EVALUATION OF SCHOOL MANAGEMENT SYSTEM USING INFORMATION SYSTEM SUCCESS MODEL

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ABSTRACT

This research was aimed to evaluate the School Management System (SMS) using the modified Updated DeLone and Mc Lean IS Success Model. This system is an initiative to create a single data entry with a centralized database and to integrate with other systems introduced by Ministry of Education (MOE). An evaluation on SMS was crucial to ensure the Information System (IS) would be able to work effectively and efficiently. This quantitative research was carried out using survey method. A set of questionnaire was used as a tool for data collection. It consisted of 17 questions derived from other validated researches. The questionnaire was distributed to 400 primary school teachers in Selangor. They were chosen by using a simple random sampling. The collected data was analysed using descriptive statistic and inferential statistic. The result showed that the five SMS success factors which included system quality, information quality, service quality, use and user satisfaction were the positive determinants for 'net benefit' in evaluating SMS success. However, only three success factors, i.e. user satisfaction, information quality and system quality became the significant predictors and contributor in evaluating the SMS success. Meanwhile, its use and service quality were not the significant determinants. These findings were supported by other researches in the IS field. As a conclusion, it was proven that the SMS had been used successfully in school. Therefore, the implications of the study proved that The Updated DeLone and McLean IS Success model is a successful model to be used in IS evaluation

PENILAIAN SISTEM PENGURUSAN SEKOLAH DENGAN MENGUNAKAN MODEL KEJAYAAN SISTEM MAKLUMAT

ABSTRAK

Kajian ini bertujuan untuk menilai Sistem Pengurusan Sekolah (SPS) dengan menggunakan model Updated DeLone and McLean IS Success yang telah dimodifikasi. Sistem ini merupakan satu inisiatif yang menggunakan kemasukan data tunggal bagi pangkalan data berpusat dan diintegrasikan dengan sistem lain yang diperkenalkan oleh Kementerian Pendidikan Malaysia (KPM). Penilaian SPS adalah penting untuk memastikan Sistem Maklumat (SM) dapat berfungsi dengan cekap dan berkesan. Kajian kuantitatif telah dijalankan dengan menggunakan kaedah tinjauan. Satu set soal selidik telah digunakan untuk pengumpulan data bagi kajian ini. Ia mengandungi 17 soalan yang dibina daripada kajian-kajian terdahulu. Soal selidik telah diedarkan kepada 400 orang guru sekolah rendah di Selangor. Persampelan rawak mudah telah digunakan untuk pemilihan responden. Data yang diperolehi dianalisis dengan menggunakan statistik deskriptif dan statistik inferensi. Hasil kajian menunjukkan lima faktor kejayaan SPS yang merangkumi kualiti sistem, kualiti maklumat, kualiti perkhidmatan, penggunaan dan kepuasan pengguna adalah penentu positif bagi ‘faedah bersih’ dalam menilai kejayaan SPS. Walau bagaimanapun, hanya tiga faktor kejayaan iaitu kepuasan pengguna, kualiti maklumat dan kualiti sistem yang menjadi peramal utama dan penyumbang dalam menilai kejayaan SPS. Sementara itu, penggunaan dan kualiti perkhidmatan bukan faktor kejayaan bagi SPS. Dapatan kajian ini telah disokong oleh kebanyakan pengkaji di dalam bidang SM. Kesimpulannya, telah terbukti bahawa SPS telah digunakan dengan jayanya di sekolah.

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ABREVITIONS

APDM	Aplikasi Pengkalan Data Murid
BTP	Bahagian Teknologi Pendidikan
CIE	Computer In Education
DEO	District Education Office
D&M IS	DeLone and McLean Information System Success Model Success Model
EDMP	Education Development Master Plan
EMIS	Education Management Information System
EPRD	Education Planning and Research Department
ETD	Education Technology Division
EUCS	The End User Computing Satisfaction Model
ICT	Information Communication Technology
IS	Information System
JARING	Joint Advanced Research Integrated Networking Network
JNJK	Jemaah Nazir dan Jaminan Kualiti
JPN	Jabatan Pendidikan Negeri
KPI	Key Performance Indicator
MOE	Ministry of Education
MSC	Multimedia Super Corridor

