POLICY NOTE

ICT and Education
Part II

ICT IN SCHOOLS IN TURKEY

September 2004

(Draft)

ICT in Schools in Turkey

Background

The source for this policy note " ICT in Schools in Turkey" is a rapidly growing body of innovative strategies and approaches being used worldwide. There is an array of experiences; good practices and lessons have been generated for the benefit of countries where ICT use in education has just begun.

It becomes all the more important to study lessons learned when you consider the investment in setting up ICT infrastructure and if we are to avoid re-making mistakes and losing good opportunities.

This note draws from the experience of fifteen countries in North America, Europe, Asia and Latin America. They are United States, Canada, Australia, Italy, Hong Kong, Singapore, Philippines, Malaysia, South Korea, Thailand, Indonesia, Argentina, Chile, Venezuela and South Africa. The focus is on the concerns cited in the ICR[1] and Impact Research Report, June 2004[2] on Turkey Basic Education project.

The first Policy Note (I) covers the issues related to overall policy environment.

(i) Education Environment
(ii) Policy and Regulatory Environment

This Policy Note (II) deals with policy at the school management level.

(i) Policy and Strategy to help Schools integrate ICT
(ii) Organization and Resource Management in Schools.

The third Policy Note (III) in this series details issues related to (i) Curriculum, Pedagogy and Content Development (ii) Technology, Infrastructure and Connectivity (iii) Professional Development, and, (iv) Monitoring and Evaluation.

[1] Implementation Completion Report (SCL-43550) for the first phase of the Basic Education Project in the Republic of Turkey.
[2] Information Technology Classes in Basic Education Program - Impact Research (Final Report April-June 2004).

Executive Summary

Sometimes integrating ICT in schools can mean just distributing computers, learning software and audio-visual aids to schools. The ICT is merely attached to the existing teaching and learning activities without any change in the traditional curriculum or learning objectives. The teaching strategies and student learning activities in the classrooms remain more or less intact.

While the learning medium may change from the textbooks to web-based books/software or from presentations in class to presentation via the Internet, the learning paradigm remains the same. For example, the learning paradigm adopted for certain concepts in the classroom is associated with the transmission of knowledge. The paradigm remains the same whether the concept is taught from a textbook, software or via the Internet.

Although ICT may make easy independent self-paced learning, the potential of ICT is not optimized if there is no shift in the learning paradigm. In addition to change in the learning paradigm, ICTs provide possibilities for changing the way children learn and teachers teach.

(i) Create ICT Vision and Strategy in Schools
The vision and strategy for ICT in schools should not be created by a single person or through a top-down process starting from MOE.

Sometimes schools do not have their own ICT vision and plan as the ICT infrastructure and training are generally directed and given by the Ministry. The school-level vision and plan (if any) are usually established by individual school principals. The school board takes all decisions on the purchase of ICT tools, a procedure that is usually met with some resistance from the teachers as they do not always share the same vision as the principal or the ministry nor do they feel a sense of ownership of the plan.

It is crucial to involve those who a stake in the outcome, including teachers, parents, students and the community, and allow them to assist in the creation of the strategy and ICT Plans by contributing their skills, knowledge and positive attitudes. An ICT vision that is accepted by all becomes a shared vision, which is critical to successful implementation of ICT in a school setting.[3]

(ii) Putting together an ICT Integration Plan
Once the vision has been successfully created and accepted, the next step is to put together an ICT integration plan, detailing how the teachers are expected to integrate technology in their lessons (Strudler & Wetzel, 1999).

An ICT integration plan provides a detailed blueprint of the steps and methods needed to translate the school ICT vision into reality. Developing ICT integration plans is no doubt a complex and time-consuming task, but they are usually worth the time required to put them together.

Most schools have ICT integration master plans[4] that have been customized for their own school culture and environment.

a) To promote use of ICT in schools, the MOE should set guidelines without necessarily imposing these as rules or regulation to be adhered to.

Rules stifle creativity and lead to a technology-driven approach to ICT integration. School leaders should be given autonomy to decide on how to implement rules and guidelines based on their analysis of their schools readiness.

