The Impact of Technology Change in Malaysian Smart Schools on Islamic Education Teachers and Students

M. I. Hamzah, A. Ismail, and M. A. Embi

Abstract—This study is an attempt to investigate the impact of technology change in Malaysian Smart Schools on Islamic Education teachers and students. This study is trying to understand all aspects of the change process in Smart Schools and to understand the problems of students and teachers as they endeavour to improve learning and teaching in Smart Schools. Following the implementation of the Smart School pilot projects in the Malaysian secondary schools, this study is aimed at suggesting an approach that can be used to incorporate the use of computers and ICT in Islamic Education by taking into consideration the views, experiences, expectations and needs of the teachers and the students themselves.

In examining the new initiative of Smart Schools, a grounded theory approach was used in the early phase of the study as this approach is suitable for this relatively new field where little research has been done. This research began with the use of focus groups as a means to gain knowledge of respondents' views, perceptions and attitudes about Smart Schools.

This study found that the use of computers was the core feature of the change phenomenon in Smart Schools. Islamic Education teachers and students were hardly coping with the task of incorporating the use of new technology in their teaching and learning. Many barriers and obstacles in using new technology were reported by Islamic Education teachers and students. The most important barriers identified in this study are the lack of computers and available resources, lack of training, shortage of time and the pressure of a heavy syllabus and examination-centred learning.

Keywords—Technology Change, Islamic Education, Smart Schools, Teachers and Students.

I. INTRODUCTION

THE subject of this study is an investigation of the impact of educational change in Malaysian Smart Schools on Islamic Education teachers and students. In particular the focus is on the views and attitudes of Islamic Education teachers and students regarding technological and educational change in their schools and classrooms. This study also investigates the main barriers in implementing technology and ICT in Islamic Education teaching and learning.

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The use of ICT in schools is the current focus and concern of the Malaysian Government. This concern has been translated into long-term strategies and substantial funding initiatives. In the Smart School pilot project alone, RM300 millions has been allocated to develop the Smart Schools Integrated System (SSIS) (MSC 2005). The Smart School initiative has been identified as one of [i] the flagships in the Malaysia Super Corridor planning to provide skilled knowledge workers in ICT industries and companies. The Malaysian government is very committed to the use of ICT industries to boost our economy and to become a developed nation by 2020.

Given the importance of ICT strategies for the Malaysian Government and the substantial amount of money allocated for the development of ICT in Malaysian schools, it is extremely important to carry out a study on the impact of ICT use in Smart Schools and to evaluate the current use of ICT in teaching and learning. In this study the focus will be centred on reviewing and re-examining the impact of ICT use in the teaching and learning of Islamic Education.

II. PROBLEM STATEMENT AND RATIONALE OF STUDY

From the very beginning, the implementation of Smart Schools has been associated with problems. The most obvious problem was regarding the courseware provided for Smart Schools. The software currently used in schools in the Smart School project has been criticised by parents and teachers as sub-standard and not suitable for high-achieving students. Education Minister, Razak (1999) has admitted that the ministry's courseware is "not up to the mark." But he explained that it was for temporary use only and would be replaced in the software's second version.

Deputy Education Minister, Onn (1999), has also acknowledged this problem and vowed it would soon be solved. He promised that the new software will be better than the first batch since the new version will take account of the feedback from Smart School teachers who have been using the existing courseware.

The problem of the Smart Schools' software arises because the Ministry had failed to determine the needs of their clients from the very beginning of the software's development. The Ministry has confessed that it made a mistake in not taking the views of teachers into account and has given an assurance that the feedback sought from teachers should solve the problem. However, the Ministry also forgot to seek the views of

students who were the end-users of the software in the first place.

Initially, the project for designing and developing the software was awarded to the Telekom Smart School Sdn Bhd Consortium which sub-contracted it to several companies. According to Baba (2000), Director of Educational Technology Division Ministry of Education Malaysia, external consultants were appointed to develop the software. This included scripting, designing, graphic interfacing, animation, sound, video clips and storyboard simulation. Ministry personnel were only seconded to the company to review and evaluate the final product.

The monitoring process of sending Ministry personnel seconded to evaluate the software was a sensible move. But, again, the main question arises regarding the role of teachers and students in the development process. Significantly it has been neglected despite the fact that much research has stressed the importance of taking on board students' and teachers' views in any educational development and change intended to meet their needs (Fullan 2001).

In general, there was a lack of teacher and student participation in the planning of the initiative. Therefore, this study will attempt to understand the views of teachers and students in these schools regarding the changes imposed on them and will attempt to investigate their attitudes towards the changes and the barriers in implementing them.

Hammond (1990:340) said that not many research studies really try to open "the black box" in evaluating policy change in schools. The normal input-output research practice is only designed to determine whether the schools fully comply with the standards and regulations, or to make assessments simply by comparing test scores and academic achievements, without fully examining the participants' views and experiences. This study tries to fill-up this gap by studying the views of participants, in this case Islamic Education teachers and students, in the process of implementing and incorporating the new initiative in their own schools.

III. LITERATURE REVIEW

A. Technology Change in Smart Schools

Based on the history, Malaysian school reform after independence in 1957 was focused on building national unity through the creation of national schools using the national language. It was followed by major reform of the curriculum in 1980s which was targeted at the development of a plainly Malaysian-style curriculum, reducing the content-based syllabus and working around the National Philosophy of Education (NEP) to produce well-balanced individuals and citizens.

Nevertheless, in 1999, Malaysian schools witnessed the beginning of another major reform in the creation of Smart Schools. The Malaysian Government has established Smart Schools to capitalize on leading current ICT technology (Frost 2004), to take advantage of the development of the Multimedia Super Corridor (MSC) (Chan 2002), and to transform Malaysian schools into technology enablers (MMoE 1997a). The Smart School initiative was created as a direct result of the establishment of the Multimedia Super Corridor (MSC) in 1996. The establishment of MSC itself was inspired by the long-term planning of the Malaysian Government's Vision 2020.

There was a belief among developing nations in the 1990s that information technology could be used as the main means of rapidly modernising and transforming themselves into developed countries (Warschauer 2003). This belief motivated a number of developing and middle-income countries in Latin America, Asia and Africa to invest in information technology. Many of them invested heavily in the education sector and adopted large programmes to introduce ICT into the schools' curriculum (Edwyn 2001; Frost 2004).

