STRATEGIC LEADERSHIP OF INFORMATION AND COMMUNICATION TECHNOLOGY (SLICT) AMONG THE HEADTEACHERS IN THE RURAL MALAYSIAN PRIMARY SCHOOLS

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Abstract

The Strategic Leadership of Information and Communication Technology (SLICT) amongst the head teachers is crucial to the implementation and integration of digital and interactive technologies in schools particularly in the rural primary schools. SLICT focuses on the strategic roles in leading and developing ICT in schools in line with the Ministry's ICT policy. It is crucial that Malaysian schools must always ready in adopting and integrating ICT into its system to achieve ultimate goal of Smart School migration by the year 2010. It is vital for the head teachers to foresee the ICT in education and play important role on leadership of ICT at the school level. The strategic leadership of ICT will be based on ten key elements in the e-confident school.

Key words: *strategic leadership of information and communication technology, information and communication technology, E-Confident School, Smart School*

Introduction

The implementation of Information and Communication Technology (ICT) in educational systems in Malaysian primary schools is crucial. It is important to follow the global trend and challenges of ICT in the teaching and learning in schools. The

implementation of ICT will play a significant role and contribute to the national inspiration to transform the national educational system to the world class standard. In addition, ICT in education will be a driving force in accelerating the development of a knowledgeable, informative and technological society. It will prepare and equip Malaysians to face challenges of technology and information explosion in the borderless world and global village. It will also give an edge to Malaysia to position herself as a competitive nation on the map of world economic giants.

> Education in Malaysia should be prepared to produce knowledge workers who are well-equipped with knowledge, skills and professionalism to meet the challenges posed by the knowledge-based society.... the influx of information easily accessible to everyone has made teaching a very challenging profession. (Moggie 2000: iv – vi)

The explosion of ICT has made a big impact to the educational systems around the world. Naisbit and Aburdene (1992) expected that the education world would experience a revolution in the usage of computer technology in education. Education in Malaysia is already in position to be able to face the new challenges in the wake of computer technology. The Ministry of Education Malaysia has drafted out a comprehensive blueprint known as the Educational Development Master Plan 2001 – 2010. This strategic planning has set out strategies of the implementation and integration of ICT into the educational system until the year 2010 and beyond. The master plan is in line with the Vision 2020, a vision to put Malaysia on the world map as one of the developed nations by the year 2020. Information and Communication Technology (ICT) will be exploited to the maximum as a tool to create human resource with knowledge and technology skills and regenerate the Malaysian economy into a knowledge-based economy (k-Economy).

In general terms Information and Communication Technology (ICT) is an umbrella term that includes any communication device or application, encompassing

radio, television, cellular phones, computer and network hardware and software, satellite systems and so on, as well as the various services and applications associated with them, such as videoconferencing, and distance learning.

In the Malaysian educational context, the Educational Development Master Plan 2001 – 2010 defines ICT as a medium to support the main process in the educational management and administration, teaching and learning activities, and life-long learning. ICT will be used as a tool to improve the quality of education, and to fast track the educational process based on the pupil's ability. Teaching and learning activities using ICT can be carried out anytime to accommodate and accelerate the pupils' learning ability.

Information and Communication Technology (ICT) in education will promote a learning culture (Papert, 1996) and create an effective learning paradigm (Norton and Wiburg, 2003), whereas the interactive learning is replacing the traditional method, which is more on memorizing and drilling activities. Furthermore, the usage of ICT will provide hypermedia-learning environment. It will encourage and promote the exploratory and discovery skills amongst the pupils and challenge the teachers to be a step further in pedagogy and equip themselves with the technologies. The teaching and learning activities will concentrate more on pupils (pupil-centered). Besides, ICT will assist pupils to acquire the learning how to learn skills and in the long term promote the life-long education, individualized learning and make learning as a fun activities (Tapscott, 2003). This is the aim of the Ministry to encourage self-access learning among the pupils and teachers as facilitator.

Information and Communication Technology (ICT) initiatives in Malaysian educational system

The first initiative on computer technology in education in Malaysia took place way back in the 1960s when computer technology incorporated in the educational management and examination management. Since the 1960s, computer technology has changed tremendously and increasingly become more important in many aspects of management including the education sector as management tool. In line with the development, Information and Communication Technology (ICT) has become more visible in the educational management at all levels. ICT has been widely used in many areas of management activities including Finance Management Systems, Personnel Management Systems or Staff Management Systems (SMS), Educational Management Information Systems (EMIS), Smart School Management Systems (SSMS), Student Information Systems (SSM and SMPP), Discipline Information Systems, Scholarship Management Systems, Examination Management Systems, Textbooks Management Systems and Project Monitoring Systems.