An increasing number of school leaders have realized over the last three years that ICT should not be integrated in the curriculum for ICTs' sake. Instead, they believe that teachers should explore ways by which to integrate ICT in the curriculum to enhance the learning experiences of the students.

b) To promote ICT usage in schools, school leaders should initially adopt strategies that make ICT a part of the daily routine or tasks of the teachers.

These methods may include using email as a mode of communication among staff, accessing the Intranet to download forms and using a word processor to complete lesson plans for submission. The aim is to increase teachers familiarity with ICT in education. For example, as different technologies mature, there are new ways to integrate appropriate and available technology into the curriculum delivery process as seen in the case of Khanya Project (see box) in South Africa[5].

(iii) Schools should be given some autonomy to select ICT resources that are most suitable to the needs of teachers and students.

Every school is different and each one should be given autonomy to select ICT resources that are most suitable to the needs of teachers and students. ICTs should not be put into place just for sake of using newer or latest technologies.

Schools should be provided with basic technology infrastructure and given the autonomy to decide on the kind of ICT resources and tools that they should acquire, based on their vision and analysis of their students learning needs. This allows the schools to have independence and flexibility in using ICT funds.

[3] Details regarding ICT vision and strategy created by individual schools in Singapore in Section 1.1.

[4] Section 1.2

[5] Khanya Project (South Africa) section 1.6

By recognizing that every school is different, better ICT integration in the school curriculum is ensured.

Lastly, one major theme that emerged across countries is the need for strong, committed leadership to support the goals of technology integration. While virtually all administrators tend to voice their support for technology integration, it helps to have *believers in high places* – leaders whose knowledge and commitment goes well beyond the rhetoric of support. At the core of informed leadership is a person who has internalized the complexity of effective technology integration and who exercises his or her influence to ensure that the various enabling factors are in place or being addressed.

Champions[6] are dedicated persons who are motivated by the sense of satisfaction of contributing to the enhancement of student learning. They build a culture of innovation and encourage ICT use in teaching and learning. Champions can be identified at all levels and appointed officially. Their roles and responsibilities should be clearly stated. The role of champions in ICT in education programmes is important and they should have the support of their superiors and peers.

However, there is also a need to ensure that the long-term success of a progamme does not depend solely on the abilities and actions of a few individuals. Care must be taken to ensure continuity in leadership.

[6] Lessons from Exemplary Colleges of Education: Towards a Model of Technology Integration. Neal Strudler and Keith Wetzel.

I. POLICY, VISION AND STRATEGY TO HELP SCHOOLS INTEGRATE ICT

Overview

Sometimes integrating ICT in schools can mean just distributing computers, learning software and audio-visual aids to schools. The ICT is merely attached to the existing teaching and learning activities without any change in the traditional curriculum or learning objectives. The teaching strategies and student learning activities in the classrooms remain more or less intact.

While the learning medium may change from the textbooks to web-based books/software or from presentations in class to presentation via the Internet, the learning paradigm remains the same. For example, the learning paradigm adopted for certain concepts in the classroom is associated with the transmission of knowledge. The paradigm remains the same whether the concept is taught from a textbook, software or via the Internet.

Although ICT may make easy independent self-paced learning, the potential of ICT is not optimized if there is no shift in the learning paradigm.

In addition to change in the learning paradigm, ICTs provide possibilities for changing the way children learn and teachers teach. An Australian study (Riffel &Levin, 1997) found huge variations in ICT usage from classroom to classroom and from school to school. Many teachers use ICT only as an addition to regular instruction or as a reward for pupils after their work is completed. In other words, teachers use ICT to extend traditional pedagogical practices. The challenge is to incorporate ICT into the pedagogy so that it becomes integrated with the learning process.

Components of Policy and Strategy to help schools integrating ICT include the following:

1. Create ICT Vision and Strategy in Schools

The vision and strategy for ICT in schools should not be created by a single person or through a top-down process starting from MOE.

Sometimes schools do not have their own ICT vision and plan as the ICT infrastructure and training are generally directed and given by the Ministry. The school-level vision and plan (if any) are usually established by individual school principals. The school board takes all decisions on the purchase of ICT tools, a procedure that is usually met with some resistance from the teachers as they do not always share the same vision as the principal or the ministry nor do they feel a sense of ownership of the plan.