PIPP	Pelan Induk Pembangunan Pendidikan
PPD	Pejabat Pendidikan Daerah
PPSMI	Pengajaran dan Pembelajaran Sains dan Matematik Dalam Bahasa Inggeris
SAPS	Sistem Analisa Peperiksaan Sekolah
SBA	School Base Assessments
SED	State Education Department
SMG	Sistem Maklumat Guru
SMS	School Management System
SPLG	Sistem Pengurusan Latihan Guru
SPPBS	Sistem Pengurusan Penilaian Berasaskan Sekolah
SPS	Sistem Pengurusan Sekolah
SPSS	Statistical Package for Social Science
TAM	The Technology Acceptance Model
TSS	Telekom Smart School
TTF	The Task-Technology Fit Model

APPENDICES

CHAPTER 1

INTRODUCTION

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1.1 Introduction

Information System (IS) has been used as a tool in teaching and learning such as assessment evaluation, content management, online learning and even in school management. As the rapid changes in ICT, various kinds of IS had been introduced towards an effective and efficient school management (Yahya & Chong, 2007).

Re-engineering Malaysia's education with Information and Communication Technology (ICT) is one of the initiatives taken by the government in building a solid foundation in revamping Malaysia education. One of the government initiatives is to introduced School Management System (SMS) or *Sistem Pengurusan Sekolah* (*SPS*) in schools. SMS was developed to create a single data entry with a centralized database

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and data integration compatible (Mohd Norhaimi, 2013). In other word, the objective of SMS is to provide a centralized information management application in school. The system provides data for Ministry of Education (MOE) in analysing, planning, comparing and identifying trends towards fulfilling the National Education Policy (Kementerian Pelajaran Malaysia, 2012; Kementerian Pendidikan Malaysia, 2015). The centralized database can be used to support higher level information system such as Executive Information System (EIS) that could help MOE in observing education program performance, looking for opportunities, identifying problems and making decision.

The amounts of data generated daily in schools are enormous. Currently, statistics show, that there are 7,760 primary schools and 2,394 secondary schools all over the country. With the total enrolment of 5,120,802 students, it is a hard task for 419,820 teachers to manage the students' data (Ministry of Education, 2014). Hence, a good information system is certainly needed to efficiently manage the huge data. The implementation plan of SMS was proposed to be the key solution to reduce teachers' burden and to support the MOE data integration (Bahagian Teknologi Pendidikan, 2013).

The departments under MOE have the decision making power and responsibility in improving the education system. The success of SMS has become one of the Key Performance Indicators (KPI) for MOE (Mohd Norhaimi, 2013). Hence, it is important for every department such as State Education Department (*Jabatan Pendidikan Negeri*), District Education Office (*Pejabat Pendidikan Daerah*) and

Education Technology Division (*Bahagian Teknologi Pendidikan*) to implement and make a full use of SMS in their region (Bahagian Teknologi Maklumat, 2013).

With huge cost spent more than RM 9,000,000, the expected outcome from SMS project is to establish a solid platform for planning and operating purposes of educational data integration (Mohd Norhaimi, 2013). An evaluation is crucial to make sure an information system work effectively and efficiently (Platiša & Balaban, 2009). Therefore, evaluating SMS is crucial to define the success of this particular huge initiative.

1.2 Research background

In October 2011, the Ministry of Education (MOE) launched a comprehensive review of the education system in Malaysia in order to develop the Malaysia Education Blueprint. In the Malaysia Education Blueprint 2013-2025, MOE identified 11 shifts that needed to be delivered in achieving the outcomes envisioned by all Malaysians (Ministry of Education, 2013). The eighth shift: transforming the ministry delivery capabilities and capacity is the shift that promotes the implementation of SMS (Mohd Norhaimi, 2013).

This shift is made to empower the departments under MOE, such as State Education Department (*Jabatan Pendidikan Negeri*), District Education Office (*Pejabat Pendidikan Daerah*) and Education Technology Division (*Bahagian Teknologi Pendidikan*) for greater decision making power and greater accountability to

improve Malaysia's education system. Another pivotal element is strengthening the leadership capabilities (Ministry of Education, 2013). Besides, SMS is one of the Key Performance Indictor (KPI) for SED (Bahagian Teknologi Pendidikan, 2013). It is crucial for every SED to work effectively and efficiently to success in this project and achieve the targeted KPI.