In the early1990s, the Ministry of Education Malaysia (MoE) launched some ICT-based projects, school computer projects and ICT infrastructure project as its major activities. In 1992, the Ministry has launched a programme called Computers in School. There were 60 rural secondary schools involved in this pilot project. Each school supplied with 20 units of computer for pupils and a set of computer for the teacher. This was the first project involving personal computers in teaching and learning activities. The next major projects involved other educational components such as curriculum development and assessment.

Another pilot project called Computer-Assisted Learning (PPBK) was launched in 1994. The project focused on two main subjects, English Language and

Mathematics in 15 primary schools in rural areas of Selangor state. This project targeted pupils from Year 4 to 6 with the aim of providing assistance in teaching and learning. In 1996, MoE extended this programme through the ICT infrastructure project to 209 secondary schools and 20 primary schools throughout the country. The project introduced Computers in Teaching Programmes to provide exposure on computer literacy. Under this programme, each secondary school was given 20 units of PC with a server for Local Area Network (LAN). However, at this stage, the schools were not connected to the Internet. The primary schools were provided with the PCs only without LAN facilities.

The next project carried out by the Ministry was an e-Book Project. The project involved 8,000 pupils from 100 primary and secondary schools. The contents of e-Book covered all subjects taught in both primary and secondary levels. Another significant ICT project was the School Computer Project, which focused on building the ICT infrastructure in schools. The project was launched in the year 2000 involving another 2,418 primary and secondary schools throughout the country. The project involved building computer labs equipped with networking (LAN) and Internet connection. The project also supplied LCD projectors to the schools.

The commitment to integrate ICT in the national curriculum has been clearly stated in the Educational Development Planning Blueprint 2001 – 2010. The planning has outlined three main ICT agendas in education, which are:

- ICT Literacy, which provide equal opportunity and equal access to ICT skills and facilities for all – pupils and teachers.
- ICT as part of the national curriculum and medium in teaching and learning.

- ICT in management systems to increase productivity and improve delivery system.

The Smart School initiative

The major ICT transition and development in the Malaysian educational system was in 1999 when the Ministry launched the ambitious Smart School Project. The Smart School Project was one of the Malaysian Multimedia Super Corridor (MSC) flagships. The Ministry set a target of total migration of its more than 10,000 primary and secondary schools into Smart School by the year 2010. The Smart School concept is a long term plan for the national educational system to produce highly skilled and knowledgeable human capital in terms of ICT and as a paradigm shift in the educational system. The Smart School will play a crucial role in providing a strong foundation for the pupils to develop and increase their abilities as individuals. The Smart School Project will be a stepping-stone to spearhead ICT integration and implementation not only in teaching and learning but also across the educational system in Malaysia. Skills and knowledge of ICT will be centre stage in Smart School and play a vital role in the school management systems.

In addition, the Ministry launched a project called SchoolNet to complement the Smart School Project. This is another important internet-based project in providing a platform for the pupils and teachers to carry out teaching and learning activities. The SchoolNet known as MySchoolNet provided teaching and learning materials and courseware. The project gave more than 7,000 schools in the rural Malaysia with the internet access through MySchoolNet. The government has allocated RM374.2 millions to network 5,998 primary schools and 1,087 secondary schools in rural areas with internet access. The biggest challenge to the Ministry is to

ensure that the rural schools are at the same level and on a par with the urban schools in ICT infrastructure and facilities. The impact of the project will reduce the digital divide between rural and urban schools in Malaysia.

The Smart School is the first step to the e-Confident School compliance. It is to make Malaysian schools to be ready to apply ICT technology in all aspects of educational systems. ICT must be integrated across the curriculum and school management. As part of the ambitious ICT projects in education, which is the total migration of schools into Smart Schools, the Ministry has to make sure that all schools must comply with the e-Confident School elements. In order to be effective in the use of ICT to support learning and teaching, schools need to be e-Confident (Becta, 2004), which means that the schools must display a number of characteristics at a sufficiently developed level. The characteristics of an e-Confident school can be summarized by 10 key features, which are:

- Level of leadership, confidence and competence.

  Leadership at all levels – clear leadership at all levels, providing a shared vision for ICT, supported by strategic and operational planning to achieve the vision.