It is crucial to involve those who a stake in the outcome, including teachers, parents, students and the community, and allow them to assist in the creation of the strategy and ICT Plans by contributing their skills, knowledge and positive attitudes. An ICT vision that is accepted by all becomes a shared vision, which is critical to successful implementation of ICT in a school setting. (Costello 1997.)

Teachers need to know exactly how ICT can be used as a learning and teaching tool. Many researchers have pointed out that a school's ICT vision is essential to effective ICT integration (Kerr 1996; Anderson & Dexter 2000). Means and Olson (1997) suggested that teachers and schools develop a vision before they make a substantial investments in software and hardware.

ICT vision in schools - Singapore
1. In Singapore interviews were conducted by IDA with teachers, head of departments and principals offering various perspective of their respective schools' vision of ICT use in education. In some schools the ICT vision was used as a benchmark for becoming a top academic and elite school in the forefront of the ICT integration. Other schools considered the vision as a guide to ensure effective deployment of ICT in teaching and learning[7]. These visions are consistent with that of MOE where ICT is seen as an enabler to enhance teaching, learning, and administration in schools.

2. Putting together an ICT Integration Plan

Once the vision has been successfully created and accepted, the next step is to put together an ICT integration plan, detailing how the teachers are expected to integrate technology in their lessons (Strudler & Wetzel, 1999).

An ICT integration plan provides a detailed blueprint of the steps and methods needed to translate the school ICT vision into reality. Developing ICT integration plans is no doubt a complex and time-consuming task, but they

[7] For example, the Crescent Girls' School's vision is to deploy ICT to reach out to the community at large. The provision of a pervasive ICT environment to improve the quality of life for the teaches and student is the vision of Victoria Junior college.

are usually worth the time required to put them together(Hoffmann 1996).

Most schools have ICT integration master plans that have been customized for their own school culture and environment. These master planes address the following issues : (i) Priorities for the implementation of the ICT master plan (e.g. staff, students, content areas), (ii) evaluation standards and benchmarks to indicate effective integration of ICT, (iii) responsibility for successful implementation (e.g. ICT committees, administrative personnel, teachers, technical support staff), and (iv) funding requirements and time available to implement ICT integration efforts.

3. Set Guidelines to promote use of ICT in schools

To promote use of ICT in schools, the MOE should set guidelines without necessarily imposing these as rules or regulation to be adhered to.

Rules stifle creativity and lead to a technology-driven approach to ICT integration. School leaders should be given autonomy to decide on how to implement rules and guidelines based on their analysis of their schools readiness.

An increasing number of school leaders have realized over the last three years that ICT should not be integrated in the curriculum for ICTs' sake. Instead, they believe that teachers should explore ways by which to integrate ICT in the curriculum to enhance the learning experiences of the students.[8]

4. Translate ICT policy into a set of School-level Regulations and Procedures

Translate ICT in education policy and laws into a set of school-level regulations and procedure to provide a clear blueprint for the schools on the use of ICT.

These policies and procedures should be in line with existing laws governing ICT at the national level.

In Turkey[9], through the publication of "Equipment Acquisition and Application Handbook" under phase I of Basic Education Project, the ministry had communicated to the schools: the underlying purpose of setting IT classes, hardware structure, set up process and the actions to be made by school managers during the process. Additional circulars have been published on the issue on several occasions. However, the findings of the research indicate that these circulars and publications failed to sufficiently inform the schools. This situation stems mainly from factors such as initial distance of school managers to computer technologies, indifference to these circulars and publications and failure to communicate this information to a small number of schools.

Apart from informative activities, the school managers should not be left on their own during the IT setup. The set up must be completed through a process where the Provincial National Education Administrators are involved and the views of school managers are taken into consideration.

Smart School Integrated solution - Malaysia
1. One of the deliverables of the Smart School Integrated Solution was a set of school level ICT policies and procedures. These Policies also included critical security policies introduced covered authentication and passwords, backup procedures, installation of firewalls and use of licensed software.

National Education Act- Thailand
2. The National Education Act 1999 supports the use of technologies in reforming education. The Act serves as a regulatory framework for formulating major policies and plans, some of which are being implanted at both ministerial and school levels. A ministerial regulation issued in 2002 supports the policy for the production, development and usage of materials and other technologies for education.
This regulation offers more freedom to schools to select quality education materials of their choice.

