Part 2. (1500 to 2000 words)

Title of project: ICT for Education in Secondary and Higher Secondary Level Project (ICT4E-SHSP)
Organization name, country: Ministry of Education, Bangladesh
Project manager name: Mr. Abul Kalam Azad, Project Director

Background

Teachers in developing and resource constrained countries continue to face problems in explaining and exploring difficult concepts in classrooms. There are many difficult topics e.g. health care under biology, water pressure under physics, and many others, which cannot be easily understood by students only using text. In addition, the traditional teaching-learning process is teacher-centric which provides very little opportunities for students to get engaged in the learning process. For instance, science lab facilities are not sufficient, black and white textbooks with few pictures or illustrations does not help in maintaining uninterrupted attention of a young group of students in their teenage years. This perpetuates detachment from modern concepts, technologies and methods of classroom practice.

Application of information and communication technologies (ICTs) in education is an open field carrying inherent traits similar to any other innovation in responding to the growing needs of a society. Initially, the UNDP and USAID supported Access to Information (A2I) programme, in partnership with other private partners, implemented a pilot project to establish 500 smart classrooms (popularly known as multimedia classrooms or MMC) in secondary institutions, and provided necessary training to the teachers. This prototype project focused on rural areas. Realizing the benefits, the Directorate of Secondary and Higher Education (DSHE), under the Ministry of Education, undertook a USD 38 million project, titled, "ICT for Education in Secondary and Higher Secondary Level," (popularly known as ICT Project).

With training bundled with infrastructural support, such as internet and computers, and regular feedback, teachers are being better equipped to tap into the unlimited global educational resources. A video link showcasing the ICT Project's success is provided herewith: http://www.youtube.com/watch?v=FCMkM1LrSGk

Goals & timeframe

The primary goals of the ICT Project are: (a) establishing 20,500 multimedia classrooms (each MMC equipped with one laptop, a multimedia projector with internet connectivity) for improving teaching-learning activities; (b) augmenting teachers' professional skills for independently developing multimedia contents; (c) equipping students with ICT education so that they can compete equitably in the global market; and, (d) making teaching and learning more effective and enjoyable for both students and teachers using ICTs. The underlying objective is to revamp the teacher-centric system which would be more oriented towards motivating students to engage in classrooms. Teachers have learned to develop and present multimedia contents for their classrooms and use materials found on the internet. In addition to the textbooks, teachers can today use multimedia contents in the classroom to explain to students difficult concepts with the help of images, animations, audios, videos, etc., on presentation slides.

The most remarkable transformation has been the empowerment of teachers who were trained to create multimedia contents independently, rather than depending on curriculum and multimedia experts. Teachers are also able to share the content they created through a portal which serves as a built-in peer review mechanism. This approach proved to be much economically feasible than investing large amounts in building full-fledged computer labs.

From January 2011 to June 2013, a total of 5,000 and 18,500 primary and secondary teachers respectively, received training on preparing contents using ICT tools. A 3-pronged approach in its efforts in revamping the pedagogical processes: establishing MMC in secondary schools, training teachers on making ICT aided educational content on hard-to-grasp topics, and making electronic versions of text books available in primary and secondary levels including technical, vocational and madrassa education. This forward-looking model can be succinctly summarised in the expression:

Teacher's **E**mpowerment = **M**ultimedia **C**lassroom (**C**ontent x **C**onnectivity x **C**ollaboration) or $E = MC^3$

A content sharing portal named 'Teachers Portal' (www.teachers.gov.bd) has been developed where teachers from any location can upload or download teaching contents. This network has brought all the trained teachers, teachers' educators and education officers under one umbrella in order to co-create contents and collaborate among themselves. As of October 2013, there are over 25,000 members and over 7,000 contents in the platform.

The Ministry is on-track in achieving its objective of establishing smart classrooms at 20,500 secondary institutions by 2013 and to train over 70,000 teachers by 2015. The ICT Project has revealed the opportunities available in enhancing pedagogy quality, drawing deeper attention from students and making education more learner-centric. It is expected that before the deadline of the internationally agreed development goals, i.e. MDGs, all classrooms in Bangladesh will turn into the "Smart Classroom" model. Digital contents and teacher training together will improve the overall quality of learning in primary and secondary education by promoting effective and participatory learning, and eliminating unnecessary memorising tendencies.

