

ICT Utilization among School Teachers and Principals in Malaysia

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Abstract

The purpose of this research was to find the areas of ICT utilization among teachers and principals of Malaysian schools. Quantitative method was used in this study with a representative sample of 260 school teachers, teachers-supervisors and principals. The finding of the research demonstrates that 84% of the teachers are not aware of national ICT policy though it exists. Finding shows that most of the schools (80%) do not have ICT policy at the school level though the facilities and equipment of ICT are available in most Malaysian schools. Almost all the teachers have a high level of skills in using computer and profoundly the basic skills needed for teachers in IT are attained by all the teachers. Likewise, 95% schools have photocopy machines and scanners while the multimedia projector is available in 85% schools. Besides, 72% schools are equipped with a video camera, overhead projector and laptop. However, it is interesting that their expertise and skills are not integrated with educational management or with teaching/ classroom purposes. Rather they are used for daily administrative purposes. The findings of the study will benefit the policy makers of developing countries, Principals, teachers and other education related personalities of Malaysia and likewise.

Keywords: use of ICT, National policy, School Policy, Principals, Teachers

Introduction

Information Communication technology (ICT) is a term that covers all forms of computer and communications equipment and software used to create, store, transmit, interpret, and manipulate information in its various formats (UQ, 2002). ICT is widely used in the entire globe for different purposes, including business, health, transport, communication, and education. The advancement in ICT ranging from electronic chips, mini computers, to large scale devices, has its impact on every sector, and has crossed every nation in the world. But, the way they

utilize it differs from country to country. Computer and internet have integrated a lot of information and communication technology, leading to e-commerce, e-banking, e-government, e-learning, e-library and more.

Education system tries to inculcate the ICT in its efficient ways to enable teachers and students to access and gain knowledge. Teaching and learning cannot happen like the analogy of a spoon feeding knowledge at a given time. Therefore, ICT has an enormous role in making teachers and students to reach the knowledge. Apart from the pedagogy, ICT penetrated into the educational management in the system. The hierarchy in educational management from federal educational management to the school management requires the latest technological advancements in planning, organizing, leading and controlling educational organizations. The relation between stakeholders and the school can be built through a better communication channel. Hence, ICT is the best tool for communication among them. The evaluation of input and output of the school is necessary for the future vision of the school. In the school, teachers are the fore frontiers who need up to date information and skills for better education of the coming generation. Hence, teachers need professional development in pedagogical knowledge and technology. In addition, financial and administrative executive in the school enhances organizing, leading and monitoring the academic and non-academic activities. With respect of all these mentioned, ICT is the key element in educational effectiveness in schools.

With this realization, Malaysia has introduced ICT as many sectors, ranging from the transport, communication, health, commercial transactions, sports, education and more to social affairs. From 1996 to this end, reforms are being carried out covering the areas of educational legislation reforms towards a technological society; enriching and diversifying the curriculum; higher education reforms; teacher education; and organizational changes.

Therefore, the Ministry of Higher Education (2010) has responded by implementing wide-ranging reforms to give schools, universities and other higher education institution skills and competence to ride the crest of the IT wave. It is also added "Already the education system is putting interactive IT at the core of the teaching and learning and, management process. Smart Schools are being set up where learning will be dynamic, lively and brimming with interaction through the use of multimedia technology and worldwide networking" It is believed that most of the schools in every state have information technology resources, despite of very rural areas or remote islands. Even then, it is unknown how much resource and facilities are utilized in the schools, and how the educational framework enhances ICT integrated teaching and learning as well as how these facilities assist school management to enhance quality of education. Hence, it is important to examine the utilization of ICT among teachers and principals in facilitating innovation in education.

Objectives

The aim of the study is to understand the use of Information and Communication Technology (ICT) among teachers and principals in Malaysia. In order to achieve this aim, the study has considered the following objectives:

- To investigate the ICT policy awareness and its implementation on pedagogic and co-curricular activities
- To understand how well teachers and principals of Malaysian schools utilize the efficiency and capacity of ICT in school management and administration.

Research Question

The following research questions lead to the response of the objectives used in the research.

1. What extent do teachers and principals try to implement ICT policy in the schools by integrating ICT in teaching and learning and educational management of schools?
2. What extent does ICT use in school management and administration in relation to ICT access, efficiency and capability in ICT skills, and use in financial and strategic management?
3. How many Malaysian schools are equipped with ICT facilities and access to the teachers for pedagogy and teacher learning activities?
4. How do teachers and principals of Malaysian schools use ICT in terms of communication, evaluation and monitoring of different necessary records?

Literature Review

Use of ICT in education

Educational technology can be viewed differently, including any media that can be used in instruction. However, a narrower explanation on the subject would be confined to educational technology to computers, computer peripherals, and related software that are used for teaching and learning. On the other hand for technologists, educational technology is any hardware that is used in the classroom (Chai et al., 2009; Cuckle et al., 2000).

Formal education is the major part of the education system, which is delivered through the school system of primary education to higher education. Even, pre-primary education is regular in most of the countries. The education involves mainly teaching and learning where knowledge is shared and generated. Ultimately to achieve the purpose of education in the modern world with high technology, ICT is widely used throughout the sector.