5. Encourage the use of ICT in Schools

ICT use in schools is more easily encouraged if school leaders use various means to provide support to teachers for the integration of ICT in the school curriculum.

These strategies may include sharing sessions on ICT use among teachers, peer teaching and team-teaching based on an apprenticeship model, and employment of more technology assistants to support teachers.

Strategies to encourage the use of ICT
a) Some schools have adopted the following strategies : (i) planning contact time for teachers to share their experiences in using ICT in their lessons; (ii) initiating industry-teacher partnerships to deliver just-in-time ICT training for students and to develop instructional ICT-based materials for teaching and learning; (iii) peer-teaching of ICT-related skills based on apprenticeship model or just-in-time learning; (iv) collaboration with other schools to share expertise and experiences on ICT integration; (v) equipping teachers with a personal laptop so they would be able to make ICT use a part of their

[8] For example, in Singapore, most school leaders consider MOE's recommendation that 30 % of the curriculum time should involve ICT use, as a guideline rather than as a rule or regulation.
[9] Impact Research Report. April-June 2004. section 5.2. Pg 146

lives; (vi) employing more technology assistants to support teachers in ICT use; and (vii) purchasing laptops so that teachers would not be constrained by the unavailability of ICT facilities (such as computer laboratories and media resource rooms).[10]

b) The School leaders should encourage teachers and students to use the Internet to seek information related to their learning needs. The schools should be encouraged have their own websites.

Internet Teacher Training - Argentina
The Educ.ar[11] project in collaboration with the Ministry of Education is providing teacher training in the use of technology for education. Educ.ar is the official National Education Internet Portal aimed at democratization of education in Argentina. It provides high quality and interactive education content and services, integrating all the official academic subjects at all levels of the Argentine Education system. - *Argentina*

6. Adopt Strategies to make ICT part of daily tasks of the teachers

To promote ICT usage in schools, school leaders should initially adopt strategies that make ICT a part of the daily routine or tasks of the teachers.

These methods may include using email as a mode of communication among staff, accessing the Intranet to download forms and using a word processor to complete lesson plans for submission. The aim is to increase teachers familiarity with ICT in education. For example, as different technologies mature, there are new ways to integrate appropriate and available technology into the curriculum delivery process as seen in the case of Khanya Project (see box) in South Africa.

The school leader should be a role model and make ICT a tool in his/her everyday life. These measures ensure that ICT gradually becomes part of the school culture and also help "techno phobic" teachers to overcome their initial apprehension in using ICTs.

In Turkey, almost all school managers interviewed (97.8%) report that they use computers. A very small portion (2.2%) do not use computers for reasons like: not being interested in computers, not being used to computers or not having the opportunity to use computers.[12]

Promote ICT usage by educators
a) Some ways by which school leaders have encouraged the use of ICT in schools: (i) sending out school announcement via email to all staff; (ii) requiring all teachers to submit their weekly lessons plans via email to their heads of the department (iii) uploading all forms (such as leave applications, transport claim, training development application and medical claim) on the school intranet for teachers to download; (iv) encouraging staff to communicate and share via email and other ICT tools; and (v) requiring the teachers to submit their daily class attendance via the online portal. – *Singapore*

b). In Khanya Project, ICT is being used to deliver curriculum at schools in the WC province. Facilitators visit schools on the project once a week to train teachers on the hardware and software. They remain accessible to the schools for at least one year till the educators are confident in the use of technology and are able to teach by the means of computers.
A pooling of knowledge resource material is in progress for educators and students to access and share information. [13]– *Cape Town, South Africa*

c) Educarchile offers to the Chilean educational community (i.e. teachers, students, parents and educational researchers) a number of digital resources such as lesson plans and activities, educational software, videos, slide-shows - which students may use to do their homework or teachers may use in the classroom[14]. - *Santiago, Chile*

[10] These strategies are commonly used in Singapore.
[11] The education material offered by Educ.ar follows the regional curricula in Argentina and is organized by region, student age and subject level. The portal has two main sections (1) Basic Education (called Escuela), which includes Primary, Elementary and high School level; and Higher Education (called Educacion Superior) which includes College and University levels. www.educ.ar