Educational institutions in Malaysia also recognized that the world has changed in the age of information technology. The creation of the Multimedia Super Corridor and the announcement of the implementation of the SMART school by the Ministry of Education all over Malaysia has led to a call for the restructuring of our education system. The Smart School initiative is likely to change the traditional policies and practices of the curricula system, the educational delivery system and the educational evaluation system.

In order to encourage the development of ICT in Malaysia, the Multimedia Development Corporation (MDeC) has been entrusted to coordinate the overall implementation of these flagship applications in the Multimedia Super Corridor initiative (MSC 2007). The Government has identified seven areas to spearhead the implementation of its ICT flagship applications: Smart Schools, Electronic Government, Telemedicine, Multipurpose Cards, R&D Clusters, the World-wide Manufacturing Web and Borderless Marketing.

One of the reasons for the establishment of Smart Schools is to provide human resources and knowledge workers for ICT companies and industries for the next 13 years. The Malaysian Government, therefore, has outlined several important strategies to improve human resources in ICT which involve long-term planning to upgrade the quality of the current education system in primary and secondary schools and a key element in this planning is the establishment of Smart Schools (EPU 2002).

Mustapha (2004) said the establishment of MSC and the establishment of international ICT companies in the MSC has increased the demand for knowledge workers in IT industries. Concerns have been expressed about the lack of such workers in the MSC and the need for human resources in the future (EPU 2002; Mat Nor 2007). Hitherto, the Government has had to attract highly skills foreign workers to fill the vacuum in MSC (MSC 2004).

B. Teachers' Views Regarding Educational Change

The reasons for studying teachers' and students' views are grounded in the assumption that these views have a significant influence on any attempts to implement major changes successfully in schools. Many studies suggest that any educational change at schools should take into account the views of teachers (Fullan 1992; Fisher 1999; Harris 2001; Kirk 2001; Hess 2002; Crawford 2003; Flores 2005) and the views of students (Hess 2002; Quicke 2003; Riley 2004; Rose 2004; Wall 2005).

The views and attitudes of teachers toward educational change in their school may lead to their positive or negative reactions and practices in the classrooms. As a result of

clashes with the teaching profession over the changes involved, studies showed teacher motivation waned. Teachers' motivation waned after the implementation of changes which they perceived as clashing with their personal attitudes, views and knowledge (Kirk 2001; Crawford 2003; Flores 2005). There is always the chance that implementing change will affect teachers' motivation. Thus, many studies have suggested continuous support and ongoing opportunities for professional development should be undertaken to ensure the initial motivating effect of a new change is maintained (Crawford 2003; Flores 2005).

Teachers are at the heart of any education change and ultimately it is they who have the power to ensure whether change is implemented successfully or not in the classroom. MacPhail (2007) showed that tensions and conflicts can happen when teachers' interpretations and reconstructions of change differ from the way they are expected to be delivered. MacPhail said that it is vital and important to understand teachers and school conditions that strengthen or weaken the efficient and effective implementation of any curriculum change.

Teachers need clear information and guidance in implementing educational reform. Flores (2005) said teachers claimed a lack of information, training and resources that clearly illustrate the role and task expected from them. Teachers complained that their notion of professionalism was compromised by the unclear position which resulted from the new educational reform. Clearly, uncertainty, ambiguity and lack of understanding of changes imposed on them made teachers resist change initiatives. Personal experience with schools can influence personal views towards schools' reform initiative.

Many researchers have found that teachers were fearful to change and more comfortable with the present conditions. Harris (2001:27) found that teachers involved in Hong Kong education reforms were reluctant to change and preferred the status quo for fear of "losing face" in front of students. Dignity and authority for teachers is an important value in traditional Chinese custom and teachers would not like to take the risk of moving away from the traditional approach. Consequently, not many teachers are ready to abandon the normal and long-time classroom practices. This attitude is echoed in Malay culture which emphasizes on the credibility and the pride of teachers in their classroom.

In many cases, young people tend to be more responsive to educational reform than the older generation. Hargreaves (2005) found that older teachers have a tendency to resist changes in schools and challenge the outcomes of change whilst the younger generation of teachers coming straight from teacher training welcome change because they have learned the outcomes of change taught to them at university. Hargreaves' studies have confirmed the findings of many other previous studies that age, career stage and generational identity do have an impact on how teachers respond to change in schools.

Even though teachers are always associated with resistance towards change, some studies found that some teachers were positive and welcomed changes. Fisher (1999) found that many major concerns and criticisms of the National Literacy Strategy in the UK were not a problem and did not affect the

teachers in his study. The outcome of his survey was more positive than he anticipated when teachers responded positively towards critics' point of views like literacy hour structure, resources provided, greater emphasis on literacy and shared text work. This shows that in some circumstances, teachers appreciated and welcomed changes when they thought the changes suited them.

Education change is not an overnight job and it should be done in a gradual and continuing process. Harris (2001) suggested a transition phase to deal with emotional and social issues relating to change. She said that experiential learning before any reform takes place can help teachers to experience the future tensions and dilemmas within the change process, enlightening teachers with insight problems, thus enabling them to take more control over the change process when the time has come. Obviously, educational change is not an easy task because teachers have to change their behaviours and practices in classrooms and it takes ages to accomplish (Hargreaves 2005). The change is unlikely to occur unless the deep rooted practices in classrooms are changed.

C. Students' Views Regarding Educational Change

Fullan's (2001) study cited that the success of educational change in schools depends on what teachers do and think. Teachers are ready to change and respond positively, if they feel and think that the change is necessary and really needed. The same principle should apply to the students because they always feel left out and rarely think of themselves as participants in a process of change (Fullan 2001). Therefore, it is very important to carry out a students' and teachers' needs assessment and analysis as precursors to the planning of change.

To date, little research has sought directly the views of pupils as compared to those which have reported the wide range of teachers' views on problems in educational change. There is a doubt that students have the maturity, skills and experience to review the problematic situations and complicated relationships in schools. However, many researchers have urged the need to empower students and listen to them more (Fielding 2001; Rose 2004; Blossing 2005; Schratz 2005; Wall 2005) especially regarding local change initiatives that are related directly to them in classrooms.

The current practices in school environment do not favour students and their involvement is not taken seriously. Many studies offer suggestions to improve students' involvement like changing the existing discourse of teaching, learning and organization (Schratz 2005), creating an opportunity for them to express their concerns (Rose 2004), finding alternative communication mechanisms to improve their voice (Fielding 2001; Schratz 2005), directly involving them in any disagreement resolution with authority, and improving the current legislation regarding children's rights (Soar 2006).

