Education Program in Malaysia Gives Economy a Booster Shot

Program to transform education through ICT brings 21st century education and economic opportunities to Terengganu province

Introduction

In an innovative first for Malaysia, the Terengganu state government has embarked on a major initiative that will transform education and could boost the state's economy. The state government is investing to improve education through the use of ICT, training, and support. The project will provide state schools with technology, digital educational content, professional teacher training, and infrastructure for ongoing support.

Terengganu state is also collaborating with state government departments, local enterprises and Intel to build a sustainable economic model. Boosts to the state's economy include a factory to assemble notebook PCs, providing local jobs and education opportunities.

Education Transformation In Malaysia

Over the past 10 years, technology—and especially the Internet—has changed the way we live, work, and play. Using technology is no longer a skill for the few; it has become a necessity, especially for students who will graduate into a world where using computers and the Internet is an essential part of any skilled job. Governments around the world recognize that they must transform their education systems to integrate technology into learning, and provide their students with the skills necessary to succeed in today's global economy.

The Terengganu state government recognized the work Intel did with the Portuguese government's Magellan project, and approached Intel to help put together a similar program. Public and private sector groups were brought together to develop a comprehensive, sustainable program, with the goal of promoting education transformation similar to Portugal's.

This resulted in Terengganu's *Projek Buku Elektronik* (Project e-Book). This program represents a first step towards "harnessing the benefits of technology to make education more efficient," says YAB Menteri Besar Dato' Ahmad bin Said, Chief Minister of the Terengganu State Government.

Program Details

Terengganu's education initiative will bring technology to the state's schools, including notebook PCs, interactive whiteboards and servers. This ICT boost will help students, teachers and schools engage in interactive e-Learning programs. Internet connectivity, digital curricula and teacher development are also part of the educational ecosystem being set up to support Terengganu's initiative.

> "This move is part of the state government's ongoing effort to enhance the quality of education through direct ownership of portable PC devices and IT-based learning, thus injecting renewed enthusiasm for learning in the classroom and at home."
>
> YAB. Dato' Ahmad bin Said
> Menteri Besar Terengganu
> Darul Iman

Projek Buku Elektronik is a bold first step and will be the catalyst for a new chapter in Malaysia's education curriculum.

Terengganu's education initiative consists of the following elements:

- **Educational content.** Localized content and national school texts were converted into digital format. The sole Malaysian government textbooks publisher, Dewan Bahasa dan Pustaka, gave permission to Terengganu government to pre-install the digital textbooks on classmate PCs.

- **Training.** Intel® Teach professional development was adopted, enabling Terengganu teachers to integrate technology effectively into classroom teaching and learning activities. Working with a state government-owned private training agency, Kolej TESDEC, more than 3,000 teachers are expected to benefit from this program over the years. Additionally, 500 ICT graduates were enrolled to provide continuing support and training to teachers and students.

- **Technology.** Provision of hardware, software and services designed specifically for education, through the Intel Learning Series, to address education technology needs. In Phase 1, Intel-powered classmate PCs are being deployed to 25,000 Year 5 students in the state's schools. The state government plans to equip all primary school students with the laptops within 3 to 4 years[1]. While the main focus now is to deliver classmate PCs to students, expansion plans are being developed for next year. Phase 2 plan is to deploy 3,000 Intel® Core™ processor-based teacher notebooks and Intel-based servers into 346 schools to support school administration and data activities. Phase 3 will be to implement true One-to-One Learning, where teachers will be able to more easily interact with students and use technology to enhance learning.

- **Connectivity.** Internet access is provided to the schools via SchoolNet, a nation-wide collaboration between federal government ministries and local ISPs. Classmate PCs are Wi-Fi enabled to take advantage of wireless connectivity when it is rolled out in classrooms in the future.

Model For Economic Success

Initiating *Projek Buku Elektronik* to simply provide PCs to students was not enough for the Terengganu state government. The project needed to be sustainable over the long term. The state government has been working in collaboration with Intel and other public and private agencies to ensure a sustainable economic model that will not only transform education, but also generate economic benefits for the state.

Funding

Terengganu used to be Malaysia's poorest state until oil and gas was discovered off its coastline in the 1970's. It's main industry is now petroleum and gas, boosting the state's GDP from MYR 5.5 billion in 1990 to over MYR 16 billion in 2005[2]. This provides a rich source of funds for education and state development projects.

As a start, the Terengganu state government has allocated MYR 35 million a year to fund the project, and the laptops are being provided free to the state's school children. The state is planning to increase the allocation to take full advantage of the classmate PCs and 1:1 eLearning in the near future.

Local Industry Involvement

A key aspect of sustainability is involving local industries in the project. From the state government's point of view, involving local businesses right from the start helps develop a sense of ownership in the project, generate local jobs and opens new economic development opportunities:

- The Terengganu state government worked with Intel and local assembler Top IT Industries Sdn Bhd to open a factory capable of assembling 10,000 classmate PCs a month. These would supply PCs to the rest of the state's schools as well as open trade opportunities for Terengganu.

- Content in the form of digitized Malaysian school texts were provided by local publisher Dewan Bahasa dan Pustaka for pre-installation into classmate PCs.

- The State Education Department drove participation among district education offices and the Principals Board, and published general guidelines to help the schools' administration manage the assets. The department also worked with Top IT Industries and the state government to ensure program continuity and optimal use of the PCs by both students and teachers in daily teaching and learning.