The uses of ICT in education are described with the functions; ICT as object by referring learning about ICT; ICT as an 'assisting tool' while making assignments, collecting data and documentation, communicating and conducting research; ICT as a medium for teaching and learning; and ICT as a tool for organisation and management in schools (Cuban, 2002; Davis et al., 2009; Dexter, 2002; Divaharan & Ping, 2010). These four dimensions are foremost in the educational system. In many countries evidence has clearly demonstrated that ICT can improve the quality of education (Lever-Duffy & McDonald, 2008; Hoque et al., 2010). Thus, the role of

ICT in education can be viewed from its practice in diverse countries, whereas few countries are observed. In general, it can be stated that a large percentage of educational institutes in the Netherlands have access to and make use of ICT with 97 percent of all institutes facilitate a Learning Management System, an electronic learning environment including an electronic portfolio system (Brummelhuis & Wijngaards, 2010). The ICT facilities and internet broaden the capacity of ICT use in every institution. In Netherland it is found that, of studied schools, 95 percent provide access to the Internet: some 83 percent of broadband and some 72 percent via Hotspot Wi-Fi network facilities (Brummelhuis & Wijngaards, 2010). In Turkey, a school in Ankara has one computer laboratory with 21 computers, 15 classrooms have a computer, and there are 350 Classmate PCs donated by Intel. The lab has broadband Internet and a wireless hub (Light, 2009; Demiraslan & Usluel, 2008).

Uses of ICT in pedagogical activities are widespread in the education system. Teachers use computer software to make lesson plans, PowerPoint presentations, and use smart boards for interactive lessons. Distant education consumes best use of ICT, and e-learning is also accelerating in an efficient way. E-Learning covers a continuum of educational applications with Word, Excel, Access and PowerPoint as the main gadgets on one end with no or little impact on teaching, learning and administrative practices on the other end (Herselman & Britton, 2002; Ng, 2010). Apart from audiovisual technology used in the classrooms for teaching and learning process, phone technologies, email, electronic discussion and online classrooms are also used (Niederhauser & Perkmen, 2010; Stuart, 2009).

ICT in Malaysian Education

According to Azian T. S. Abdullah (2006), since Malaysia's independence in 1957, education has always figured prominently as an integral part of the government's developmental policy. As ICT has been the essential part of educational development, Malaysia has taken various initiatives to facilitate integration of ICT in education, as outlined in its ICT Master Plan. In order to revolutionize education and learning, the National IT Council (NITC) was formed under the Sixth Malaysia Plan (1990-1995) to ensure the integration of ICT into Malaysia society (Ministry of Education, 2001). To further the agenda, the Eighth Malaysia Plan (2001-2005) and the Ninth Malaysia Plan (2006-2010) continue to reform the education and training system through lifelong learning via multiple ICT-related media, the establishment of community colleges, open universities and distance education (Ministry of Education, 2001). The implementation of Malaysia, Ministry of Education's policy in ICT can be seen through several major ICT in education projects, like smart schools. The implementation of the Smart School project was scheduled to go through four waves, viz; the pilot project (1999-2002), the post-pilot (2002-2005), making all schools smart (2005-2010), and consolidation and stabilization (2010- 2020).

Educational Management and ICT in Malaysia

The education management development plans of Malaysia aim to enhance and accelerate the efficiency and effectiveness of management in different aspects such as administration, monitoring and evaluation, curriculum and assessment, personal, financial and infrastructure

development. The Ministry of Education (MOE) aims to overcome some bureaucratic issues in the educational management as its structure is hierarchical and centralized. Therefore, the MOE faces challenges to improve the quality of leadership at all levels of the education department. Management effectiveness and efficiency are expanded through e-management at all levels of education management and trainings for officers and staff. The MOE also intensifies efforts to improve the management and maintenance of ICT tools at all levels of education institutions. In their efforts, bilateral cooperation increases between educational institutions under MOE with the local community and the private sector in the development of ICT in education. In order to improve the quality of school management, principals or headmasters play important roles to strengthen the monitoring, evaluation, and assessment activities of education programmes in accordance to the objectives of Education High Quality Standard.

As curriculum leaders, principals or headmasters have to understand that the function of ICT in schools does not serve primarily to promote computer literacy, neither it was due to technology deemed as the 'wave of the future'. Rather, the function of technology in schools is to enhance teaching and learning in accordance with the curriculum and assessment (Hong & Koh, 2002). Principals have to assess education technology as a mean of solving instructional problems.

The strategies for better monitoring, inspection, and evaluation system include extending the role of school heads or principals as curriculum leaders and main supervisors in teaching and learning in schools, increasing the number of qualified personnel in the field of inspection, strengthening the implementation of Education High Quality Standard in all educational institutions and a wider dissemination of inspectorate reports.

One of the greatest challenges in ICT use in the education area is the balancing of educational goals with economic realities. ICTs in education programs require large capital investments and developing country like Malaysia needs to be prudent in making decisions about what models of ICT use will be appropriate to be introduced whilst being conscious of maintaining economies of scale.

The MOE needs to provide more ICT facilities in order to expand the usage of ICT in teaching, learning and education management sufficiently. In this regard, computer literacy elements were included in the National Preschool Curriculum in 2002. At the primary level, ICT has gradually evolved into a necessity. At the secondary level, the integration of ICT is aimed at developing students with knowledge and skills in ICT and their ability to use information critically and creatively to improve their academic performance. At the tertiary level, ICT must be expanded to all fields of knowledge.