Most of the time, students have their own views and their own needs on particular issues in education and at the end of the day, it is the students' own interest and attitudes that will really count to them in their learning. Schratz (2005) showed the differences between official standardized curriculum questions and those questions by children in practical daily life schooling. The purpose of a typical standardized school

question is seek to convey functional knowledge for surviving challenges in life which are already known by students. In his study Schratz found there were distinctions between standardized learning questions in the curriculum and daily life questions when students get involved in a learning project. Students were more concerned with their own interests in discovering the unknown world than answering the standard school questions.

One of the simple logics to listen to students on change is because they are simply the majority in schools and it is undemocratic to not listen to them. The central issues are power and authority, freedom and equality, and the values of democratic living (Fielding 2003). In Sweden, Blossing (2005) found that teachers rarely got responses from school leaders and other adults. Instead it was students who expressed more opinions and shaped the outcomes of improvement efforts. The students possess vast knowledge of daily school life from their daily observations and monitoring, therefore decisions about school change should be shared equally among the majorities in schools i.e. both the teachers and the students.

Listening and consulting students regarding issues which affect their lives is protected under the United Nations Conventions of the Rights of the Child (Rose 2004; Wall 2005; Soar 2006). Soar (2006) said that recent legislation by SEN Code of Practice UK has protected students rights to have their voice heard from making decisions to setting learning targets, choice of schools, in assessment of their needs, their involvement in transition planning, and their direct involvement in any disagreement resolution. Clearly, the need to listen to students has become more obvious and in some countries, like UK and Republic of Ireland (Riley 2004; Rose 2004) appropriate measures have been taken to change legislation and policy documents.

Research has found that by allowing students to express their views will benefit all including students, teachers and school authorities. Rose (2004) noted the following benefits of student involvement; students are more accurate in their judgments, their self-confidence and awareness increases, there is a significant impact on teachers work, school staffs gain understanding of their students' needs, and students become more respectful and collaborative with school cultures.

In many cases, research has found that the views of students differ from the views of teachers and school authorities. Riley (2004) showed that teachers over-estimated the extent to which students liked schools and their interests in learning. Furthermore, teachers underestimated the values attached to school works, support over homework, bullying and student safety, skipping lessons, attendance at parents' evening and unauthorized absence. Hence, by listening to the views of students and engaging in mutual dialogues teachers and students will improve their understanding of one another.

IV. RESEARCH METHODOLOGY

A. Focus Groups

In this study, focus groups were used as a method for qualitative data gathering. Focus groups have the potential to gather large amounts of very rich and dynamic data (Barbour 1999). The targeted participants for these focus groups were selected from Smart Schools, and gathered together to discuss a selected topic. Krueger (1994:6) mentioned that the participants in focus groups are normally selected "because they have certain characteristics in common that relate to the topic of the focus group". Krueger (1994) also mentioned that focus groups are special and specific in terms of purpose, size, composition and procedure. The participants involved in this study were chosen from Islamic Education teachers and students in Smart Schools and the size of each group was around 3 to 5 members who were relatively homogeneous in terms of their knowledge of the topics discussed.

The main aim in this study was to gain information from the focus groups about Smart Schools by concentrating as much as possible on the participants' interactions and group discussions. The discussions were planned to explore specific topics related to the research and probe the views and experiences of the students and teachers in Smart Schools without paying too much attention on reaching consensus and problem-solving. Litosseliti (2003: 9) said: "Focus groups are intended for gaining information and listening to people's view in a non-threatening environment – not to teach, inform, make a decision or resolve conflict".

Focus groups are focused in the sense that they involve some kind of collective activity around a certain number of issues (Barbour 1999; Litosseliti 2003). The main focus of activity in this study was discussing and debating educational changes and problems in Smart Schools. Focus groups are not alien in educational research and have been used extensively in the educational field (Barbour 1999; Cohen 2000; Litosseliti 2003) even though they were used originally in marketing research.

Several advantages have been stated in the use of focus groups for research such as the opportunity to "gain insight into participants' views, perceptions and attitudes on a given topic" (Litosseliti 2003:8); the opportunity to analyse the interaction between participants within the groups (Oates 2000; Litosseliti 2003); generate research hypothesis (Litosseliti 2003); and assess the needs of participants (Krueger 1994).

Focus groups provided the opportunity for me to analyse the views of the students and teachers regarding the Smart School project. It gave me an opportunity to understand participants' attitudes when they interacted with each other as they discussed Smart Schools.

The focus groups gave the participants the opportunity to raise issues in relation to a topic that they considered important and listen to other opinions. They had an opportunity to probe each other's reasons for holding a certain view. During these discussions, while listening to the other people, participants were able to qualify or modify their views, and express their acceptance or rejection of others' views. This could not have happened without the opportunity of hearing the views of others.

B. Focus Groups Data Analysis

Stroh (2000) explained that there are various approaches to analyzing interview data which depend on the aims of the research. I have applied a more grounded approach in focus group analysis compared to in-depth interview analysis. This is because I started the study free of any established or grand

theory and I wanted to explore the views, interpretations and attitudes directly from the participants. In this phase, I was not in a position to test pre-conceived theories.

In their purest form, the research themes emerged from the data, whereas, in the last phase of interviewing which were one-on-one interviews, I wanted to explore in-depth themes, meanings and concepts which had emerged out of the focus group data and survey findings. Burton (2000) advocated a grounded approach to qualitative data analysis in which codes are allowed to emerge from the data, rather than being established before the research is conducted.

In this study, I have followed the synthesis approach for data analysis in grounded theory provided by Eaves (2001). Eaves arranged a multi-step data analysis technique to analyse the data based on the work of prominent grounded theorists like Strauss, Corbin and Charmaz. Eaves also made a diagram of the analytical steps to help researchers to determine each specific analytical step before they proceed to the next step of data analysis.

The step-by-step guide suggested by Eaves (2001) is first, open coding or line-by-line in-vivo coding; second, listing, organizing and labelling all line-by-line in-vivo coding; third, grouping all similar code phrases; fourth, grouping all similar code phrases to create clusters and meta-clusters; fifth, these label become one concept; sixth, group all similar concepts together to make category; seventh, determine the sub-category; eight, determine the linkages between categories to allow some conceptual order to emerge from the data. This can be done by constant comparison, testing hunches and using memos and literatures to understand and compare relationships.

Following the completion of the open-coding process, I followed the data analysis by the axial coding to identify the relationship between the categories. At the end of the data analysis, I chose one core category as a main category in my study. Eaves (2001) said that the core category is a problem shared by participants in the study but not clearly expressed by them.