As the transformation will take place over 13 years, the plan had been divided into three waves. In Wave 1 (2013-2015), the National 1BestariNet had been rolled out. Under the implementation of 1BestariNet, School Management System (SMS) or *Sistem Pengurusan Sekolah* (*SPS*) has been introduced in fulfilling the eighth shift of Malaysia Education Blueprint (Mohd Norhaimi, 2013).

SMS is a centralized database that has been developed from Smart School Management Module. In developing SMS, MOE had chosen six modules from 22 Management Modules. The chosen modules had been modified to suit the daily school usage. Six modules involved in SMS are School Information Management, School Facilities Management, School Calendar Management, School Administration Management, Staff Management and Student Management (Bahagian Teknologi Pendidikan 2013). Though there are six modules in SMS, three modules; School Management, Teacher Management and Student Management are the main focus for the time being. The implementation of SMS involved more than 10,000 schools all over Malaysia. Figure 1.1 showed the interface of SMS.

Figure 1.1. Web page of School Management System shows the three modules used

The objective of SMS is to develop a centralized information management application in school. The centralized database automates two major roles in school; managing and administrating. SMS would be an excellent data entry application in school. SMS was operated in schools all over Malaysia at the end of 2013 and the ongoing shifting process until the end of 2015 (Bahagian Teknologi Pendidikan 2013). Through the establishment of a centralized database, a lot of time can be saved because the same data can be used repeatedly by various school staffs, it can prevent errors which may occurred from repeated data entry by various staff (Visscher and Fung, 2001). Some unchanged data for example student personal details and academics achievement can be used again in the following years. SMS should be an effective way for keeping data.

As stated in circulation letter with reference number KP(BPPDP) 605/013 Jld. 2(88) dated 7th January 2014 (see Appendix A), towards using SMS as a single data

entry in Malaysian school, the existing system, including Education Management Information System (EMIS), Pupils Database Application (*Aplikasi Pangkalan Data Murid - APDM*) and Teacher Information System (*Sistem Maklumat Guru - SMG*) had been integrated in SMS (Kementerian Pendidikan Malaysia, 2014). In a circulation letter with reference number KP(BPSH-SPDK)201/005/02/Jld. 6 (25) dated 24th December 2014 (see Appendix B), MOE urges the full usage of SMS in all school starting 1st January 2015 while other systems in used will be discontinued periodically (Kementerian Pendidikan Malaysia, 2014).

Figure 1.2. shows the workforce flow of department in charged in this task. The workforce involved the highest division to the lowest division in education system.

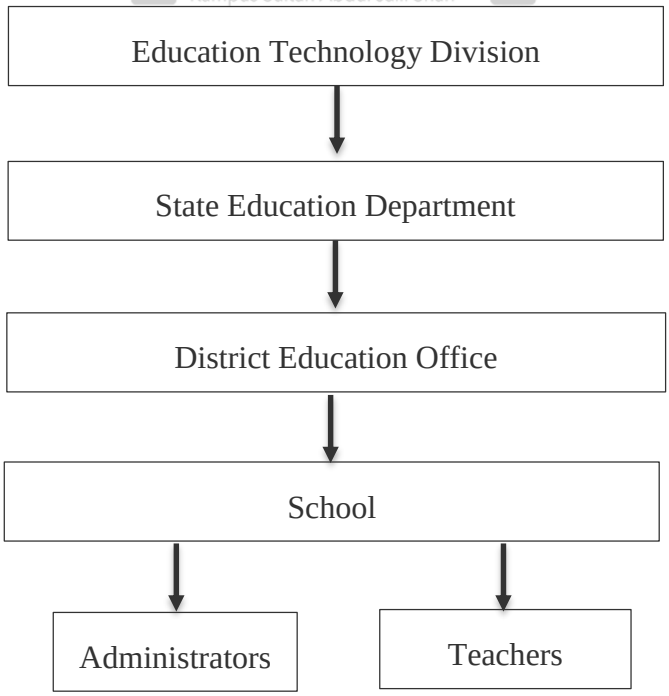

Figure 1.2. The SMS workforce chart

Education Technology Division (ETD) had listed a list of benefits and the expected outcomes of SMS (*Bahagian Teknologi Pendidikan*, 2013). Table 1.1 below showed the benefit and outcomes of SMS usage.