Uses of ICT at School level

Most administration and management tasks can be facilitated using ICT. Similarly, every organization requires a complete, comprehensive up-to-date information, which is created in the organization and passing through (Gev, 1995). School as an educational organization,

principal is the leader and the manager of a school, and the importance of strong leadership in effectively implementing ICT in education is evident from many of the country reports (Gosmire & Grady, 2007). Today's rapid technological changing milieu requires the principal and teachers as a technology leader to become involved in discovering, evaluating, installing, and operating new technologies of all kinds, while keeping teaching and student learning as the guide and driving force behind it all (Gao et al., 2010).

The ICT in school setting enhances teaching and learning process and motivates students to learn. In the school management level, ICT is used in detailed student data management, on the level of test and term mark; teacher data management, such as attendance and weekly lesson plans (Hadjithoma-Garstka, 2011). Other than follow up of students' achievements, the information gained from the computer enables management to follow up on each and every teacher's work (Popkewitz, 2000). Rather than facilitating teaching and learning in the schools, the principal should evaluate the input of the teachers and output of the students. School management information system enhances planning, organizing, and monitoring, and is used as a tool for improving the effectiveness of the educational system in school (Hadjithoma-Garstka, 2011).

Leading is the next component of management which relates to coordinating staff and other stakeholders. Administrators, as school leaders need to make dramatic adjustments regarding effective leadership, as suggested by Kotter (Samath, 2010), "Leadership is about coping with change". Therefore, the principal and teachers should have an effective communication network with students, parents and stakeholders. Use of email and mobile phones will enhance this trend. Principal and teachers need to use technology for personal management skills, and budgets are prepared on spreadsheets, parent letters require a word processor, and occasionally they must use a database for compiling certain kinds of data of students and administration (Creighton, 2003). Thus, effective school administration are key indicators to large-scale, sustainable education reform. Rapid changes in technology have led to new possible ways for managing and leading schools (Hamzah et al., 2010).

Schools are themselves responsible for the implementation of ICT in education, and integration of ICT into the curriculum, where these activities consist of projects, programmes and learning communities conducted by organisations that provide the necessary support to meet the existing needs of schools (Brummelhuis & Wijngaards, 2010). However, ICT integration in subjects and this aspect is lacking in the existing curriculum of Malaysian education. One of the most important prerequisites for successful implementation of school information system (SIS) is, of course, a high-quality SIS (Visscher, 1995). Thus, the school principals and teachers' initiative provide path for these educational advancements.

When evaluated the Malaysian school principals and administrators role in implementing educational advancements such as facilitating ICT in schools, it is observed that most of the school heads do not acquire the knowledge and technical skills in managing education, perhaps integrating ICT in education and educational management as they are not from the field of management (Hamzah et al., 2010). Rather the culture exercising in the system is promoting a

'good teacher' as a teacher-supervisor or head of the school, and thus during this promotion period, 'the knowledge gap' of a teacher and an administrator is not bridged.

Conceptual Framework

Based on literature review, it is revealed that Malaysian government has put much effort to equip the school with modern ICT facilities. In spite of enormous government effort, the concern is to what extent it is being used in its major domains as strategic policies, availability of resources and access, efficiency and capacity of ICT use in pedagogy, monitoring and evaluation of teachers and students in Malaysian schools. Based on each domain several indicators are taken used in research contextual area.

Under policy and strategic plan, there are two major indicators. Firstly, to know the awareness of national, educational, and school ICT policy or strategic/master plan, and the second is to know the extent of implementation in schools. As far as considering resource and access as a benchmark, ICT availability, networking, and ICT penetration in education or schools are taken as a part of the indicators. In addition, ICT access for teachers to enhance teaching and professional development is used. Capability and efficiency in ICT usage as a major domain looks for the extent of ICT use and ICT related activities, pedagogical use of ICT and ICT based-learning in classrooms, and teacher and student use of ICT in education. Other than these, use of ICT in teacher learning and the extent of use in professional development programs are considered. Monitoring and evaluation focuses on the extent of ICT use in evaluating students' academic and co-curricular activities and teacher evaluation, with regard of teacher's lesson plan checking and supervision. These indicators are measured and evaluated through the combination of research methods.

Methods And Methodology

Research Methodology

Quantitative approach was used in this research. The questionnaires were filled by 260 principals, teachers and teachers-supervisors who are from different schools of different states of Malaysia.

Population and Sampling

Since this research studies is about the ICT use in Malaysian school management, we selected teachers, teacher-supervisor and school principals who are studying Masters in Educational Management Program in the year of 2009/2010/2011 in the Faculty of Education at University of Malaya, Malaysia. These teachers are those who have been selected by a rigorous screening process from all over Malaysia by the University Authority. As all these teachers were selected to pursue higher education by the university, the researcher considers them as the proper sample that represents the whole Malaysia.

The respondents were selected based on their past jobs and their experiences in the education fields. There are 215 teachers and 45 principals/Assistant principals/supervisors in the list who have worked in managerial position for 2 to 8 years before they joined the classes in the university. Thus, 215 teachers and 45 principals or teachers' supervisors completed the questionnaire for this study.