[12] Impact Research Report. Section 4.8.1.2 Pg 112
[13] Khanya Project: Western Cape Education Dept, South Africa. *www.khanya.co.za Vision - By the start of the 2012 academic year, every educator in every school of the Western Cape will be empowered to use appropriate and available technology to deliver curriculum to each and every learner in the province.* Starting with the poorest of the poor schools, Khanya aggressively works towards eradicating the digital divide and striving towards racial and gender equity.
[14] Educarchile: Santiago, Chile. www.educarchile.cl Educarchile also offers studies on different educational issues, such as weekly articles focused on education for its different audiences. It offers Web-based services such as Webmail and tools for making institutional (e.g. school websites.) or personal websites.

7. Management of ICT resources in schools

SWOT analysis and applying its findings to help optimize the use of ICT resources.

SWOT analysis is generally undertaken at department level in the MOE prior to developing the ICT in education policy. However, such analysis is usually not applicable to school situations due to budget constraints and centralized national policy.
Decentralization of education management to school level may encourage schools to do their own SWOT analysis in the next phase of the ICT in education policy.

SWOT Analysis – Malaysia

In the change management exercise, the heads of the pilot schools analyzed their school strengths, weaknesses, priorities and available skills and resources. This information together with the organizational structure of the schools was used to make the school change management plans. However, on-site monitoring of the schools implementation and adherence to their change management plans indicated poor compliance. Most of the schools cited lack of leadership, time and resources as reasons for not carrying out change management activities.

8. Appointing ICT Coordinator for Pedagogical Support

Appointing an ICT coordinator in each school helps to assure administrative and pedagogical support for the teachers.

This appointment should not be confused with that of a technology assistant. The ICT coordinator should advise teachers on ICT solutions to their teaching or learning problems, help teachers to acquire ICT resources, and conduct training need assessment of the teachers' ICT related capacities and advise them on their professional development.

Almost half of schools covered by Phase I[15] in Turkey lack Educatory formators. The fact that there are no computer teachers in schools is given as a major concern by the schools.
In addition, due to norm staffing, the teachers were selected randomly or assigned to duty without individual consent. Some of the formators are close to retirement age as most of them have been selected from elder teachers.

[15] Impact Research Report – Information Technology Classes in Basic Education Program, April – June 2004. Section 5.2. Pg 144-145

ICT Coordinator for Pedagogical Support

The emphasis should be on recruiting young teachers who have an aptitude and interest in ICTs and know sufficient English so they can follow developments in the field.
A teacher with ICT competency should be appointed ICT coordinator. He/She is responsible for the management of ICT use in the school. An ICT technician who is not an educator can assist and support the School ICT coordinator.[16]

The ICT coordinator should also assist teachers in evaluating and selecting hardware and software and conduct needs assessment to determine additional hardware or software needs among the teachers and students**.**

[16] The ICT coordinator is a staff specialist whose main duties are to help teachers to coordinate ICT planning and development, provide administrative support by supervising computer facilities, order supplies, maintain software and hardware, liaise with hardware and software vendors and service personnel, and collaborate with teachers and school leaders in preparing hardware/software budgets, reports and proposals.

II.ORGANIZATION AND RESOURCE MANAGEMENT IN SCHOOLS

Overview

Sound management and financing of ICT in education policy are necessary conditions for the effective integration of ICT in schools.
All countries face the technological challenge of buying appropriate hardware and software, getting adequate bandwidth for online learning, getting learning and teaching tools. However, successful ICT integration also depends on the quality of the tools, the learning environment and the participants themselves.

Components of Organization and Resource Management to help schools integrating ICT include the following:

Leadership and Management

1. Having a champion at all levels in the education system promotes ICT acceptance.

One major theme that emerged is the need for strong, committed leadership to support the goals of technology integration. While virtually all administrators tend to voice their support for technology integration, it helps to have *believers in high places* – leaders whose knowledge and commitment goes well beyond the rhetoric of support. At the core of informed leadership is a person who has internalized the complexity of effective technology integration and who exercises his or her influence to ensure that the various enabling factors are in place or being addressed.