V. FINDINGS

Seven focus group interviews were carried out in four schools involving ten teachers and seventeen students in two states, Selangor and Negeri Sembilan. There were four focus groups of students each consisting of four to five students and three focus groups of teachers each consisting of three to four teachers.

Two schools were selected from the state of Negeri Sembilan and another two from Selangor. These four Smart Schools were purposely selected because they represented different types of schools and would provide the requisite diversity on the background of the participants. The school types represented were: fully residential schools with selected high-achieving students, day schools, single-sex schools and religious orientation schools.

Coping with the Use of the Computer in Smart Schools

Coping with the use of the computer in Smart Schools appeared to be the core feature of the change phenomenon in Smart Schools. This emerged as a central theme and discussion about its usage was very broad and encompassed all other topics discussed in the interview. The respondents discussed how to cope with the use of the computer in teaching and learning in Smart Schools.

The use of the computer was the obvious instigator of change in the Smart Schools. From the beginning, its widespread use appeared to be the main factor that affected both students and teachers. One of the students made a comparison between Smart Schools and other schools and highlighted the use of the computer as the main factor. He said: "You can see the difference between this school and other schools. Computer use is more widespread". According to the students, this is not only limited to traditional learning activities in the classroom but also to activities outside the classroom. For instance, identification cards for library use and presentations at school assemblies.

Islamic Education teachers were also affected by the phenomenon. Some of the teachers had never used a computer before and now they felt themselves to be more computer literate. One teacher described this phenomenon. He said: "Some teachers, who themselves have never been taught using computers are now able to use the computers". Hence, in one way, the arrival of the computer in Smart Schools has provided some teachers with a unique opportunity to learn how to use the computer.

In Smart Schools, the computers are widely used, not only in teaching and learning but also for school functions and activities. One student explained: "For school functions, we use multimedia, so it looks cool". Students even use the computer in extra-curriculum activities such as designing the school's magazine, which has helped many students to enhance their computers skills. "School Magazine Khazanah is done by Form 4. 100% computer generated. No handwriting", said another student.

The Emergence of New Technology

This phenomenon of "widespread" computer use in Smart Schools was influenced by the emergence of new technology. The emergence of new technology in Smart Schools was clearly indicated by the obvious and sudden arrival of new computers and software, new computer labs, new cyber cafés, new LCDs and new OHPs in schools and classrooms.

The common answers from participants when asked about change in their schools were frequently related to the new computers and computer labs added to their schools. The participants spontaneously and immediately linked change with the arrival and existence of new computers in their schools. The first answer given in the interviews was related to the emergence of new computers and the obvious use of computers in Smart Schools. This indicated how significant this experience was for these students and teachers.

The increasing number of computers in Smart Schools had increased the chances for students to use them, as one student said: "Smart Schools provide more chances to use computers compared to ordinary schools". Another student praised this phenomenon and said: "This school is more complete with more ideas generated from computer use". Students felt that with the use of the computer, the change in Smart Schools was

"more effective, up-to-date and sophisticated when the computer is used".

Teachers and students said that there was a significant number of "new additional computers" added in their schools after they became Smart Schools. In two schools, (AS and TK), computers can be found inside the classroom. School AS equipped every class with "four computers and a printer". Meanwhile, School TK gave its attention more to exam classes as "all Form 3 classes have computers" inside the classroom.

The establishment of computer labs had led to an obvious increase in the number of computers available in Smart Schools. There were at least 2 computer labs in each school and they were used for teaching and learning purposes by the teachers and students. According to the students, some subjects like Science, English, Malay, Economics and Mathematics are now regularly taught in the computer labs. The computer labs also allow the students to access the Internet and one student said that he always uses the computer labs in "free times" and "in between lessons".

Students were attracted to use computer labs because "it's very informative" and had "lots of pictures" that makes learning "more interesting" compared to the previous learning style, which was described as "boring and sleepy". Computer labs in Smart Schools are Internet ready and students enjoy using it. As one student said: "When we were in Form 2 and Form 3, we regularly used computer labs to explore certain websites or Tutor. We enjoyed the learning". Computer labs had another attraction for some students. They were described as "comfortable, cool with air-conditioning" that attracted students to use them.

The number of new computers also increased with the establishment of Internet cafes or cybercafe. This cybercafe had been established from the initiative of schools administration, or donated by a parents association like the one in School SR or donated by the "alumni" as in School AS. These Internet cafes have been given catchy and attractive names to catch the attention of users and to reflect their purposes. One student said: "It's more or less like a cybercafe for students use and named Cyber Didik because it's more educationally oriented".

Cybercafes also have been named "Cyber Brigade" and "Cyber Maths" which described as "full of mathematical formulae". Sometimes they are named after the sponsor, like "Perodua Lab". There have also been charges imposed on the users as other commercial cybercafes do outside the school. As one student said: "Password is been given to use cybercafe for a certain fee. It is easy, we can use it whenever we like, or at specific time allocates by school"

Students acknowledged that it was easier for them to get access to the information by having a cybercafe inside the school. One student said: "Students from the other schools have to go to the cybercafé, but here we just click to get the information. We have the Smart Schools Management System". Smart Schools have provided teachers and students with access to more resources and information compared to other schools with the help of Smart Schools' learning resources, for example TLM software (Teaching and Learning Material) and SSMS (Smart Schools Management System).

Making available TLM software and SSMS, designed and created by Telekom Smart Schools, provided another obvious change in the Smart Schools. SSMS is referred to as "intranet" which was used as an internal networking system inside the school. SSMS also has been used "for communication between teachers and students" and "for learning and management purposes" according to the students. For the teachers, they were impressed with SSMS software when "all the personal data about students and parents is available over the Internet and Smart Schools System" and "exam results will be linked to parents". According to the teachers, the class teacher was required to enter all the data regarding classroom management in SSMS.

The software provided in Smart Schools was referred as sophisticated learning tools in which "every topic is covered in the software, with the schedule and the topics. It means no need to open the textbook". The students looked at these SSMS and TLM software as new inventions that distinguish Smart Schools from other schools and at the same time offer them advantages compared to other schools.

The participants also talked about the obvious appearance of LCD projectors everywhere "even in the library". Computer labs and sciences labs have been equipped with an LCD projector. As one of participants said: "Each of 3 science labs has an LCD projector and a computer". Projectors have been used frequently for teaching purposes and for other activities as well. One teacher said: "Previously we only used tape recorders, but nowadays we can use LCD projectors. We have every facility even though they are small in number. This school has only 2 LCD projectors and a small number of computers". However, some of the teachers believe that the number is still far from enough.