Research instrument

Questionnaire

A questionnaire is a self report instrument useful for economically and speedily obtaining data from a good number of respondents (Brown, 2001). The questionnaire is aimed to obtain information basically on three aspects:

1. ICT policy awareness and its implementation
2. Availability of IT resources and its accessibility
3. Efficiency and capacity of staffs and use of ICT in managerial tasks

The first section of the questionnaire is about the personal information like gender, number of years in the service in educational field, designation and type of school they are working (public or private). In the second section, respondents have to answer the questions about the ICT policy, both national ICT policies as well as school policy. Section three is about the ICT related resources and its accessibility in the school. Section four is about the efficiency and capacity and use of ICT in managerial tasks. This section also discusses the usage of internet facilities and individual staff's ability in different software such as Word processing, Spreadsheets Presentation tools (PowerPoint), E-mailing Internet, browsing, Statistical tools and Database management.

Instruments: Validity And Reliability

Reliability is the degree of consistency that an instrument or data collection procedure demonstrates, while validity is the quality of data collection procedure that enables it to measure what it is intended to measure (Best & Kahn, 1998 Denzin & Lincoln, 2000,). Hence, with this knowledge as the background knowledge, this study was conducted. The opinion of professional colleagues was sincerely considered to standardize the content validity of the instruments whether it would cover the research areas. It has been proven that in order to receive proper, specific, valid and reliable data, attention must be paid to the triangulation of samples (Cohen et al., 2000). We, therefore, selected our respondents from three categories: Principals, teacher-supervisor and teachers. The Chronbach alphas of the measures were all above the lower limit of acceptability Chronbach alpha .60 (Nunnaly, 1978). Hence, all the measures were highly reliable.

Documental Reviews

The documents we reviewed including National Developmental Plan of Malaysia 2001 – 2010, National ICT policy of Malaysia, the Ministry of Education’s Smart school policy and National curriculum of Malaysia.

Findings And Discussion

Policy Awareness And Implementation

Figure 4.1 shows that out of the 260 respondents, 84 percent are not aware of the national policy on ICT and 80 percent has responded that the schools do not have an ICT policy at the school level. Teachers or leading teachers have said that schools have not shared the school ICT policy with the staff. However, out of the 45 principals, 10 have an ICT policy in their schools and they have shared it with the staff. It is seen that 36 percent believes that the schools promote or support ICT-based innovations by teachers in the school. However, 72 percent of the schools do not have a separate IT department or unit to facilitate these innovations and 56 percent of the schools are being run without an IT expert to be in charge or coordinator to monitor IT in the schools. Moreover, the alarming figure in the research on this topic is the 88 percent saying that there is no master plan for ICT in schools; however with regard to school implementing the national/regional/provincial policy on ICT in education 28 percent agrees that they implement it in the schools. Concerning code of conduct for using computers and internet in schools 72 percent said that there is a one to follow. Finally, a vast majority (80 percent) have said that ICT can facilitate school management.

On the topic of schools being aware of ICT policy and implementation in education, the important finding to be noted is that 80 percent schools do not have an ICT policy. Furthermore, in all the schools, to develop ICT in schools or in general in education some kinds of programmes are being conducted such as using ICT in teaching and learning specific subjects. Another amazing finding is about having a code of conduct for using computers and the internet in schools. With relation to this concern 72 percent schools have a code of conduct and this exists not because a code of conduct was prepared for using ICT in schools rather it was because in schools there are rules and regulation or procedure to be followed in every matter in the school from basic class room rules to other significant rules.

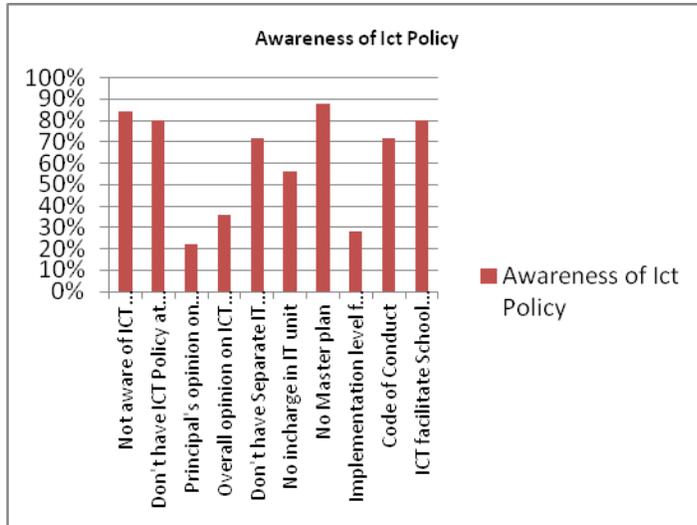


Fig 4.1: Awareness of ICT Policy

Knowledge And Technical Skills

The second finding for discussion is the topic: knowledge and technical skills of the human resource of schools. With relation to the level of expertise in computer technology, on average, the respondents appear to have a high level of technical skills in using computer. As the figure 4.2 depicts almost all the people have a high level of skills in using computer and profoundly the basic skills needed for teachers in IT are attained by all the people. On the other hand, the skill of using statistical tools and database management are the areas that require expertise. Thus, this may have happened as usually there are special programs and software for maintaining data and these work are carried out by people who are responsible for sustaining the records.

