers that range from enthusiasm, skepticism, to fear and uncertainty (Cuban, 1993). A long history of technology use in education reveals that the first reaction is to use new technology in the same traditional ways as the old technology (Cuban, 1986; Means, 1994). Continuing old practices with new technology will not change nor improve education. Old curricula and pedagogical approaches should be reformed, and if necessary replaced, to take advantage of the affordances of the new media. Cuban's (1986, 1993, 2001) research has shown that computers are used less often in the classroom than in other organizations. The dominant traditional culture of schools has inhibited technological innovations from playing a central role in educational reform.

Educational innovations to succeed, systemic approaches and the collaboration of all stakeholders including teachers are required. Innovations and efforts to integrate technology in schools have failed dramatically when teachers' suggestions were not incorporated and when teachers were not actively involved in the innovation (Means, 1994).

### 2.3 Collaboration among Teachers, Faculty, and Experts

An approach that seems to work well on preparing teachers to teach with technology focuses on the idea of building partnerships among stakeholders in developing, implementing and evaluating programs for teacher preparation to teach with ICT. For example, the University of Illinois, Urbana-Champaign has created a professional development program in which, teacher education faculty, technology experts, and teachers collaborate to design modules integrating technology in the curriculum (Radinsky, Smolin, & Lawless, in press). Collaborative curriculum design anchors the process of learning to use technology within an exploration of what it is to teach and learn the subject. The design teams connect

teacher educators, technology experts, and K-12 teachers in urban public schools, with the goal of developing curricula in specific content domains which make good use of ICT.

### 2.4 Communities and Continuous Support

A major issue emanating from research on teacher preparation has to do with the provision of ongoing teacher support to continue integrating ICT in their teaching. Teachers do not just need support in the form of a workshop, they need to have access to support throughout their careers as they try to integrate technology into their curricula and seek to improve their teaching. One-time workshops and teacher preparation during the course of a semester are not sufficient. For teachers to continue integrating technology successfully in their classroom, ongoing support is essential. A model that worked very well in several projects is the community model (Seels, Campbell, & Talsma, 2003; Vrasidas & Glass, 2004). New technologies, and particularly the online environment, allow access to knowledge and expertise that was previously unavailable to several teachers (Seels et al., 2003; Vrasidas & Glass, 2004). One of the great advantages of the community model is that once they are established, if they are properly managed, communities of practice can provide the ongoing support teachers need to succeed in their classroom.

### 2.5 Make Technology an Integral Part of Teacher Preparation Programs

If ICT is valued as an important educational tool, and if we want teachers to use ICT in their teaching, then ICT should be an integral part of teacher preparation programs. Teachers tend to teach as they were taught (Vrasidas & McIsaac, 2001). Thus, if we expect teachers to teach using ICT, we need to be teaching them using ICT. For example, in a course which prepares teachers to integrate ICT in their teaching, the goal should be to provide students with opportunities to think like experts in making instructional decisions and selecting the appropriate combination of ICT, and structuring learning activities in real-life contexts.

### 2.6 Constructivist Pedagogical Approaches

In addition to making technology an integral part of teacher preparation, the integration of technology in schools will be facilitated by transformation of pedagogical practices from teacher-centered to student-centered approaches. For a constructivist teacher, learning is a result of construction, collaboration, reflection, and negotiation within a rich context in which learning is situated (Brown, Collins, & Duguid, 1989; Vrasidas, 2000). Technology has the potential to support constructivist learning and be used for active, authentic, reflective, and collaborative activities (Jonassen, Peck, & Wilson, 1999). Pedagogically sound uses of technology can provide an environment within which learners can take control of their learning and become active builders of knowledge while collaborating with others on solving real-world problems.

### 2.7 Curriculum and Assessment

Reforming teaching practices requires that we rethink curriculum and assessment as well. Curriculum developers need to rethink their approach and redesign curricula following models which take into consideration the increasing availability of ICT in schools. The use of standardized assessment fails to assess accurately the impact of technology on teaching and learning. The depressing irony of teaching a certain curriculum following a student-centered constructivist approach and evaluating learning using nothing but standardized tests is too familiar. Education based on constructivism promotes the creation of multiple perspectives within a variety of contexts. There is not one correct

understanding, and there is not one correct way of solving a problem. Students are encouraged to use multiple ways of solving instructional problems and to justify their solutions. The creation of multiple perspectives and viewpoints calls for curricula that honor diversity of perspectives and multiple assessment methods (Vrasidas, 2000). Using portfolios and authentic assessment are evaluation methods appropriate for evaluating constructivist learning (Duffy & Cunningham, 1996; Vrasidas & McIsaac, 2001).

