Chapter 1

INTRODUCTION

Introduction

As we progress into the next millennium the speed and power of technological growth in knowledge and skills supersedes all other areas of progress. Today, advance telecommunication and information technologies are causing profound changes to the nature, form, and amount of information and at a speed much faster than the human mind can possibly cope with.

Thus in this new scenario, the school as an agent of social change and teachers in particular have to play new and more challenging roles to prepare and equip learners with relevant processing skills to manage the vast amount of information.

To be able to teach in a technology-supported learning environment in schools, teachers need to be ready to integrate Information Technology into classroom activities. The changing role of teachers from knowledge presenters to knowledge facilitators is crucial to equip learners with critical and analytical thinking skills and to help our nation produce a thinking and technology-literate work force to cope with the needs of the 21st century workplaces.

The Concept of Smart School

Smart Schools are schools for our next millennium. Global growth and expansion of information technologies and telecommunications networks are forcing our schools to
transform into innovative and hi-tech learning institutions. These schools are to help teachers train learners with multiple intelligence to successfully meet the needs and challenges of society in the Information Age.

In the Malaysian context, Smart Schools are learning institutions that have been systematically reinvented in terms of the teaching-learning practices and school management. During the launching of a Smart School Seminar at the Education Technology Division in Bukit Kiara on February 3, 1997, (New Straits Times, 4 February, 1997, p.1) the Education Minister, Datuk Seri Najib Tun Razak, announced that,

_Smart Schools will be a model to suit the needs of Malaysians. It will be schools that are innovative, creative, stimulating and high-tech, aimed at producing students with analytical minds. In these schools, the progress of a student will not depend solely on the teacher's capacity to teach but more on the student's own ability to learn._

**The Goals of Smart School**

Smart schools are created from a set of valuable and realistic goals aimed at transforming our whole national educational system in line with, and in support for the fulfillment of national aspirations as follows: (A Conceptual Blueprint, 1997, p.20)

_A philosophy that has high expectations for learners, and says that all learners can learn if they are taught;  
A broad curriculum that caters for individual needs and differences;  
A climate conducive to learning;  
An on-going assessment that supports good instruction._
Professional administrators and teachers; and
A high level of parental and community support.

With these goals in mind, Smart School will act as a catalyst in the transformation of our educational system from the conventional memory-based learning towards technology-supported instruction. Thus, our drive to fulfil Vision 2020 - to achieve a sustained and productive rate of growth and to produce a work force with critical thinking skills and technologically literate can be realized.

Teaching-Learning Concepts of Smart School

The Smart School teaching-learning concepts that are contained in the Conceptual Blueprint (pp. 25-28) are shaped by four key elements - curriculum, pedagogy, assessment and teaching-learning materials discussed in further detail as follows:

a. Curriculum in the Smart School is multifaceted

The smart curriculum allows individual learners the freedom to make personal choices in areas such as, what to learn, where to learn, when and how to learn a selected subject or topic of one's interest. Besides the freedom given to learners to determine their path of study, the curriculum promises to be meaningful, socially responsible, multicultural, reflective, holistic, global, open-ended, goal-based and technological.

This curriculum is designed as such, to help students achieve an overall and balanced development. Efforts will be made to integrate knowledge, skills, values
and language usage. Students of all grades will gain equal access to quality and self-paced learning depending on their individual abilities. This curriculum thus, is multidisciplinary, thematic and continuous. Knowledge, skills and attitudes suitable for the Information Age will also be integrated into the syllabus and classroom activities.

b. Pedagogy in Smart School is student-centered

The smart pedagogy is characterized by multiple learning strategies to encourage and promote creative classroom activities. It gives allowances for individual differences in learning styles to boost student's performance. It promises meaningful, interesting, motivating and stimulating learning experiences for all learners.

c. Assessment in Smart School is holistic

Any successful integration of technology into the classroom will be meaningless if assessment is based on traditional criteria. In smart school the scope of assessment includes an evaluation of student's readiness at the point of entry, progress, achievement and aptitude. Using multiple approaches and instruments, Smart School assessment is also element-based and criterion-referenced. Besides these, other new elements such as learner-centered, on-line and on-going learning are made possible with appropriate usage of technology in Smart School teaching, learning and management.
These special features of the smart assessment will save teachers and educators many long hours of marking examination papers and other evaluation tasks tremendously since assessment will be computerized and on-line. Results of candidates can be obtain immediately after the assessment is completed, thus cutting down on waiting-time. Presently candidates who had sat for their SPM in October had to wait for the results in March the following year.

The integration of technology as a tool to facilitate on-line assessments is not only flexible but also administered on an individual basis, is most appropriate for students of varying abilities. The opportunities granted to students, to sit for a test or an examination when he is ready, at his own time is a tremendous step towards virtual and cyber education of the future.

de. Teaching-Learning Materials in Smart Schools are multimedia

Smart teaching-learning materials are specially designed to support new teaching and learning strategies. These materials are produced to meet the needs of the curriculum and instruction. Besides being cost-effective they are technically adequate, cognitively challenging, attractive, and motivating. Visual, graphic, audio, and animation are some of the features of multimedia materials besides print and electronic-based materials.
Rationale

The creation of technology-supported Smart School poses a challenge to teachers. The question of teachers' readiness to integrate information technology into classroom instruction and activities is a national concern. The question of the abilities of teachers to integrate technology that can enhance critical and creative thinking skills is also equally important. Hence the issue of teachers' readiness to teach in Smart School needs to be investigated as it is a key factor that determines the success of its implementation. For teachers to be ready they must be information-literate. They need to have technological knowledge and skills besides the normal pedagogical skills.