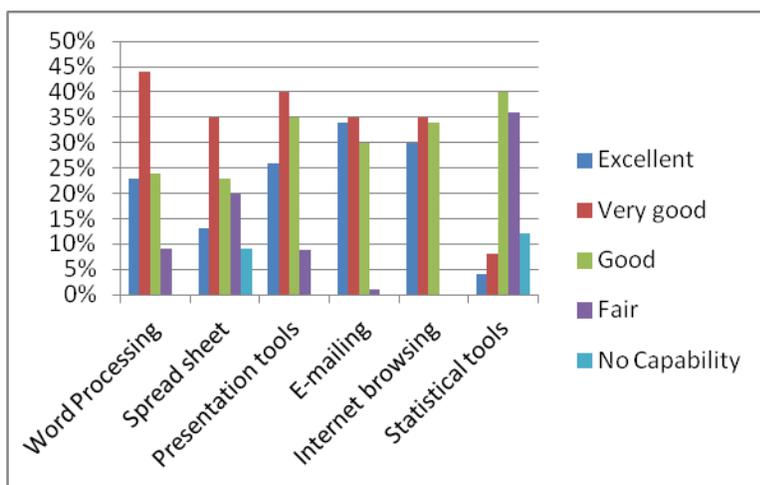


Fig 4.2 Level of expertise of teachers/ teachers-supervisors in using computer technology

Similarly to the data gathered on the percentage of people who know how to operate different ICT related facilities (Figure 4.3), the least percent of people (25percent) know how to use interactive boards or smart boards and the second least (46 percent) know how to use multimedia projector. On contrary, all the people know how to use computers and cassette players and other equipment that are of daily use in administrative work in schools. Thus, figure 4.2 and 4.3 shows that staff in schools has acquired the basic skills of using IT and ICT in daily administrative and management work of the schools.

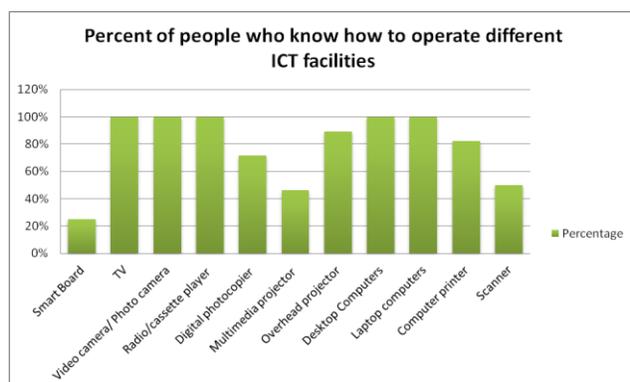


Fig 4.3 Operation of different ICT related facilities

Therefore, the knowledge and skills of the staff in the Malaysian schools need to be evaluated further and it is obvious that this research has revealed a correlation to this human resource power in terms of knowledge and skills as a strong one because of the sample taken for this research. Hence the sample taken has an educational background with a bachelor degree and 54 percent has received ICT training of some kind. However, it is interesting that their expertise and skills are not integrated with educational management or with teaching/ classroom purposes. Rather they are used for daily administrative purposes.

Resources and access to ICT facilities

One finding of the research related to resources and access of ICT facilities in Malaysian schools is represented in Figure 4.4. As the figure shows all the schools that participated in the research are equipped with ICT facilities such as desktop computers and printers. Likewise, 95% schools have photocopier machines and scanners while the multimedia projector is available in 85% schools. Besides, 72% schools are equipped with a video camera, over head projector and laptop. Unlike these facilities that are widely used for teaching and learning and for administrative work on daily basis, ICT facilities such as interactive boards or smart boards and digital notice boards are not available in most of the schools. Hence, out of the total of schools only 30% of those schools have smart boards.

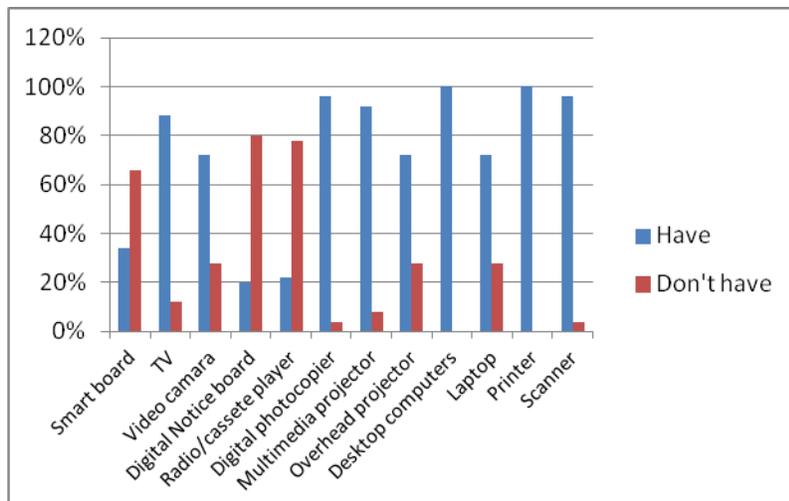


Figure 4.4 Use of ICT resources

Thus, the above findings reveal that the types of facilities that are widely used in schools are services that are needed for daily administrative purposes of the school and that of teaching and learning. In this regard, facilities that are mostly available in the schools are computers, photo copy machines and thus these are needed for daily teaching and learning and for administrative work. One very important fact to be deduced from these findings is that even though the schools are equipped with most of the ICT facilities, the question of these facilities availability and access in terms of student ratio and teacher ratio is not understood from this research. Therefore, the benefits and effectiveness of the use of these cannot be measured from the findings.