Other respondents also talked about the increasing number of overhead projectors (OHP) in Smart Schools. They have been supplied by the Ministry of Education and distributed to all classes especially for those involved in major examinations such as the Lower Secondary Examination (PMR) and the Malaysian Certificate of Education (SPM). One student said: "The government supplies lots of OHP after we have become Smart Schools. Form Three and Form Five classes all have OHPs".

In conclusion, participants acknowledged that the changes in Smart Schools were very much related to the changes in computer technology. Smart Schools were created to meet the demands and challenges of the Information Age, to cater for the needs of ICT literate schools in Malaysia. The need for technology changes was acknowledged by one teacher who said: "The change towards Smart Schools is based on a general concept; technology changes, therefore education changes as well"

In these new innovative schools, participants now have ready access through ICT technology to a huge range of information on the Internet. Software focused on learning resources also has been created, organized, and managed to be responsive to school's needs and relevant to the curriculum. However, some teachers and students have not yet been satisfied. One teacher pointed out this problem: "But unfortunately the change is not in line with the clients' needs, the teachers' and the students' needs".

The Emergence of New Technology in Teaching Islamic Education

Teachers are challenged by their new role in Smart Schools, a role very much related to the new technology available in these schools. One teacher said: "Technology changes, therefore education changes as well". They agreed that their role has to change as a direct result of the introduction of the computer in schools. The teachers agreed that the new role is "challenging" and "different" from the previous practice.

The Islamic Education teachers are fully aware that they are required to cope with computers skills in Smart Schools. One of the teachers confidently said that they are "ready" to use computers. He claimed that all Islamic Education teachers have their own computers, they know how to use them and they know how to surf the Internet. However, one teacher refuted this claim and said that they need more "training" on how to use computers in the classroom.

The teachers agreed that the ICT technology is beneficial for their work. One teacher said: "Previously we wrote exam questions in long hand but nowadays we are using computers. It takes only one minute, because we have an information bank for exam questions. We just do the editing work". Another teacher said that the questions have been collected, copied on CD and shared with other boarding schools.

Teaching activities now involved the use of Internet and computer software. One teacher mentioned the use of PowerPoint presentations in the classroom. Another teacher said that they made use of educational software like "Al-Bayan" and "The Hajj" to teach about pilgrimage to Mecca. One teacher mentioned the positive responses from his students in the classroom by showing a copy of a real picture of "The Kaabah" or the sacred house of Allah in Mecca. The picture was downloaded from the Internet.

Teachers are well aware that the students "loved" to use computer in their learning. According to one teacher, among the activities that students enjoyed doing and completing is "the folio task" using a computer. He said the result of students' work in completing this task was "brilliant and very impressive". This has encouraged the teachers to involve more computer based activities in their classroom. One teacher said that he has incorporated ICT to "40% to 50%" of his teaching.

However, not all of the teachers have incorporated ICT in their classroom as admitted by teachers in School AS. One of the teachers said: "We are not using computers in the classroom yet, the facilities are limited, don't be surprised if the lecture technique is still widely used". Students in School KJ also admitted: "Not one of Islamic Education teachers takes us to the lab, they only teach us as usual". Another student in School SR said: "Islamic Education teachers are not using computers yet".

One teacher raised the problem of monitoring and supervision when teaching using computers in the lab: "Whenever we ask the students to go to a website, can we be sure that they are actually opening the website we ask them to open? Usually they will visit other websites. I have taken them to the computer lab before. We can't just leave them unsupervised". She said that teachers are normally not aware what happens at the back of the classroom. The teacher claimed that this problem is worse when the students are not

interested in Islamic Education websites such as "Islampedia", but in other websites instead.

Teachers were doubtful that self-access learning can be a good approach for Islamic Education because of the nature of the subject. One of the teachers said: "This subject is not like science subjects. It involves the teaching of Islamic jurisprudence, verses from al-Quran and Islamic beliefs. To learn these subjects, it must be supervised by the teachers". Teachers are concerned that some topics in Islamic Education "can easily be misunderstood" if learnt only using computers. One teacher said that the nature of teaching Islamic Education is different from other subjects. Some topics in Islamic Education are abstract in nature and involve concepts that "are non-applicable and non-experimental based like in the science subjects".

One of the teachers doubted whether the self-access approach is suitable for all students in Smart Schools. He said that some students were not able to learn by themselves, and teachers need to "guide them". Therefore, he said, as far as he concerned, the conventional technique of lecturing is still "widely used" in schools to cater for this type of student.

The Ministry of Education has taken the step to make Islamic Education a Smart Subject by developing a new curriculum for it which incorporates ICT elements. According to one teacher who is the Head of Department of Islamic Education in one school, the new curriculum "has been written, retyped according to the Smart Schools concept and methodology". There are levels of learning in the syllabus starting from first to third level of learning which are similar to other Smart subjects. This new syllabus is different from the old syllabus. One teacher explained: "There must be at least 1% ICT element in the textbooks like website addresses for further information, and icons and symbols like a picture of a computer which can further expose the students to ICT".

Barriers in the Implementation of Technology Use in Smart Schools

The reasons why some teachers were reluctant to use computers can be found in the section below:

Computer Problems

There were many complaints about the shortage of computers. One teacher said: "The facilities, the computers and the equipments are limited". School AS was heavily affected because the school's ICT facilities were not ready. One teacher said: "We had computers in the classroom in the old school but after moving to the new building we don't have computers in the classroom, because they need to do new cabling work."

One of the schools had a problem with old, outdated and slow computers. One student explained further: "We need high speed computers. Now we only have a 350Mhz one with slow Internet connection. I wish at least for 1.6 to 3.0 GHz". According to one teacher at the school, it not been replaced for a long time. He said: "It's been already 10 years, no, 7 years, and they haven't replaced it". One teacher said: "The costs of providing computers and the maintenance cost in all Smart Schools are very high and the Government cannot afford

them". Another teacher concluded: "At the end of the day, we turn back to the old technique, do the talk and chalk".

Some of participants were not convinced by the contribution of computers in teaching and learning. One teacher said: "Sometimes the use of Information Technology does not necessarily make teaching easier". One student said that computers sometimes can be a distraction for learning. He said: "Computer is distracting. It's more on enjoying and playing. It's too many entertainment programs on the Internet".