- Re-engineering teaching, learning and assessment.

  Transform learning and teaching, and assessment – actions to transform teaching and assessment, personalise learning, and innovatively embed ICT throughout the curriculum.

- Leading and managing distributed learning.

  Distributed and concurrent learning – active leadership and management of distributed and concurrent learning within and beyond the boundary of the traditional school timetable.

- ICT usage within organization and management processes.

  Effectiveness and efficiency – effective application within organisational and management processes that secures effective pupil tracking, use of achievement data, financial and resource management, workforce reform and curriculum planning.

- Coherent ICT development for all staff.

  Staff development – a guaranteed coherent personal learning and development plan, support and access for the whole school workforce.

- Secure, informed professional judgment.

  Informed professional judgment – professional collaboration, dialogue and review that leads to informed professional judgment.

- Appropriate resource allocation.

  ICT resources – planning and action to secure appropriate ICT resources, systems, digital content and technical support to ensure effective and sustainable use across the school.

- Availability and access to technical support.

  Equal access – making sure that the school's ICT is available, operating effectively, providing inclusive access to all pupils and staff.

- Pupils with high ICT capability.

  High level of pupil ICT capability – planning learning, teaching and assessment to ensure pupils develop and can demonstrate high levels of e-confidence and ICT capability.

- The school as the lead in community learning and information.

  The extended school – promoting and developing the school as the lead community learning and information hub.

The task to facilitate all schools with fully-fledged ICT infrastructure and facilities is a challenge to the Ministry. It is a great task to make sure all schools have the abilities and capabilities to carry out all teaching and learning activities and school management through ICT as a medium. This is crucial to the success of the Smart School project and the Strategic Leadership of Information and Communication Technology (SLICT) of the head teachers will play a great role in achieving this ambition.

Strategic Leadership of Information and Communication Technology (SLICT)

The educational systems around the world are changing following the fast change of technology. ICT becomes part of our lives and this too affects the schooling system. As the Malaysian Government invested huge amount of money and resources in ICT for education, SLICT has to address the issues of how the head teachers develop ICT initiatives through strategic, professional and informed judgments. SLICT can contribute significantly to the Ministry by giving clear vision and direction on ICT implementation and integration in education in Malaysia. The head teachers will play a crucial role as leaders to carry out the implementation of ICT policies at school level.

Head teachers, especially in the rural primary schools, need to think strategically and play a strategic role in leading and developing ICT in their schools, engage in developing and implementing ICT vision with informed professional

judgment and stimulate a clear, strategic and transformational vision for leading their schools. Schools with strong leadership of ICT, which is defined as design and development of a vision for a school's ICT strategy, are more likely to address workload issues since they will not overwhelm their teachers with new initiatives, training and new processes coming all at once. Furthermore, by linking this in with other strategies, and by involving staff in the development of ICT strategies, the most pressing issues are likely to be addressed first, and could therefore result in almost immediate practical workload reductions – (DfES November 2004 Using ICT in Schools: Addressing Teacher Workload Issues).

Head teachers have to be familiar and knowledgeable in terms of ICT technology and development. They must be able to foresee and consider how this technology can make a difference when applied appropriately, but also sustainable, so that investments on the ICT resources do not dissipate over the years and be able to understand and address the issues relating to ICT and its potential for the education system. Effective leadership is a prerequisite for delivering any form of institutional change and embedding ICT into teaching and learning is no different. It is also clear that before an institution can have effective policies in relation to the use of ICT to support learning and teaching, it must have a clear vision in relation to what sort of learning institution it is seeking to be. It must know what sort of learning and learners it is trying to develop – (DfES December 2004 Moving Towards e-Learning in Schools and FE Colleges: models of resource planning at the institution level).

The integration and implementation of ICT in the Malaysian educational system has been one of the Government agendas. The policy encourages the ICT application at all levels of the education system especially at the school level. Unfortunately, the importance of SLICT is still lagging behind compare to the other

developed countries such as the United Kingdom. The pilot study in 2006 carried out by the Ministry on ICT usage in primary schools in rural Malaysia indicated that almost all the head teachers did not have a clear vision on ICT leadership and there was no strategic plan of ICT in their schools.

The Ministry of Education Malaysia (MoE) is currently developing a more strategic approach in adopting Information and Communication Technology (ICT) in its educational system. The Ministry is taking effort in transforming a more strategic approach in the implementation and integration of digital and interactive technologies in schools. Therefore, SLICT is crucial element in the successful of ICT implementation and integration in schools particularly at the rural primary schools in Malaysia. SLICT will be a benchmark to the Ministry on the strategic roles of the head teachers in leading and developing ICT in schools especially at the primary education level, and on how the head teachers develop their own strategic approach to technology as a complement to the Ministry's ICT Strategic Planning.