In short, these findings support that in Malaysian schools ICT is used for administrative work and the locations of ICT facilities availability and the locations (Figure 4.5) where people use them are quite similar. On the other hand the use of ICT for classroom purposes is lesser and teachers using ICT in other places more than classroom elucidates that teacher are not integrating ICT in teaching as curriculum is not integrated with ICT. Hence, text books do not deploy lessons of ICT; therefore, teachers do not integrate ICT in teaching. Moreover, this finding supports the finding of the most common resources or ICT facilities available in schools. With regard to the discussion topic, the research explains that Malaysia schools are equipped with ICT facilities that are needed for daily administrative work and these equipment are available mostly in administrative office and staffroom, hence they are used for administrative purposes and not for educational management functions as there are no 'set up' that enhances use of ICT in Malaysian schools in school management.

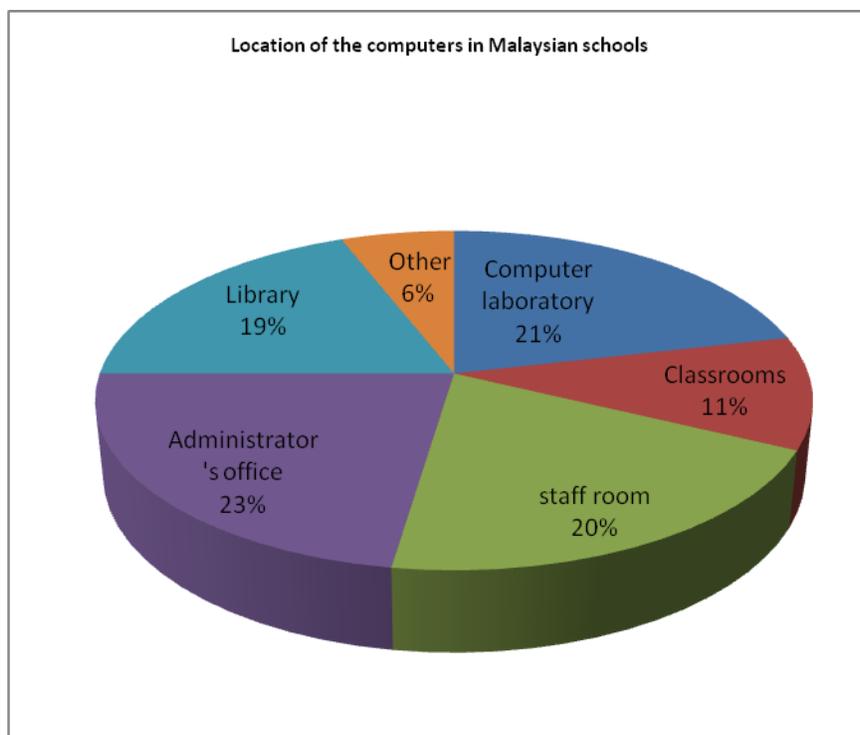


Fig 4.5 Locations where teachers use computers

In relation to the topic use of ICT in Malaysian schools, the research findings confirm that schools use ICT for daily administrative purposes and ICT is not appropriately used for school management purposes. Among the most usual purposes include ICT for administrating test, preparing report cards of students, preparing lesson plans and learning for enrichment as well as for accessing information. On the other hand ICT is least used for developing logic and reasoning skills in students and the second least include regular instruction and training for developing computer skills and remedial learning.

Finding shows (Figure 4.5) that a large number of teachers (72% teachers) uses ICT facilities for playing games and having fun while 68% of the teachers use ICT to help them with school and administrative work.

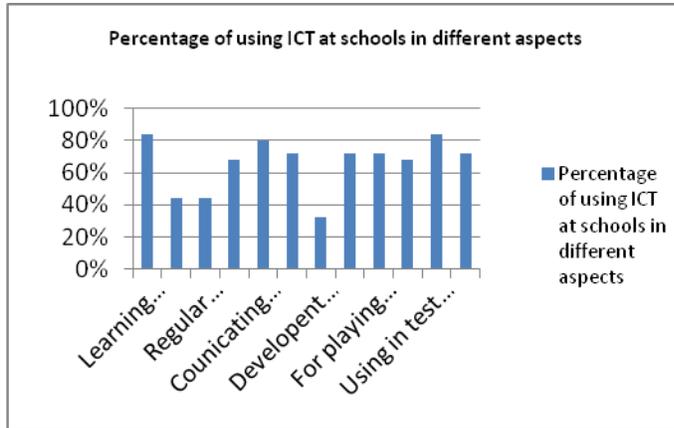


Fig 4.5 Using ICT at schools in different aspects

A similar pattern is observed in Figure 4.6 on the frequency of ICT use in schools. Once again the most frequent use is for preparing report cards (60 percent and it has been rated as very often), finding and accessing information (56 percent rated as very often) and monitoring students as well as for personal development (both 48 percent). In contrast to these findings, ICT is never used for communicating either with parents (56 percent never) or students (44 percent never) and for teaching computer skills (40 percent never). Therefore, from these findings and results of the research, it can be summarized that ICT is used in Malaysian schools for administrative purposes of schools.

