The study of functional elements of management system in smart schools

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Abstract

Smart Schools will need teaching-learning materials designed for the new teaching strategies. The primary objective of Smart School management will be to manage efficiently and effectively there sources and processes required to support the teaching-learning functions. Management will help there allocate skilled human resources to more valuable activities, save costs over the long term, improve the quality of decisions through better access to information, and accelerate decision making. Smart School is not just about ICT intervention in teaching and learning. The curriculum and pedagogy are given the highest importance, with the role of teachers, administrators, parents and the community enhanced in the education of the students. Individuality, creativity and initiative amongst the students are prioritized. Managing Smart School successfully will be a complex task, requiring changes to existing policies, procedures, and practices, both written and unwritten. It may also require formulating entirely new policies and regulations. This article focuses mainly on describing the functional elements needed to manage smart schools. The method employed for this research is based on library, documents, sites and E-magazines.

Keywords: Smart school, ICT, management system;

1. Introduction

In order to implement the unique educational innovation successfully, the Smart Schools must be able to address some relevant issues related to personnel, skills, technology, processes, policies, management and administration(Jin and Huang,200). School Administrators are often called upon to make decisions that weight heavily on the mid/long-term development of various aspects of schools and education. The correct choice and implementation of new technologies allows more satisfactory qualitative and developmental results to be reached in line with the investment made. The Smart School applications brings the benefit of technology to the educators and administrators. These also allow the young to get familiar with the ICT world – using tools such as personal computers, scanners, printers, multimedia products, TV/videos, etc.(Ministry of Education Malaysia, 1998). ICTs provide a means for overcoming historically intractable problems of isolation and lack of access to information and knowledge, crucial impediments to educational development. ICTs have reshaped the educational landscape by transforming the content and modes of delivery/acquisition of learning as well as how the educational institutes operate (Tella,2002). ICT changes teaching and learning through its potential as a source of knowledge, a medium to transmit content, a means of interaction and dialogue. Thus, ICT is both a cause of change and a means of achieving it (NCCA, 2004). However, ICT is critical in making the teaching and learning processes easier, more fun and effective, as well as making communication and management among the stakeholders more efficient. Principals

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in Smart Schools will need intensive training to equip them to manage the new facilities, technologies and methodologies deployed in their schools.

2. Smart School:
   A Smart School is an educational establishment that adopts instructional processes and educational management practices that foster systemic changes that are intended to enable learners to surmount the challenges posed by the information technology era. Smart Schools are not only intended to produce knowledge workers who possess the requisite technological skills but also aim to inculcate critical thinking skills through intelligent learning consistent with the tenets of the National Education Philosophy. (Sani Ibrahim, 2009). A Smart School will evolve over time, continuously developing its professional staff, its educational resources, and its administrative capabilities. This will allow the school to adapt to changing conditions, while continuing to prepare students for life in the Information Age. Research by Young (2003) revealed that the new technology was very useful in providing a less stressful environment for the students to express their opinions and thoughts freely.

3. Smart School Management:
   The objectives of Smart School Management are to efficiently and effectively manage the resources and processes required to support the Teaching and Learning functions of the school.
   The success of the Smart Schools will also depend on the sound policies and an effective and efficient management of the school resources. The Smart Schools Management System (SSMS)—which is the software for management and administrative functions—should enable the principals and headmasters to perform their tasks efficiently when the main functions relating to school management such as scheduling lessons, annual academic activities and student academic records are all computerized. The efficient, fluent and appropriate usage of the SSMS would also be a challenge confronting the implementation of the Smart Schools concept.
   Each of the activities under the Smart Schools management functions can be categorized into one of nine broad areas such as: School Governance, Student Affairs, Educational Resources, External Resources, Finance, Facilities, Human Resources, Security, and Technology. (Ministry of Education Malaysia, 2001)
   These nine areas, however, are classified as such because of the major emphasis of their functions. They are not necessarily mutually exclusive as a number of them may share some common databases, providing for the necessity for integration across them. The nine functional areas are briefly described as follows:

3.1 School Governance
   This part of the school management function deals with school policies and regulations. It ensures efficient communication between relevant agencies and stakeholders, and makes decisions on curriculum management to fit the school's local environment and to tailor it according to students' needs. All these would benefit:
   - Better school/community relationship
   - Critical progress feedback provided to parents on timely basis.
   - Tailored according to the students need.
   - Timely, relevant information.
   - Students will use their local environment for learning.
   - More effective teaching and learning.