Champions[17] are dedicated persons who are motivated by the sense of satisfaction of contributing to the enhancement of student learning. They build a culture of innovation and encourage ICT use in teaching and learning. Champions can be identified at all levels and appointed officially. Their roles and responsibilities should be clearly stated. The role of champions in ICT in education programmes is important and they should have the support of their superiors and peers.

However, there is also a need to ensure that the long-term success of a progamme does not depend solely on the abilities and actions of a few individuals. Care must be taken to ensure continuity in leadership.

ICT advocates in Thailand
1. In many cases, champions at the provincial, regional and national levels are identified through contests and competitions on ICT in education[18].
However, many champions are not sufficiently supported in their schools or provinces.[19] In this case, champions may not be willing to share their best practices and projects with other schools. Sometimes even the transfer of innovation to other classrooms within the same school structure encounters resistance, especially when it lacks the support of the principal or peer teachers.

2. Include ICT as an important component of Education Development Programmes

Including 'ICT in Education' as an important component in the development programme for administrator, supports the introduction of innovative uses of ICT in schools.

Research studies[20] suggest that in some cases, the schools administrator's ICT vision is not always supportive of classroom innovations using ICT.

In a study[21] that involved seven elementary schools principals in New South Wales, Australia; it was examined why some schools were more successful than others at implementing ICT, as measured by increased computer use by teachers over a 1-year period. Principals who exhibited an initiator style were more likely to be successful in implementing computer education on their campuses. For example, the school principals in this study were able to identify long term goals and implementation strategies for computer education and devise specific day-to-day tactics to

[17] Lessons from Exemplary Colleges of Education: Towards a Model of Technology Integration. Neal Strudler and Keith Wetzel.

[18] These include the Outstanding Teachers Search, Software Contest, Website Competition, and Model Teachers Search.

[19] For example, while teacher champions are invited to contribute to other school or educational institutions to demonstrate their innovative projects, their routine workload remains heavy. Their contribution outside the school is not considered a part of their workload.

[20] The Second Information Technology in Education Study

[21] The Elementary School Principal as a Change Facilitator in ICT Integration – John Schiller

accomplish them. They persuaded their staff to accept computer education as a priority. The principals stressed classroom application of technology during staff meetings, organized staff training, ensured adequate time and resources for in-class computer use, and monitored teacher's progress by reviewing instruction plans and other written materials. These principals also spent time in the classrooms, observing and talking with pupils and teachers as they used computers.

Principal Training
At the school level, the principals or principal-to-be should undergo ICT awareness and best practices Training. The training courses should cover all matters related to school administration and management, including general use of ICT. In addition, the courses should also focus on teaching and learning using ICT.[22]

3. Harmonize ICT in Education with other ICT and Educational Initiatives

To avoid the duplication of work and dilution of funds, there should be coordination of ICT in education projects with other ICT and educational initiatives and sharing of information on ICT.

The major projects in the roll out Master Plan should be properly coordinated. In addition, the plan should give due consideration to current trends and needs, such as, Open Source Software, Open Standards, computer aids, mobile phones and Internet access by means of satellite.

Smart School Master Plan - Malaysia
Major projects in the Smart School Master Roll-out plan have been properly coordinated.[23]
The teaching of Science and Mathematics in English Programme was introduced in 2002 and implemented in 2003 in all schools in the country. The government recognizes that English is the language of the Internet and that students need to be able to access material from the Internet competently in order to keep pace with developments in science and technology.[24]
The Universal Service Provision Project helps to bridge the digital gap between rural and urban schools.[25]

4. ICT in education projects should be education-driven, not technology-driven.

During planning and implementation phases there is usually a dichotomy between Educators and Technologists.

In that case, ICT in education projects should be education-driven, not technology-driven. ICTs should not be put into place just for sake of using newer or latest technologies.

To ensure that ICT in education projects are not just technology-driven, they should be managed by a team composed of educators and technologists.

Smart School Conceptual Blueprint - Malaysia
For example, a joint Ministry-Industry Task force wrote the Smart School Conceptual Blueprint in Malaysia.[26]
The Smart School Pilot Project Teams was made up mostly of educators although several systems analysts were included to help monitor the technology infrastructure and support services components of the Smart School Integration Solution.