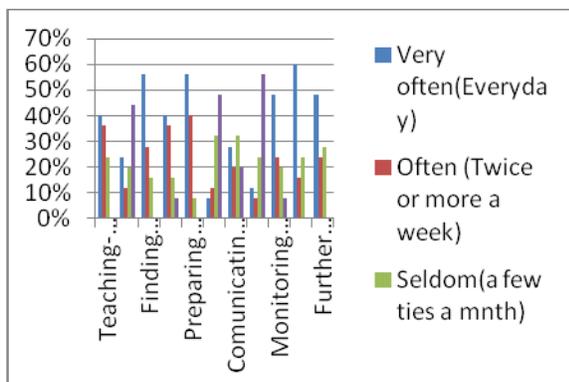


Fig 4.6 Frequency of ICT use in different purposes by teachers and leading teachers

Other finding from the research on internet usage, it shows (Figure 4.7) that almost 80% to 90% of the teachers use internet for collecting hands out, preparing papers and lessons, making presentations and teaching specific lessons in different subjects. Teachers (20%) rarely use internet to communicate with students. Few teachers (50%) use internet for communicating among themselves and a very small amount of teachers (40%) have access and use online resources to develop their critical analyzing skills.

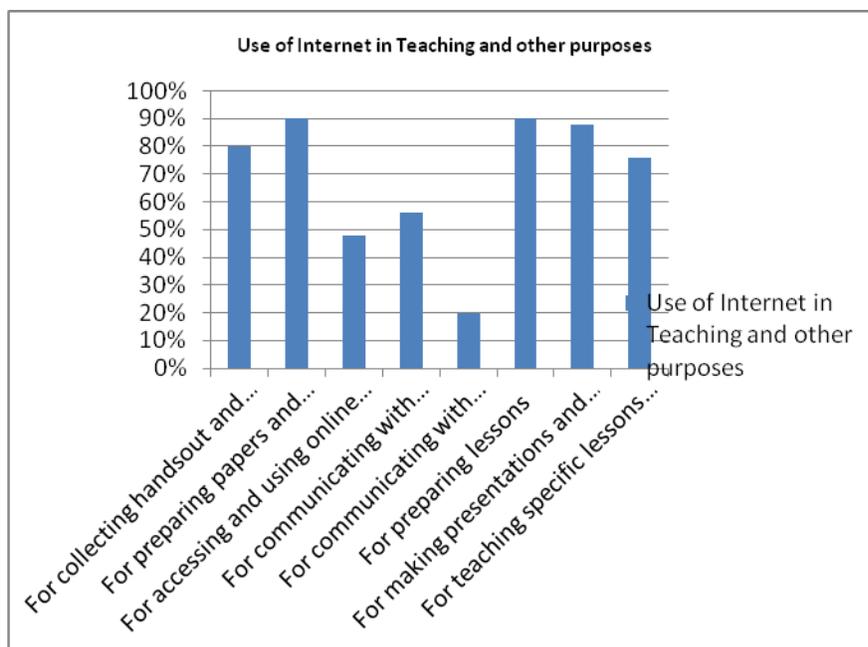


Fig 4.7 Use of internet by staff in pedagogical activities

Conclusion And Recommendation

Findings show that the use of ICT in Malaysian schools is not much for school management purposes; rather it is used for daily administrative functions of the school. Furthermore, ICT is not used appropriately and effectively in schools and as Ministry of Education do not have a policy for ICT, it is not being facilitated or supported in schools appropriately. Even though staffs have basic skills of using ICT, knowledge and technical skills in ICT and educational management is lacking in schools as a whole. Hence, schools do not have efficiency and capacity for using ICT in educational management.

Also, the results of this study indicate that the use of ICT can be used in school management by building physical structure and equipping schools with ICT facilities and by providing training for human resource for the system. One of the limitations of this study is the socio demographic characteristics.

Since this study had limitations to a fixed context, it is recommended for further studies to be carried out on this topic. Furthermore, planning must be done at the policy level in which it should be shared with the entire stakeholders and information must be dismissed and decisions should be transparent. Moreover, financial assistance is needed for all the schools and finally, school based professional development program or in-service training must be given for staff.