Table 1.1

The benefits and outcomes of the SMS usage

Benefits of SMS		**Outcomes of SMS**
Simplify the data entry process	1	Same management system
Data is easy to access	2	One database
Centralized data storage	3	Data with similar format
Avoid data redundancy	4	Collected data made by school user
Data sharing compatible	5	Managerial work can be done any time and any where
Able to prepare managerial report and teaching and learning notes	6	Standardize analysis report

Note. Adapted from *Bahagian Teknologi Pendidikan*, 2013.

1.3 Problem statement

SMS is designed to bring big changes to the school management towards an integrated system. As it is a multi-user information system, school administrators, teachers and other departments were hoping that SMS can perform its task effectively and efficiently. It should be an excellent data entry application in school. The quality of education management can be improved if SMS succeed.

Previous researches on IS used in Malaysia's education, have represented various kinds of findings on IS evaluation used in school (Farzeli, Azman, Mohamad, & Roslee, 2000; Zawiyah & Mariyah, 2008; Hairulanuar, 2013). Most of the researchers gave negative findings on IS used in schools. Most of them were caused from difficulties faces by the teachers and school management in managing and using the IS, in which had increased teachers' burdens and had created other management problems. Questions arise, whether SMS will give the same evaluation as other IS or could SMS fulfils the expected outcomes and works as an efficient and effective integrated information system. This research studied the success factors that influent the SMS success.

Comprehensive understandings of SMS success still remain elusive and it is crucial to ensure its success. This leads the needs to measure SMS usage towards its success from teachers' perspectives. Currently, there was limited evidence or research on SMS evaluate could be found as it is still in transition period. Valid documentation is important to provide insight information for MOE and other users. A research to evaluate SMS success is needed in order to analyse its performance to work effectively and efficiently. If needed, an upgrade to improve SMS success can be suggested according to the necessity.

To conclude this section, as comprehensive understandings of SMS success still remain elusive, evaluation on SMS success from teachers' perspectives is the core for this research. Providing a valid documentation is the purpose of this research in giving insight information for MOE and other users. Evaluation on IS success is crucial to identify the effectiveness and efficiency of the IS itself, that is why a research to

evaluate SMS success is needed in order to analyse its performance to work effectively and efficiently.

1.4 Research objective

To evaluate SMS success, research objectives were defined from the problem statement. Main objectives of this research are:

1. To identify the success factors/constructs of SMS that can be used to evaluate SMS success.
2. To describe the success factors/constructs of SMS that influences the achievement of SMS.

1.5 Research questions

Research questions were built based on the research objectives. The research questions were used in order to evaluate the SMS success.

1. Which success factors/constructs of SMS that should be considered in SMS success evaluation?
2. How do the success factors/constructs of SMS influence the achievement of SMS?

Based on the research questions above, SMS was evaluated in determining its success by using the collected data with the precise analysis method in outlining a complete documentation on SMS evaluation.

1.6 Conceptual framework

As the evaluation of SMS success is essential towards achieving an effective and efficient management information system in school, an IS success model had been chosen to be used as a base or the framework for this evaluation. The conceptual framework indicates the perspective or the guidelines in building the right approach for this research. Based on the chosen framework, a conceptual model was developed to visualize the involved constructs that potentially interrelated. This conceptual model will be the descriptive tool in representing the research.

In building the conceptual framework, the Updated DeLone and McLean IS Success Model (2003) was used as the framework in drafting this research to evaluate an IS success. Based on the chosen framework, a conceptual model was built according to the research needs.

The Updated DeLone and McLean IS Success Model (2003) consists with six constructs; system quality, information quality, service quality, intention to use/use, user satisfaction and net benefit (DeLone & McLean, 2003; Ali, 2010). Figure 2.3 in chapter two showed The Updated DeLone and McLean IS Success Model (2003). These constructs are the factors used to evaluate the IS success. In outlining this