### 2.8 Research and Evaluation

Online environments are rapidly expanding as a venue for professional development in education, business, and industry. The demands of work and family life for teachers, underline the need for professional development activities that that can be delivered any time, anywhere. Missing are frameworks grounded in research and evaluation that can provide some direction to the creation and evaluation of online professional development. Research is needed that will help improve distance education theory and practice at all levels. A coordinated, systematic study and evaluation of online professional development will allow designers, developers, researchers, and policymakers to make informed decisions for project development and implementation.

## 3 Overview of EmpowerICT™

EmpowerICT™ is an evolutionary programme designed to empower teachers to integrate information and communications technologies (ICT) into the classroom. It provides teachers with professional development opportunities and the ongoing mentoring and support to select and infuse instructional activities that integrate ICT outcomes with subject matter outcomes. This project is a result of collaboration between Ministries of Education in Asia, local education agencies, schools (including principals, teachers, and students), Knowledge Director (a learning solutions company), a team of international and local experts, and Microsoft. The project is managed and funded by Microsoft. The project has been launched as a pilot in Thailand and Philippines in collaboration with the local Ministries of Education.

EmpowerICT™ is a combination of professional development and collaborative curriculum development program that focuses on preparing teachers to integrate ICT in teaching and learning in primary and secondary education. The structure of the program is based on a blended approach to professional development and it comprises of the following: online and face-to-face teacher training modules, support manuals, collaborative curriculum development, outcomes-based assessment, and an online portal. One of the goals of the project is to develop a sustainable community of teachers integrating ICT in their classrooms.

The set of tentative goals for empowerICT™, as they have been developed thus far are:

- To empower teachers to integrate ICT into their classroom
- To promote collaborative curriculum development
- To improve teaching and learning in participating schools
- To facilitate reform in education policy, curriculum, pedagogy, and assessment
- To promote systemic, systematic, and sustainable change in education

It should be noted that the pilot will also attempt to: document in detail the processes of the program, clearly define its scope, and focus it on the local stakeholders' needs; collect data in order to improve the project; develop a theoretical framework to guide future project deployments; establish an evaluation framework to guide evaluation of

project activities; and develop case studies that will be used to present the project and document its success and challenges

The major components of empowerICT™ are discussed below.

Teacher professional development and support. The focus of empowerICT™ is to empower teachers to integrate ICT in education via a blended model of training and support. Face-to-face training, continuous one-on-one and group support will be available to teachers from local experts through out the duration of the project. In addition, teachers will be encouraged to collaborate with peers within their school, and across schools, to exchange ideas, review each other's work, and provide feedback. An online portal will be developed that will also serve as a mechanism for teacher continuous support. As the project grows, the majority of teacher training and support will be offered online.

Aligned curriculum, instruction, and assessment with focus on ICT outcomes.

- An evolutionary approach to ICT integration. The focus is not to completely change the curriculum but to integrate selected activities integrating ICT into classroom teaching and learning.
- Established on credible research and accepted by international education bodies.
- Easily configurable and localizable for different contexts.

Additional material include printed manuals with descriptions of the framework of empowerICT™, ICT outcomes, foundations of assessment, and examples of activities integrating ICT in subject matters. One of the goals of the project is to gradually establish an online community of teachers and others interested in integrating ICT in the classroom. For this purpose, an online portal has been developed where teachers can have access to a variety of services from their site of the portal including information about the project, discussion forum to exchange ideas with peers and experts, a lesson plan and activities depository where they can post their work and receive feedback from peers, online support, and access to websites with information relating to ICT in education.

## 4 Conclusion

EmpowerICT™ follows a systemic, systematic, and sustainable development approach to empower teachers and engage all stakeholders in integrating ICT in teaching and learning. For successful teacher preparation, we must take a fresh look at curriculum, pedagogy, assessment, and research and evaluation. For such reforms as technology integration to be successful, research and evaluation should be ongoing to document the benefits and challenges of teacher preparation programs and professional development initiates. Teachers, administrators, policy makers and other stakeholders should collaborate and participate in the decision making process, as well as in the design, implementation, and evaluation of technology integration programs.

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