The main focus of Strategic Leadership of Information and Communication Technology (SLICT) in Education is based on ten key elements in the e-Confident School strategy. The massive implementation of ICT in the Malaysian educational system needs good leaders at school level to implement the ICT Strategic Planning in line with the government policies, which is outlined in the Educational Development Master Plan 2006 – 2010 of 9th.Malaysian Plan. The aspects of leadership of ICT among the head teachers particularly in the rural primary schools still need to be strengthened to implement the ICT policies.

Efforts have been made to equip all primary and secondary schools with ICT infrastructure and facilities through the ICT initiative in education outlined in the Educational Strategic Planning Blueprint 2001 – 2010. The ICT strategic planning is

to integrate ICT into teaching and learning, and in all other aspects of the educational management system. Its final goal is total conversion of all schools into Smart School by the year 2010. To achieve this target, the Government has instructed the Ministry to re-model the smart school and its implementation to be adapted to all schools. Efforts have been taken to fast track the migration of schools into smart schools to enable more existing primary and secondary schools to benefit from ICT. In line with this aspiration and to achieve the national agenda, it is crucial that Malaysian schools must be always ready to implement and integrate ICT into its system. The head teachers have huge responsibility and anticipate actively in carrying out tasks on ICT implementation besides playing a vital role in ICT leadership at school level.

The main goal of SLICT is to enable schools to be e-Confident, where school has the ability to provide an equal entitlement of ICT for all pupils. The teachers possess great skills and competence of ICT, and are able to use a range of different technologies to support teaching and learning processes, knowing how and where ICT can enhance learning. The teachers too are able to accommodate all pupils' learning styles when using ICT and they embed ICT in all schemes of work. The school uses ICT across the whole curriculum and re-design the curriculum putting ICT at the heart of learning. The head teachers must always aware of the ICT issues in education such as in the area of ICT strategic planning and leadership. In the long term, ICT will be visible as one of the elements in the school culture. In Malaysian context, SLICT will provide a clear direction for head teachers to ensure their schools fulfill the requirements of e-Confident school. SLICT will give a clear vision on strategic leadership of ICT. It also provides a clear direction of ICT implementation at school level. These are the key factors to the success of smart school conversion by year 2010. SLICT will change the current schooling system by ensuring the head teachers

or school leadership to understand the important of their role in strategically leading ICT in schools. The Malaysian educational systems will get a great benefit through SLICT in terms of reengineering the educational system to provide a quality education for all. It will help to reposition Malaysia as an educational hub in the region in near future.

SLICT will provide important information on the areas of strategic leadership in the development and renewal of ICT, ICT infrastructure and facilities, ICT resources and support, integration of ICT in the curriculum and personal ICT skills among teachers and pupils. It will give some indicators to the Ministry of Education Malaysia regarding the readiness and preparedness of the schools particularly the primary schools in rural Malaysia.

It is important to gather some information on the strategic leadership of ICT in schools particularly the primary schools in rural areas. The Ministry will be able to monitor and evaluate the progress of the Smart School migration plan. It can improve existing strategies and overcome any shortcomings. SLICT will help the Ministry to create awareness and programmes to assist the head teachers specifically in rural primary schools and generally all the schools throughout the country in terms of ICT leadership. In near future, an e-Confident School Benchmark can be formulated to provide guidelines for the schools in maintaining and upgrading the ICT capability in line with changing technology, developing and sustaining teachers' skills and confidence in ICT, and improving pupils' learning through ICT. Furthermore, it also provide information on the school's readiness and preparedness to be a Smart School, ICT initiatives at school level, ICT competency among the teaching staff and pupils, and ICT infrastructure, facilities and support.

Conclusion

Effective ICT programmes in schools will be the result of good leadership and effective strategic planning. Both are necessary factors for the success of migration of schools into smart schools and the e-Confident School compliance. Head teachers have to play a bigger role and demonstrate a leadership role of ICT. They should seek to drive developments towards a vision of the school as a centre of excellence in using ICT for teaching and learning, and running their schools as a management tool.