3.2 Student Affairs
   The Student Affairs component of the Smart Schools management system deals with all the issues that relate to students' teaching learning and welfare needs. It maintains a comprehensive database of student records which all lead to:
   - Student data available on-line to those who need it, when they need it on restricted access.
   - Ease of registration for students, parents, and administrators.
   - Ability to effectively and efficiently manage attendance and respond to problem situations.
   - Automated fee collection capability that improve cash handling.
3.3 Educational Resources

This component manages a teaching-learning resource database that is quick and easily accessed by students and teachers. It provides schools with relevant and appropriate teaching-learning materials in a timely manner. This component has following characteristics:

- Comprehensive resource database for quick and easy access by teachers and students.
- Ability to deliver customized assignments in print or electronic form.
- Ability to manage curriculum software.
- Access to national and research database.

3.4 External Resource

The External Resource component maintains a comprehensive database on available external resources that are relevant and applicable to the teaching-learning scenarios in schools which helps teachers, principals, and support staff utilize more efficiently and effectively external resources. It should also provide and manage resources to enable "virtual visits" designed to make learning and training more interesting.

3.5 Finance

This component of the Smart Schools management system handles the day to day and long term financial matters. It consists of a comprehensive educational accounting system with ability to automatically generate customized reports and capable of annual budgeting and long term planning and also has control capability to keep track of cash flow and direct interface to the District Education Office and the State Education Department. This component has the following benefits:

- Reduces time needed for budgeting.
- Efficient dealings with suppliers.
- More efficient and effective accounting.
- Improved financial control.
- More efficient monitoring.

3.6 Facilities

This component of the Smart Schools management system maintains and manages the utilization of the school's facilities. It contains comprehensive records of inventories and is capable of tracking the movement of removable assets with direct interface to resource databases and also has the ability to plan and manage alternate uses of school facilities. It has the following benefits:

- Improved asset management delivers major cost reduction.
- Increased revenue from effective use of school facilities.
- Facilities in working order at all time.

3.7 Human Resource

The human resources management component handles the organization, maintenance and development of school staff, including teachers and school administrators. This component comprises a comprehensive Human Resource Management System which tracks the individual staff member's development programs. It manages the staff development program of the school to ensure balanced opportunities for all staff members to attend or participate at seminars, conferences and workshops for professional development. It also manages staff's promotions and transfers. Comprehensive Human Resource Information System (HRIS) integrate all aspects of the human resource function including hiring, training, vacation and sickness management, skills training, and promotion management. It manages in-school teacher scheduling and activities, as well as inter-school staff activities by means of easily accessible information. The Human Resource Information System benefits are:

- More efficient and effective deployment of teaching and administrative staff.
- Teachers will be more aware of their situation and what is expected of them; Management will be aware of what human resources they have at hand.
- Improved human resource management in all functional areas.
- Happier staff, hence happier students.
3.8 Security
A system is required to ensure human safety as well as physical safety of the school. Measures required include the need for proper identification or authorization for access into school or access into certain databases of the school communication systems. The security management component is responsible for physical and student safety in the school and has the following advantages:
- Improved physical asset security management.
- Improved security and greater safety for students.
- Ensures confidentiality of specified data.

3.9 Technology
This component of the Smart Schools management system manages the technology components of the school and includes Information Technology hardware and IT resource management, network management and technology designs upgrading. The technology management component implements, maintains and manages the comprehensive day to day management of network, databases, and more realistic long – term planning for development of IT capability in school.
- More efficient policy development and management.
- Efficient and effective field support capability.
- All aspects of the IT function are managed in an efficient, cost effective way.

4. Conclusion
The main pillar of the Smart Schools will be the streamlining of school management through the use of technology. This will help improve efficiency, remove redundancies and radically improve access to all concerned. With school management computerized and on-line, the principals will be able to plan, manage and utilize both human and physical resources effectively. Networking will facilitate the involvement of parents and the community in school programs, making them effective partners in their children education. With databases, information on students and teachers will be readily accessible to legitimate parties. Students and teachers welfare needs can be more effectively met with constant monitoring. Furthermore, systematic monitoring of students progress will alert the school as to when interventions are necessary for both the gifted and less able. The task of managing schools involves working with information and building on ideas collaboratively. Simrit Kaur(2001) added that a major challenge for technology school leaders is to support teachers as they explore and experiment with diverse ways to integrate technology in meaningful ways across curriculum. Nik Zaharah Nik Yaacob (2000), in her study of the role of a principal in the management of information technology resources in a Smart School in Kelantan state, found that the principal adopted a supportive and success-oriented leadership style in the management of information technology resources. Research has shown that when principals realize the benefits of ICT in their own work, they are more likely to encourage its use within the school. Encouraging and supporting the use of ICT for both school administration and planning is vital to enhancing the place of ICT within schools.(NCCA,2004). The efficiency and effectiveness of management task in a Smart School are enhanced through the use of technology. Thus, Smart School principals will need to go through an intensive management training course to equip them to manage the new facilities, technologies and methodologies to be deployed in smart schools.

References