Background of the Study

Integrating Information Technology into classroom teaching and learning is no longer an option but the only alternative we have if we want to successfully meet the challenges of the Information Age. According to Kerka (1994), as students prepare for the 21st century, traditional instruction in reading, writing, and mathematics needs to be coupled with practice in communication, critical thinking, and problem solving skills.

To achieve these skills, traditional teacher-centered lessons need to shift to student-centered lessons, where each student can learn how to identify needed information, locate and organize it, and present it in a clear and persuasive manner (Nasirun, 1997). This new learning environment that is more student-
centered enhances learning and helps learners develop creative, critical and problem solving skills.

Past studies revealed that integrating Information Technology can create a student-centered learning environment, allowing students the freedom to learn at their own pace and according to their own abilities. A report from the Bank Street College of Education, USA (Geisert and Futrell, 1990) concludes that, integrating information technology (i.e. computers) has turned a teacher-centered classroom into a student-centered one with the teacher acting more as coach than an information dispenser and with more collaboration and work in small groups going on among students and between students and the teacher.

Information Technology skills are no doubt an important part of the general literacy skills of all teachers. These skills can enhance teacher's personal productivity, improve the quality of teaching and learning and increases learners' learning outcomes.

Studies by Fields (1993) and Campbell (1997), concluded that Information Technology can significantly aid the teaching process when used as a productivity tool in planning, preparing and administering instructional programs and sequences.
Other studies by Eastmond (1995) and Ely (1993) stated that Information Technology provides many advantages for improving the quality of teaching and learning environments and the development of higher order thinking skills of learners.

Statement of the Problem

Readiness of teachers to teach in Smart School is a key factor that determines successful integration of Information Technology into the classroom. Lack of interested and capable teachers is a crucial problem that needs to be overcome before our nation can produce a thinking and technology - literate workforce.

Related researches revealed that, although Information Technology application is increasingly used in society, its impact on education and learning is far less than expected. Most writers agreed that teachers' lack of skills and expertise in the new technologies is a significantly major deterrent of Information Technology integration in education, (Blanchard 1994).

Other studies reported that, many pre-service undergraduates entered universities with limited information technology, skills and experiences. Beynon (1993) expressed concern over his discovery saying that without adequate training, pre-service and in-service teachers can develop misunderstandings and misconceptions about the technology and its application.
Research Questions

On the basis of its aim to inquire into the readiness of teachers to teach in Smart Schools, this study attempts to investigate, the following four questions:

1. What do teachers know of Smart Schools?

2. What are the characteristics of teachers who possess technological knowledge and skills?

3. Why do teachers think that the integration of Information Technology into classroom teaching is essential in Smart Schools?

4. What factors determine teacher readiness to teach in Smart Schools?

Significance of the Study

This study attempts to determine teacher's readiness to integrate Information Technology into their teaching, based on their knowledge, technological knowledge and skills, and opinions of integrating Information Technology in classroom teaching. The findings may be of interest to educators and school principals to plan appropriate motivational strategies to attract teachers to master new technologies for educational purposes. Teacher trainers may use the findings to organize more training courses to suit the knowledge and skills of pre-service teachers. Education officers at district, state and ministerial levels may find the results of this study relevant to design action plans and policies for continuing professional development of teachers.
Limitations of The Study

The subjects of this research paper were the academic staff of SMK Dato' Sedia Raja, Rembau, Negeri Sembilan. Being one of the fourteen Munsiyi or Electronic Resource Center Project school and selected as a future Smart School it had technological advantages over other non-project schools. Thus the results and findings of this survey are confined to this particular school.

The design of the instrument (Questionnaire) of study being a revised and more extensive version of Delcourt's Analysis Of Scales was used for the first time. The clarity and reliability of the item pool were only determined by the pilot test.

Teachers' knowledge of the Smart School were measured by ten statements while teachers' technological knowledge and skills were measured by five selected factors. The constraints of this study are set by the structure and scope of the Questionnaire.

Operational Definitions

Smart Schools are new, innovative, hi-tech learning institutions reinvented to incorporate technology in its teaching and learning practices and school management (A Conceptual Blueprint, 1997, p.5).

Information Technology is the application of modern communications and computing technologies to the creation, management, and use of information, (http://www.askeric.org/).
Technological knowledge and skills refers to Information Literacy which is using problem solving and critical thinking skills to assess, evaluate, and use information from a variety of sources.

Integration of Information Technology into the classroom is to apply / or adopt and adapt modern communications, computing technologies, innovations and new technological strategies into lesson plans and classroom teaching-learning activities.

Conclusion

Technologically-based institutions such as Smart Schools will definitely replace traditional schools with or without the consent of teachers. Thus, teachers need to be prepared and equipped with appropriate knowledge and skills to cope with technology in the smart classrooms. This is vital to enhance teaching effectiveness and maximize understanding during the learning process.