References

- Azian T.S Abdullah, (2006). Deconstructing secondary education: The Malaysian Smart school initiative. 10th SEAMEO INNOTECH International Conference 15-17 November 2006.
- Best, J., & Kahn, J. (1998). *Research in education* (8th ed.): Allyn and Bacon. Brummelhuis, A, T & Wijngaards, G. (2010). *ICT in Initial Teacher Training – The Netherlands Country report*. Retrieved October 11, 2010, from <http://www.oecd.org/dataoecd/32/30/45063786.pdf>
- Chai, C. S., Hong, H. Y., & Teo, T. (2009). Singaporean and Taiwanese pre-service teachers' beliefs and their attitude towards ICT: A comparative study. *The Asia-Pacific Education Researcher*, 18(1), 117–128.
- Cohen, L., Manion, L., & Morrison, K. (2000). *Research Methods in Education* (5th ed.). NewYork: Routledge/Falmer.
- Creighton, T. (2003). *The Principal as Technology Leader*. California: Corwin Press, Inc.
- Cuban, L. (2002) *Oversold and Underused: Computers in the Classroom*. Cambridge MA: Harvard University Press.
- Cuckle, P., Clarke, S., & Jenkins, I. (2000). Students' information and communication skills and their use during teacher training. *Journal of Information Technology for Teacher Education*, 9(1), 9–22.
- Davis, N., Preston, C., & Sahin, I. (2009). ICT teacher training: Evidence for multilevel evaluation from a national initiative. *British Journal Educational Technology*, 40(1), 135–148.
- Demiraslan, Y., & Usluel, Y. (2008). ICT integration processes in Turkish schools: Using activity theory to study issues and contradictions. *Australasian Journal of Educational Technology*, 24(4), 458–474.
- Dexter, S., Seashore, K. R., & Anderson, R. E. (2002). Contributions of professional community to exemplary use of ICT. *Journal of Computer Assisted Learning*, 18(4), 489–497.
- Divaharan, S., & Ping, L. C. (2010). Secondary school socio-cultural context influencing ICT integration: A case study approach. *Australasian Journal of Educational Technology*, 26(6), 741–763.
- Denzin, N. K., & Lincoln, Y. S. (Eds.). (2000). *Handbook of qualitative research* (2nd editioned.). Thousand Oaks: Sage Publications.

Gao, P., Wong, A. F. L., Choy, D., & Wu, J. (2010). Developing leadership potential for technology integration: Perspectives of three beginning teachers. *Australasian Journal of Educational Technology*, 26(5), 643–658.

Gosmire, D., & Grady, M. (2007). A bumpy road: Principal as technology leader. *Principal Leadership*, 7(6), 17–21.

Hadjithoma-Garstka, C. (2011). The role of the principal's leadership style in the implementation of ICT policy. *British Journal of Educational Technology*, 42(2), 311–326.

Gev, Y. (1995). *ISE – Information System in Education*. In H. Barta, B., Telem, M., & Gev, Y (Eds.). *Information Technology in Educational Management* (46-47). London: Chapman & Hall.

Hamzah, M, I, M., Nordin, N., Jusoff, K., Karim, R, A., & Yusof, Y. (2010). *A Quantitative Analysis of Malaysian Secondary School Technology Leadership*. *Management Science and Engineering*, 4 (2), 2010, 124-130. Retrieved October 8, 2010, from <http://cscanada.net/index.php/mse/article/viewFile/1281/1456>

Herselman, M, & Britton, K.G. (2002). Analysing the role of ICT in bridging the digital divide amongst learners. *South African Journal of Education*, 22(4), 270 – 274.

Hong, K. S., & Koh, K. C. (2002). Computer anxiety and attitudes towards computers among rural secondary school teachers: A Malaysian Perspective. *Journal of Research on Technology in Education*, 35(1), 27–48.

Lever-Duffy, J & McDonald, J, (2008). *Teaching and Learning with Technology*. (3rd ed.) Boston: Pearson Education, Inc.

Light, D. (2009). *The Role of ICT in Enhancing Education in Developing Countries: Findings from an Evaluation of The Intel Teach Essentials Course in India, Turkey, and Chile*. Retrieved October 5, 2010, from http://www.equip123.net/JEID/articles/4_2/Light.pdf

Ministry of Higher Education (2010). *Tenth Malaysia Plan: 2010–2015*, Putrajaya: Ministry of Higher Education (MOHE).

Ng, P. T. (2010). Educational technology management approach: The case of Singapore's ICT Master plan three. *Human Systems Management*, 29(3), 177–187.

Niederhauser, D. S., & Perkmen, S. (2010). Beyond self-efficacy: Measuring pre-service teachers' instructional technology outcome expectations. *Computers in Human Behavior*, 26(3), 436–442.

Nunnally, J. C. (1978). *Psychological Theory* (2nd ed.). New York: Magraw-Hill.

Popkewitz, T. S. (2000). The denial of change in educational change: Systems of ideas in the construction of national policy and evaluation. *Educational Researcher*, 29(1), 17–29.

Samath, F. (2010). *Education Reforms Herald Digital Learning, Radical Changes*. Retrieved October 10, 2010, from <http://ipsnews.net/news.asp?idnews=51995>

Stuart, L. H., Mills, A. M., & Remus, U. (2009). School leaders, ICT competence and championing innovations. *Computers & Education*, 53, 733–741.

UQ (2002). *What is ICT?*. Retrieved October 3, 2010, from http://study.itee.uq.edu.au/degree_programs/BInfTech/what_is_ICT.htm

Visscher, A, J. (1995). Computer assisted school administration: Where we and where should we go?. In H. Barta, B., Telem, M., & Gev, Y (Eds.). *Information Technology in Educational Management* (pp. 21). London: Chapman & Hall