Economic Benefits

Building the modern factory has raised Terengganu's economic profile. In addition to providing employment to the local population, the factory has provided opportunity for skill building with Top IT Industries' staff. Together with the *Projek Buku Elektronik* and the need to provide ongoing support for the program and the collaboration between private and public enterprises, the state government aims to attract ICT graduates and professionals into the workforce.

"We have our own assembly plant that gives jobs to our citizens. We have created jobs for 500 more ICT graduates. We have trained engineers at the assembly plan and we have created partnerships with other parties to service computer-related devices using our assembly plant equipment. This project has brought job opportunities to our people," says YAB. Dato' Ahmad bin Said.

The factory has also started generating business interest beyond its borders. The state of Terengganu, along with the Malaysian MOE is poised to support other opportunities throughout Southeast Asia. Other Malaysian states such as Sarawak, Penang and Melaka have expressed interest in Terengganu's classmate PCs. Outside of Malaysia, both Indonesia and Saudi Arabia have given their intent to buy classmate PCs from the factory, and orders are expected to start in early 2010. Brunei is also interested and is currently discussing trade details with the Terengganu state government.

"The use of Intel-powered classmate PCs in the classroom will have a positive impact on the critical thinking, communication and digital literacy skills of students."

YAB. Dato' Ahmad bin Said
Menteri Besar Terengganu
Darul Iman

Benefits To Provincial Education

In the schools, educators are discovering greater opportunities for teaching and learning that is afforded by the technology. "The technology makes it easier for teachers to teach and students to learn and interact with their teachers," says Puan Mahani bte Jaafar, headmistress at Sekolah Kebangsaan Kompleks SeberangTakir. "Students are motivated to come to school and get engaged in the learning process."

For teachers, technology enablement has improved the way they teach. Teachers do not simply present information, but become facilitators to the natural inquisitive learning desires of their students. "Previously, my kids only see and listen to what I present. Now, with all this learning technology and methods we use, my students are more creative in their learning experience," says Puan Azilawati bte Alwi, a veteran teacher at the same school. The learning experience is becoming more student-centered and project focused—a departure from the passive learning methods of old.

"I find learning more fun," says student Aqilah bte Adam. "I now know how to search for information online for my projects and use software like Microsoft Powerpoint* for my class work." Enabled by the technology, young students are taking a more active part in their own learning experience, exploring the world around them through the Internet, and using the tools of technology that will serve them well in the future.

Terengganu Solution Implementation
Terengganu's technology solution for students and teachers includes:

Technology	Projek Buku Elektronik Program
Hardware	Intel-powered classmate PCs based on Intel® Atom™ processors and full-featured notebooks for teachers based on Intel® Core™ processors
Operating Systems	Microsoft Windows XP Professional*
Software	Microsoft Office, Learning Essentials
Connectivity	Wired and wireless LAN
Content	Includes digital textbooks prepared by local supplier Dewan Bahasa dan Pustaka Sdn Bhd.
Budget	MYR 35 million per year
Support	500 ICT graduates enrolled to provide support and training to teachers and students. Intel Teach was adopted as a professional development course to enhance pedagogical knowledge and skills for Terengganu teachers.

Conclusion

This education transformation project is a major step by the Terengganu state government to infuse technology into the core of teaching and learning in the state. Besides providing access to technology and the means to prepare their young citizens to acquire 21st century skills, the state government also sees this as an opportunity to build up Terengganu's economy through the flow-on effects of the project. This is shown through the employment of 500 ICT graduates to help with ongoing training and support for the *Projek Buku Elektronik* and the factory to produce the classmate PCs. This project is currently under way, and as deployment continues over the next 2 to 3 years, ongoing collaboration between the public and private sector enterprises will surely see more opportunities opening up for Terengganu's economic prosperity.

Building the World Ahead

What is your vision of the world ahead? Contact our local Intel representative to discuss how you can implement a sustainable, technology-based education program in your country. Visit us on the Web at: www.intel.com/worldahead.

Intel offers reference designs for education through the Intel® Learning Series, a collection of hardware, software and services designed specifically for education. To learn more visit us at http://http://www.intel.com/intel/learningseries.htm

Intel World Ahead Program

The Intel World Ahead Program collaborates with local and global leaders to connect the next billion people to a world of opportunity. Through hands-on expertise and resources, the program helps countries like Malaysia develop comprehensive, long-term programs that improve lives, economies, and societies.

Key elements of focus include:

- Access to personal computers
- High-speed connectivity
- Effective teaching and learning
- Local relevant content

Intel® Teach

Intel® Teach helps teachers to be more effective educators. Teachers learn how to integrate technology into their lessons, promoting problem solving, critical thinking and collaboration skills among their students. With more than 6 million teachers trained in over 50 countries, Intel Teach is the largest, most successful program of its kind.
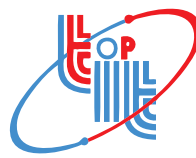
Solution provided by:

Terengganu State Government

Terengganu State Education Department

TOP IT Industries Sdn Bhd

[1] Source: The Star, November 11, 2008, thestar.com.my/news/story.asp?file=/2008/11/11/nation/20081111205040 &sec=nation

[2] Source: Data Asas Negeri 2006 (in Malay and English). Unit Perancang Ekonomi Negeri, 2006.