Good Strategic Leadership of ICT (SLICT) will be demonstrated through having a clear understanding of the nature of ICT as a technology, a medium of instruction and a management tool. Having a clear and sound vision of what the school should achieve with ICT over time and be able to demonstrate how investment in ICT are impacting on learning and attainment, and achieving the balance between teaching ICT skills and applying them to learning and teaching. Finally, the most important part is to understand and know the key components to ICT strategies that must be in place for ICT to succeed.

An in-depth study should be carried out to find the status and level of SLICT among the head teachers in Malaysian schools with the focus on the primary schools in the rural areas. This is important, as a lot of efforts have been made to equip the school with the ICT infrastructure and facilities to improve the Malaysian educational system in line with the Ministry's vision of a world-class educational system. The study will provide the Ministry of Education Malaysia a benchmark of the school's ICT readiness and preparedness. This will assist the Ministry to draw up strategies in ICT leadership among the head teachers and enhance the capacity of schools to act strategically in leading the development of ICT in their schools.

References

ALDRICH, F., 1998. Getting to grips with interactivity. *British journal of educational technology*, 29 (4).

BAHAGIAN TEKNOLOGI PENDIDIKAN, 1999. *Laporan tahunan 1999*. Kuala Lumpur: Kementerian Pendidikan Malaysia.

BECTA, 2004. *Towards the e-confident school*. ICT essential guide for school governors. Coventry: Becta

JONES, H., 2005. *Strategic leadership of ICT*. Coventry: Becta.

BLOOM, B. S., 1956. *Taxonomy of educational objectives*. *Handbook 1: cognitive domain*. New York: David McKay Company.

BOYLE, T., 1997. *Design for multimedia learning*. London: Prentice Hall.

DFEE, 1997. *Connecting the learning society*. London: HMSO.

Features of the e-confident school [online]. Available from: http://schools.becta.org.uk/upload-dir/downloads/slict_host_schools_guide.pdf [Accessed 13 Jan 2006].

GARDNER, J., MORRISON, H., JARMAN, R., REILLY, C. AND MCNALLY, H., 1994. Learning with portable computers. *Computers and education*, 22, 1-2, 161 – 171.

GRABE, M. AND GRABE, C., 1998. *Integrating technology for meaningful learning*. Boston: Houghton Mifflin.

ICT definition [online]. Available from: http://searchsmb.techtarget.com/gDefinition/0.294236.sid44_gci928405.00.html [Accessed 13 Jan 2006].

KEMENTERIAN PENDIDIKAN MALAYSIA, 2001. *Pembangunan pendidikan 2001 – 2010: perancangan bersepadu penjana kecemerlangan pendidikan*. Kuala Lumpur: BPPDP.

KEMENTERIAN PELAJARAN MALAYSIA, 2004. *Dasar pendidikan kebangsaan*. Kuala Lumpur: BPPDP.

KEMENTERIAN PELAJARAN MALAYSIA, 2006. *Rancangan Malaysia ke-9: pelan induk pembangunan pendidikan 2006 – 2010*. Putrajaya: BPPDP.

MINISTRY OF EDUCATION MALAYSIA, 2001. *Education in Malaysia: a journey to excellence*. Kuala Lumpur: EPRD.

MOGGIE, L., 2000. *Education and ICT in the new millennium*. Opening speech: conference on education and ICT in the new millennium, 27 October 2000, Kuala Lumpur.

NAISBIT, J. AND ABURDENE, P., 1992. *Megatrends 2000: ten new directions for the 1990's*. New York: Avon Books

NORTON, P. AND WIBURG, K. M., 2003. *Teaching with technology*. 2nd ed. Belmont: Wadsworth/Thomson Learning Inc.

OFSTED, 1999. *Annual report of her majesty's chief inspector of schools*. Section 20, office for standards in education. London: HMSO.

PAPERT, S., 1996. *The connected family: bridging the digital generation gap*. California: Longstreet Press.

PAPERT, S., 1980. *Mindstorms: children, computers and powerful ideas*. New York: Harvester Press.

PHILLIPS, R., BAILEY, M., FISHER, T. AND HARRISON, C., 1999. Questioning teachers about their use of portable computers. *Journal of computer-assisted learning*, 15, 149 – 161.

STONIER, T. AND CONLIN, C., 1985. *The three c's: children, computers and communication*. London: Wiley.

TAPSCOTT, D., 1998. *Growing up digital: the rise of the next generation*. New York: McGraw-Hill.

WESTWOOD, P. AND DOBSON, L., 1999. Implementing a successful laptop programme. *International schools journal*, 19 (1), 56 – 65.

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