Project's added value and importance

Smart classroom is the integration of ICT and traditional teaching-learning approaches which is gradually transforming the education system of Bangladesh. It is enabling teachers to delve into difficult concepts and ideas, and at the same time, it is broadening students' cognitive ability. Use of multimedia content in classrooms is, nevertheless, not an alien concept. Multimedia content for classroom was traditionally fashioned by e-Learning and curriculum experts; for the first time in Bangladesh, nevertheless, thousands of teachers have been empowered where they can come together and share experiences in making the classroom teaching-learning more proactive for their students. Using multimedia in classroom has certainly helped to increase active participation of students.

The novel approach of teaching-learning has prompted the Ministry of Education to adopt the "ICT in Education Master Plan," which was facilitated by UNESCO, for every level of education. In democratizing access to textbooks, the National Curriculum Textbook Board (NCTB) has uploaded a total of 222 textbooks (half in the vernacular and half in English), in its website (www.nctb.gov.bd). As a result of the ICT Project, a total of 63 million and 38

million results of public exams, held at the secondary and higher secondary levels, have been deliver over internet and SMS respectively. In addition, an electronic Student Information Form (eSIF) has been endorsed to ease the registration process for students seeking to undertake secondary and higher secondary exams. For the first time in Bangladesh's history, computer was introduced as a mandatory subject in 2013.

Teachers have found that use of multimedia improved students' concentration in classroom and increased their participation in group discussions. Students appear to be more attentive and eager to learn about a new and difficult concept. They also found it much more affable to teach using multimedia as it saves both time and effort. Teachers are also proud of using the technology as it improves their technological knowledge and skills.

Some direct impacts of the ICT Project include:

- Decrease in drop-out rate (both male and female) in multimedia classroom equipped schools
- Strong increase in attendance rate (15%, 8% and 3% for madrassa (religious), primary and secondary, respectively)
- Increase in ability to grasp difficult concept (opined by 87% MMC students)
- Increase eagerness to learn more
- Decrease teachers' difficulties to explain abstract concept

Challenges

Because the ICT Project could draw lessons from A2I's prototype, it helped the former to set targets considering the structural and operational challenges. At the time of the project's implementation, some of the challenges faced related to lack of confidence among teachers in using ICTs (multimedia contents mainly), slow decision-making process in the government level, and uninterrupted electricity and internet connectivity. Because A2I could showcase the potential of multimedia contents in transforming the education system in Bangladesh, these challenges could be overcome with a high level of self-assurance with regard to the "greater good." Although these barriers often restrained progress being made on the ground, as a result of the high acceptance of the initiative by the beneficiaries, i.e., teachers, the implementation took place with some ease.

Some of the ongoing challenges relate to rewarding "smart teachers" who are making the most use of ICTs in transforming their teaching sessions; establishing a monitoring system for effective implementation of the ICT Project; and, finally, supporting government ownership over such developmental initiatives through budgetary and policy support.

Relevance of the project to the respective Action Line

The ICT Project is imparting necessary skills to teachers corresponding to the benefits which could be derived from interactive classrooms. Capacity building and ICT literacy trainings are being provided in partnership with A2I in order to train users to develop self-learning and self-development capacities. ICTs are contributing to achieving universal education in Bangladesh, through delivery of education and training of teachers. At the same time, it is helping to develop conditions in including people who were traditionally outside the formal education process.

It is noteworthy that the Ministry of Education signed a MoU with Microsoft Bangladesh to implement capacity building initiatives in order to augment professional capacity of teachers. Bangladesh connected to the Trans-Eurasia Information Network (TEIN3) whereby the country's highly active research community is being able to share findings and collaborate with other international institutions worldwide more quickly and simply, with potential for accelerating societal benefits. The link paves the way for 100,000 Bangladeshi researchers at 100 academic and research institutions in Bangladesh to collaborate with international colleagues via their national TEIN3 partner, Bangladesh Research and Education Network (BdREN).

Conclusion

Tradition teaching approach is undergoing significant changes and teachers in Bangladesh are rising over the tides of change, brought about by technological developments. What is remarkable is that teachers have been enhancing their professional capacities in terms of their teaching plans and sessions, work schedules, and other curricular activities. The content competitions held among teachers, first regionally and then nationally, have had a profound impact in creating a sense of competition. In addition, the Teacher's Portal (http://teachers.gov.bd/) allows viewers to provide content rating based on which 'teachers of the week' are selected. The Teacher's Portal contains information on various subjects in the vernacular and promotes a constant sense of competition which will help to nurture a culture of innovation-in-teaching amongst teachers. Overall, the ICT Project undertaken by the Ministry of Education is aimed at empowering teachers in order to enable them to self-graduate as academic scholars through development of their respective curriculum content.