5. Schools should be given some autonomy to select ICT resources that are most suitable to the needs of teachers and students.

Every school is different and each one should be given some autonomy to select ICT resources that are most suitable to the needs of teachers and students.

Schools should be provided with basic technology infrastructure and given the autonomy to decide on the kind of ICT resources and tools that they should acquire, based on their vision and analysis of their students learning needs. This allows the school to have greater autonomy and flexibility in using ICT funds.[27]

[22] In Thailand, the principals have to undergo training provided by the Institute of School Administrator Development.
[23] Current educational programmes involving ICT include the Smart School Project, the teaching of Science and Mathematics in English, the school computerization program, and the Universal Service Provision Project, all of which are part of MOE's goal to "provide equal access to quality education to every child, irrespective of background, religion or ethnicity."
[24] The school computerization program is meant to provide every school with one to three computer laboratories (20 computers per laboratory), depending on the student population. The goal is to have every school run ICT literacy classes.
[25] The pilot project, involving 220 schools in Sabah and Sarawak, includes the provision of basic infrastructure, including electricity, telephones and other related equipment. The project will be expanded in to a nationwide School Net for the 10,000 schools in the country.
[26] The task force included MOE officials from various divisions (e.g. Curriculum Development Center, Teacher Education Division, Examinations Syndicate and Educational technology Division.) and representatives from leading ICT companies (e.g. Microsoft, Oracle, IBM, and Sun Microsystems).
[27] This is done in Singapore for better integration and use of ICT resources.

By recognizing that every school is different, better ICT integration in the school curriculum is ensured.

Resource Management autonomy at School level - Malaysia
Initially, the State Education Department did not make specific financial allocations for the pilot schools in the Smart School Pilot Project in their states and instead they utilized available funds.[28]
As the project proceeded, the Ministry's Finance Division assigned special status to all pilot schools, thereby allowing them a certain level of autonomy in school expenditure.

The MOE should be encouraged to establish a standard budget based on school size and existing resources rather than to apply one formula for all schools.

In some schools, two types of budget are allocated; one is fixed cost which is based on school projects and activities, and the other is variable cost which is based on the number of students. Large schools receive more budget than smaller ones. It is the responsibility of the school administrators to manage their own financial resources and handle their budget constraint.[29]

In many cases, the ICT infrastructure is dependent upon the volume of funding a school is able to secure and the amount allotted to different school activities, including administration, teaching and learning, and personnel development.

6. Mobilize Resources from Donor Agencies and the Private Sector

Financial support of the implementation of ICT in education is mobilized if school-industry partnership is an integral part of ICT Education policy. In addition, schools can explore and experience emerging technologies and pedagogies.

Partnership with the private sector, statutory boards and government bodies provide schools with opportunities and perspectives on how ICT can be integrated in the school curriculum to enhance the learning experience of students.

Resource Mobilization - Indonesia[30]
In Indonesia, as the national budget for education is not quite enough to support ICT integration in education, the government encourages private sector involvement, with the MOE coordinating their participation. Examples of such companies are PT Indosat, PT Telkom Indonesia, Microsoft Indonesia and ISP of Indonesia.

7. Ensure Sustainability

Empower schools to look for their own funds and to identify expertise to promote sustainability. Prepare and disseminate guidelines on how to source funds.

The preparation of guidelines ensures that schools with adequate financial means can proceed on their own initiative, while complying with existing rules and regulations.

Smart School Project - Malaysia
The Smart School project in Malaysia uses a variety of funding strategies. The pilot project was implemented using federal funds, however it is planned that the schools will be empowered to use their own funds and expertise. Guidelines to enable schools to proceed have been prepared and will be disseminated to all Educational Departments.

[28] The Pilot team helped out by requesting specific allocations to be set aside for the states to use, for example, for replacing equipment or for improving wiring in the pilot schools.

[29] Several organizations, such as alumni associations, parents-teacher associations, local communities or political groups , have become supplementary sources of funds for the school budget. Large schools generally have advantages in obtaining outside funding.

[30] ICT and Education in Indonesia. UNESCO Policy makers workshop; Harina Yuhetty, Director – Center for Information and Communication Technology for Education (PUSTEKKOM), Jakarta, Indonesia