Internet Problems

Internet connection is one of the problems in Smart Schools. One student said that the Internet connection is "very slow at night", "a bit faster in daytime" and "sometimes jammed". It did not allow students to open more than "three windows" at one time because it will crash. In addition, sometimes the Internet connection "is down due to thunderstorms" which prevents students from accessing the Internet. Teachers were also cautious about this and one of them said: "We must have a contingency plan when the server is down or when we have no electricity".

Teachers also said that it is difficult to use the Internet as a learning tool since the information is "scattered" and "not related to the teacher's lessons". One teacher has suggested the development of "a website that can gather all accurate information". One teacher said that she had to search all the available websites and choose for her classroom unlike Maths and Science which have "many sources available on the Internet for Smart teaching". But there are also private agencies who have tried to establish learning portals and websites according to Smart School standards.

Software Problems

Students said that the Smart Schools software was not compatible with the national textbooks and one of them said: "Even the chapters are different". One student suggested looking into this problem and "upgrading the Smart software in accordance with the national textbook". The reason for that, according to the student, is that they have to answer the exam questions which are based on the textbook. A student said that some of the content in Malay Language software is not so important, and suggested it should not be included in the software. Another student went further and claimed: "There was wrong information in the software"

Another student suggested that Smart School software should be developed professionally. When asked on how it should look like, students said: "It should be fun", "not look like something boring", and "not slow like pre-school children's software". The conversation in the language software was criticized by the students because it was "too slow", "not motivated" and "boring".

Islamic Education teachers said that good Smart Schools' software for Islamic Education "does not exist yet". Currently, they use software developed by a private company. Islamic Education teachers said that they really needed software that was "purposely built according to the Islamic Education syllabus"

Workloads

In School SR, students felt that the workloads had increased compared to before because they have to "search and work on our own", unlike before when "teachers gave us all the information". One student said: "If you fail in searching for information, and are delayed, then it will be a burden on you".

In School TK, students complained about the "lots of homework". This problem became worse because the students had to participate in extra-curriculum activities after school, hence the "schedule is packed in the evening".

Students also complained that teachers were "not always available for lessons as they attended Ministerial tasks to prepare exam questions and courses of examiners". This was conceded by the teachers. One of them said: "The problem arises when the teachers have to leave the schools for Smart School training and courses".

Time Constraints and Time Consumption

Time constraints are one of the frequent issues stated by students and teachers. Students in school SR said that it is difficult to do self-search because of time constraints. Some of the students felt that learning using a computer is very time consuming and they had only "one hour and 10 minutes" in the classroom. If they do not have the Internet at home then they have to go to a cybercafe outside the school which is very difficult for them.

Teachers said that they have to prepare 10 minutes earlier if they want to use a computer lab for teaching. They have to go the classroom and take the student to the computer lab and sometimes the distance between the classroom and the computer lab is quite far. The fact that the computers and the Internet connection are very slow also contributes to this problem. One student said: "It takes 5 minutes to enter or log in the computers and another 5 minutes to log out".

Examination Attitudes

Exam-centred learning is one of the obstacles in implementing the Smart School concept of teaching and learning. Students were more concerned and interested in the outcomes of examination. One student said: "Learning using a computer is only to deepen your knowledge but it does not help you in your examinations". They would prefer to prepare for examinations, than by attending a specific computer literacy class or learning computer skills in their classroom. One of them said: "We can learn with computers at any time, but we have to prepare for the exams first". Another student said: "That's why we're not that bothered if teachers just teach during classes based on the syllabus and not using ICT".

Students also prefer to use the national textbook compared to the Smart School textbook because the national textbook is more compatible with the examination. One student commented: "Examinations were based on the school textbook whilst the Smart School textbook was just like an additional source to let students be more aware and help do their work". According to one student: "There are differences in the information content between textbooks and the Smart system". The students were preferred the national textbook because it was the main resource and the public examination questions will be based on.

This mentality and attitude also affects the Islamic Education subject in schools. According to the teachers, Islamic Education nowadays is not a core subject like before. Now it has became an elective subject even though it still remains a compulsory subject for Muslim students. As a consequence the students are more interested in other subjects like Additional Maths, Biology, Chemistry and Physics which described are by the teachers as "commercial subjects", "important for their career", and "can guarantee them a place in a university".

The Islamic Education teachers complained that students "neglected", and "paid little attention" and "did not participated actively" in the classroom. Therefore, one teacher said they really need "creative and attractive" software that can attract the interest of the students.

Lack of Training

Islamic Education teachers said that they have not undergone any training on Smart Schools except for general briefing about the Smart School, the new curriculum, the new syllabus, and the new teaching and learning. One teacher said: "The training course is trying to persuade us to follow the latest developments in Smart Schools even though we have not been chosen as a Smart subject, and try to implement it manually". This training course encouraged teachers to implement Smart School concept of learning even when there was no computer availability in schools.

One teacher said that he was regularly called for Smart School training organized by the Department of Teachers Development at the Ministry of Education. He said this is not for Islamic Education but for other Smart subjects and he was invited because of his position as Head of Department. Training was regularly done for teachers who are involved in Smart subjects like Mathematics, English Language, Malay Language and Science.

VI. Discussion

Views toward the Emergence and the Use of Computers and ICT in Smart Schools

The need to use computers and ICT in Smart Schools has been an important and driving factor in the Smart Schools initiative in the eyes of Islamic Education teachers and students. According to them, the use of computers and ICT in Smart Schools has affected their work and studies in Smart Schools. They claimed that the current changes in Smart Schools and the need to use computers and ICT, in some degrees, has affected their classroom activities. They also agreed that the Government is planning to implement Smart Schools nationwide in the coming years. This is not a surprise since the Malaysian Government thinks ICT can be used as a leaping frog for the nation's progress in the next decades.

This policy introduced by the Malaysian Government is following and reflecting the trend of Governments throughout the 1990s to launch new policies in ICT, to enhance national educational initiatives like "Technology Literacy Challenge" in the United States of America, "National Grid for Learning" in the United Kingdom, "ICT Masterplan" in Singapore and "Special Administrative Region" in Hong Kong (PCAST 1997; Selwyn 2001; Yuen 2003).

The Islamic Education teachers and students in this study agree that the current educational change in Smart Schools is closely associated with "technology changes" around their schools. Findings from focus groups clearly indicate that the changes occurring in Smart Schools are positively related to the emergence of new technology in ICT and the use of computers in Smart Schools. The introduction of the Smart Schools Management System (SMSS) which imposed on all teachers in Smart Schools to log-in their attendance, manage students' affairs and plan lessons using computers has forced Islamic Education teachers to master the new technology.

