MALAYSIA

Mr. Kamaruzaman b. Mahayiddin
Assistant Director,
Information and Communication Technology
and SMART School for Special Education Unit
Special Education Department Ministry of Education Malaysia

Title

Using ICT in Teaching and Learning for Students with Disabilities: The CRFP Approach in the Design of Smart School Programs for Hearing and Visually Impaired Students in Malaysia

Abstract

Beginning 2003, the Ministry of Education, Malaysia piloted two special schools in using the ICT in learning. Design and procurement of equipments were carried out through Concept Request for Proposal by private firms. Infrastructures were provided for one primary special school for the hearing impaired and one primary special school for the visually impaired. The infrastructures installed were for purposes of school administration and academic management.

An early survey on the use of ICT equipments in the teaching of the Malay Language carried out in the primary special school for the visually impaired found that teachers need to be allotted more time and need to frequently use these equipments for change process to be effective. Other lessons learnt from the pilot project include the need for systematic program planning and standardization of project management.

Introduction

Smart schools in Malaysia were initiated in 1999 as a pilot project. Underpinning the smart school initiative were the Smart Schools in Malaysia: A Quantum Leap and The Malaysian Smart School: A Conceptual Blueprint (1997) documents that targeted information technology skills among future work force to increase national productivity. This is best achieved, from Malaysia's viewpoint, by converting the nation's industrial economy to becoming a leader in the Information Age.

By the end of year 2002, 87 schools were involved in the pilot project. Many other schools, out of their own initiative, though not selected for the pilot project, raised funds and set their own smart schools based on the government model. Special schools, however, due to the different

equipment and program needs, were treated separately in the initiative. The main difference compared to smart school programs for normal students relate to matching technology solutions to special needs. Two schools were selected for the pilot program. The two schools involved were primary special schools for the hearing impaired and for the visually impaired.

Malaysian Smart School Defined

The Malaysian Smart School (MSS) is a learning institution redesigned systematically in terms of learning and teaching and school management to help students face the challenges of the Information Age. The MSS has several objectives, namely:

- to develop students' physical, emotional, spiritual and intellectual faculties,
- to produce thinking and technologically literate work force,
- democratization of education through provision of technological access for every students,
- to create opportunities according to strength and abilities of individuals,
- to increase participation of stakeholders

As for the requirement of special students, the above objectives were detailed further so that objectives were modified to suit their needs. Three additional objectives were included. They were to

- provide students with special needs access to ICT,
- minimize learning barriers, and
- provide support in students learning through a managed learning environment

Methods

Procurement for the special education smart school project was initiated by calling for Concept Request for Proposal (CRFP) documents in line with the mainstream procedure for installation of smart schools. Proposals from private IT firms consisting underlying learning principles, learning needs and solutions, classroom and computer lab designs, hardware and software specifications, training programs and systems integration make up the CRFP. Based on the CRFP, the following components have been/ are under implementation:

- *Teaching and Learning Hardware and Software*

Hardware

The main premises installed with computer hardwares and networking were the school administration building, computer labs, classrooms, libraries, and specialists rooms (speech therapist and audiologist).

Software

Several special softwares were purchased. Softwares developed by the Educational Technology Division and Curriculum Development Centre used by normal students were also introduced and used by these schools. The Special Education Department has produced its own version

of Sign Language Dictionary cd and is expected to produce a Braille Dictionary cd and on-line learning materials for Mathematics, Science and English by the end of this year.

- Student Development Database
  The Ministry of Education (MOE) in collaboration with the Ministry of Health and Ministry of Social Welfare is developing a database system that tracks special students record from birth to employment. Currently, MOE is developing special students' development database by developing an on-line individual education plan (IEP) software that tracks students academic and support services records. With this application, the Ministry will be able to recognize issues and design suitable programs.

- Training
  Teachers in both the pilot schools are being trained on how to manage the network and how to develop teaching and learning materials using ICT. The Ministry is currently designing courses on the use of digital equipments which include designing materials in DVD, audio (e.g. broadcasting), video editing etc.

Discussion

An early survey on the use of ICT equipment in teaching the Malay Language in the primary special school for the blind found that about 60% of the teachers teaching in the blind primary pilot school use special software (JAWS) and hardware (Braille and Speak) to teach blind students basic computer skills. The study also found that despite being introduced for a number of years, teachers were still reluctant to use technology (CCTV) to teach students with low vision the learning skills. Further studies need to be carried out to identify strengths and weaknesses of the program. Despite the limited study done several issues were identified.

- Change Management
  Change Management is crucial to the success of the program. Even though teachers have been trained to use special hardwares and softwares, time should be given for teachers to get accustomed to these technologies. The frequencies and allotted time of usage will influence teachers perception and attitude towards ICT.
- Business Process Reengineering
  Areas that need to be improved in terms of work processes include
  - Systematic program design and management
  - Standardized project management procedures. The Department is currently incorporating PRINCE 2 project management procedures in dealing with software development and project procurement processes.

Conclusion

The CRFP method of procurement has given departmental officers insights of the principles of ICT program design. However, the important element of this project is effectiveness of project management in terms of procurement and implementation. The CRFP method is a top-down approach which requires the government personnel responsible for these matters to be competent and aware of program needs. Alternatives need to be found where the bottom-up approach, that is from the implementers to the planners, can effectively be generated in determining requirements of users in the CRFP.