Meanwhile, the Smart Schools Management System (SMSS) is very important for the students in this study to get connected to the Internet and have access to email. The students also reported that sometimes they use the Smart Schools Management System (SMSS) to practise their learning activities.

Throughout this study, I have found that the attitudes of Islamic Education teachers and students are very positive towards the current change in Smart Schools. From the beginning of the focus group study, the participants were very receptive toward the Smart School initiative. The participants have welcomed this new ICT policy which is in line with global trends. Despite this, the study has found that the participants are not very pleased with the implementation of the initiative. The lack of computers and training were among the significant problems raised by the teachers in the implementation of the Smart Schools initiative.

This study has also found that a great deal of emphasis was put on hardware and software rather than training and staff development. Reports from the respondents show that a large number of new computers, new computers labs, new cyber cafés, new LCDs and new OHPs in the classrooms appeared in Smart Schools. The literature (Chan 2002; MMoE 2003; MMoE 2004) also shows that much of the Smart Schools' funding was allocated for the development of hardware and software such as the Smart Schools Integrated Solution (SSIS).

Too little effort was spent on educating teachers in technology, while a great deal of effort was spent on funding hardware and software in Smart Schools. Reports on ICT in the past have indicated the same problem and the urgent need to strike a balance between the development of hardware and the development of teachers' skills and knowledge (Fullan 1992; Cuban 1993; Budin 1999). Many researchers (Farrell 2000; Cuban 2001; Selwyn 2001; Robertson 2003) have been arguing the rationale of such large funding in ICT infrastructure and doubt the returns of such huge investment in the teaching and learning process in the classroom.

The findings show that ICT is very popular among the participants. Most of the participants believe this new initiative has given them a chance to obtain some training in computer literacy. The students believe that the use of ICT in schools reflects the good status of their schools and being selected as a Smart School is perceived as an advantage and has been described by students as "sophisticated and up-todate".

Perhaps this finding is not as strange as might be expected. It is important to note that Smart Schools are not typical Malaysian schools. First, they are schools which have been

specifically set up by the Ministry of Education to support educational reform using computer technology. Second, they have significantly more technology equipment per-capita than the average school in Malaysia. Third, they are in excellent condition to support curricular and pedagogical change in the classrooms.

Despite this, what was not expected from the findings was the low level of computer use in the teaching and learning of Islamic Education despite a significant investment of ICT resources in Smart Schools and the strength of interest of Islamic Education teachers in ICT. The Islamic Education teachers in this study have admitted that computers are rarely used in their classrooms even though they have recognized the importance of ICT and the popularity of computer use among their Smart School students.

These Islamic Education teachers and students maintain that time constraints and examination-centred learning are among the obstacles that have forced them away from using computers in the classroom. One teacher said: "Our education system is based on examination and our examinations are based on textbooks. At the end of the day people only look at the examination results". The obligation to perform well in the exams and achieve excellent results as demanded by schools and parents has made the teachers and the students very conscious in their teaching and learning activities. They had to choose the appropriate means to ensure their objectives can be achieved.

The students are convinced that computers do not help them in the examination. They rely more on teachers to help them achieve an excellent result. More than one student said that teachers remain the main source for learning. The computer is just a tool and an additional source for learning. As one student said: "It's just a tool and a medium for learning". This shows that the students do not accept ICT and computer literacy as a goal in itself but only as a tool and means to motivate learning in the classroom.

The Islamic Education teachers in this study are even more convinced about using national textbooks as their primary means of teaching and the most important tool in their kitbag. The obligation to deliver the national syllabus in a tight period of time according to school standards has forced them to resort to the use of textbooks in the classroom, in the belief that they can deliver the syllabus "quickly and faster". These teachers believe the current technology provided by the Ministry of Education and the software available on the market is not sufficient to help them to cover the whole syllabus.

One teacher stated clearly that the main goal of a school is to strive in examination and not to teach computer literacy. He said: "Our main goal is excellence in academic studies, and this excellence can only be proven by excellent examination results. We are not here to prepare students with computer literacy. If that is the case, I think we have already achieved it because nowadays all students are computer literate which they have acquired by themselves".

The implication of this attitude is that even though Islamic Education teachers and students agree that the computer is useful as an additional resource in learning, they believe its potential is very limited in achieving the main goal for a school which is an excellence in academic study. Another consequence of this is it is not difficult to understand why the

main use of computers by Islamic Education teachers and students in this study is limited to administration tasks, clerical work, and to other activities, rather than in teaching and learning activities in the classroom.

There is no evidence in this study which shows that these teachers and students oppose the use of ICT and computers in Smart Schools. In fact, the finding shows that Islamic Education teachers and students support the use of computers in Islamic Education. This finding is consistent with other research. It has found little evidence of technology resistance like cyber phobia or technophobia and towards the use of ICT and computers in schools (Cuban 2001a; Conlon 2003). Watson (2006) said that very rarely teachers oppose planned change by policy makers. Instead, they are very receptive and always welcome innovation. Teachers will resist innovation only when it fails to identify the difficulties and liabilities faced by them in the implementation process and the failure to establish mechanisms to uncover barriers and to lift them.

Much research (Cuban 2001a; Hayward 2002) shows that many teachers and students are serious and keen users of computers and spend more time on computer outside the classroom. There must be an explanation why those who have been identified as serious and keen user of computers outside classrooms, are reluctant to use them in the classroom. In this study, the reasons behind their reluctance to use computers in the classroom seems hugely related to external factors such as computer availability rather than internal factors such as teacher attitudes. Other than this, no evidence has been found that Islamic Education teachers and students resist the use of the computer in teaching and learning Islamic Education in Smart Schools.

Views on Barriers in the Implementation of Technology Use in Smart Schools

Lack of computer access and availability is one of main problems in implementing ICT in Smart Schools. Therre are many reasons behind the lack of access to computers in the schools as reported in much research (Hodas 1993; Murphy 1998; Mumtaz 2000; Owston 2001; Cuban 2001a; Ainley 2002; Condie 2002; Cuckle 2002; Zhao 2002; Robertson 2003; Tearle 2003; Sutherland 2004; Kompf 2005). Research shows that a supportive school environment and easy access to technology are very important in ensuring successful technology integration. A lack of computer availability in schools is able to prevent the frequent use of technology in schools.

Obviously, in this study, accessibility to computers has been problematic for Islamic Education teachers. The present policy in Smart Schools to have dedicated computer labs seems to be an important issue which may have contributed towards the lack of access for Islamic Education teachers to the computers in their Smart Schools. They complain that computer labs are not only too far away from the classrooms but may need to be booked far in advance.

The small number of labs and the high demand to use them has created "clashes of timetable and problems to find suitable time for everyone". In this study, I have found that Islamic Education teachers rarely use computers despite their enthusiasm for them.

This finding sharply contrast with the finding of Mumtaz (2000) and BECTA (2004) that shows little enthusiasm and little interest of teachers in using computers in schools. In this study, however, other factors like the limited number of computers and restriction on using computer labs are among the major factors discovered as discouraging Islamic Education teachers from greater access to the computer.

Benchmarking research (MMoE 2004) on Smart School initiatives shows that the ratio of computer: students was 1:26 students per computer in secondary schools and 1:43 in primary schools. This ratio is still lower than that achieved in developed countries like 1 to 3 students in US and Australia (OECD 2006:1), and 1 to 3.7 students in the UK (BECTA 2006b:20). However, the launch of the Smart School initiative has undoubtedly improved the ratio of computers to students in both primary and secondary schools.

Nevertheless, the Islamic Education teachers in this study hold the view that there are still insufficient numbers of computers available to them. They demand more computers available in schools if the Ministry of Education wants them to continue trying incorporate ICT into their work. The limited number of computers has seriously affected their enthusiasm for preparing lessons using computers. As a consequence, they have resorted to the conventional methods of teaching such as giving lectures and using existing technology aids such as the Over-Head Projector (OHP).

The issue of time constraint raised by Islamic Education teachers and their students needs to be considered in order to ensure the success of technology integration in classrooms. The outdated hardware and computers and slow Internet connection have contributed towards the issues of time consumption when dealing with computers in Smart Schools.

The fact that Islamic Education teachers and students are overloaded with a heavy syllabus and overburdened with examination pressures has made them more conscious and concern of the precious value of time and the necessity to avoid time wasting. In this study, I have found that the teachers and students are not convinced that new technology in Smart Schools can help them in delivering the heavy syllabus and preparing for examinations. As a result, learning with technology does not always go as planned and often ends up with time wasting.

The pressure of examination and heavy syllabus clearly influenced the use of ICT in Smart Schools. In this study students were very obviously concerned about examination achievement and academic excellence. They said that the examination results are far more important than picking up computer skills. They argued that computer skills can be developed and learned later on and at any time. What they have to focus on are their examinations.

Consequently, students are not bothered if the teachers do not use computers in the classroom as long as they can achieve excellent exam results. In fact, surprisingly, the students believe that the computer does not help them in examinations. They said that no one uses the computer labs prior to examination time. According to the students, computers are less used by those involved in major examinations like PMR

(Lower Secondary Examination) and SPM (Malaysian Certificate of Education)

This attitude is also shared by Islamic Education teachers who argue that excellence in examinations is the ultimate goal to aim at in Smart Schools and thus all learning activities should help students to achieve better examination results. These teachers say that it is a matter of fact that the Malaysian education system is more examination-centered and that the authorities and people in general measure success in learning by examination results.

Therefore, all activities that encourage excellent results in examinations should be the priority in teaching and any activities that do not help teachers to build up good results should be abandoned. In this study, not many Islamic Education teachers believe that ICT can enhance academic achievement and help them to cover the national syllabus which is examination based. This belief is shared with some researchers in ICT who also doubt the contribution and achievement of ICT in learning after decades of huge investment (Hodas 1993; Cuban 2001a; Robertson 2002; Selwyn 2003; Andrews 2004; Wellington 2005).

On the other hand, this belief can be sharply contrasted with other findings (DfES 2002; Harrison 2004) which clearly show that ICT is positively associated with improvement in subject-based learning in several areas such as English, Maths, Science, Modern Foreign Languages and Design Technology. Harrison (2004) proved that greater use of ICT in curricular study is strongly associated with improved performance in public examinations and other tests.

Even though none of these research findings prove a direct effect of student attainment in examination using ICT, I have found in this study that this issue has somehow affected the use of computers and technology in the classroom. The participants believe that ICT does not lead to improve exam results, and this might be contributed towards little use of ICT in Islamic Education. Anyway, in no way can this study prove an association between ICT use and student attainment because of very little use of ICT in Islamic Education learning. Indeed, it is impossible to measure how ICT resources can improve student attainment unless they are used regularly and constructively in the classroom (Goodison 2002).

The issue of lack of training was obvious among teachers compared to the students. The teachers claimed that they never been trained in computer literacy and were looking forward to attending such courses like other colleagues.

There have been many suggestions in the literature to overcome the issue of the lack of training in ICT in schools which I think are very applicable to the Smart Schools in this study. According to Baylor (2002) the best option is in-service training specifically designed to meet teacher needs, based on their individual level of experience and skills in ICT (BECTA 2000). Such courses can be conducted by a full-time ICT coordinator who has been appointed by the Ministry of Education and is available in every Smart School. As for overcoming the lack of time for training, it has been suggested that the best way to tackle this problem is to provide non-contact time during school hours (BECTA 2002).

It is very important to appreciate that Islamic Education teachers must be given the confidence to feel in command of new technologies before they front a class, so that they know how and when to use the technologies and how to handle student behaviour. PCAST (1997) reported that teachers are not satisfied with most technology-related courses which only show how to operate a computer. What they also need is training on how the computer can enhance their teaching. The PCAST board recommended that training should provide assistance on how to integrate computer use into the curriculum and give pedagogic support to reconcile the tensions between the traditional and new pedagogic methods for using technology.

The other training options to be considered by schools are to send out Islamic Education teachers on other professional developmental programs outside their schools' boundaries and to provide incentives to attend seminars, workshops and conferences to enhance their knowledge in ICT (Baylor 2002). This latter option is more difficult to implement due to the shortage of teachers in schools and the need for cover when the teachers attend for external training. However, providing cover is not impossible if the schools plan teacher absences very carefully in advance to avoid the shortage of teachers in schools.

VII. Conclusion

This study is an attempt to understand the impact of such technology and educational change on Islamic Education teachers and students in Smart Schools. In order to understand this impact, this study has emphasized the views of the teachers and students and taken into account their experiences in Smart Schools. The findings of this study show that it is very important to listen and to take into account the voice of teachers and students in implementing change in schools. Hopefully, this study will provide evidences for future development in policy-making concerning educational change in Malaysia.

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