



RESEARCH ARTICLE

School Management System (SPS): Factors Affecting School Effectiveness

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ARTICLE INFO	ABSTRACT
<p>Received: May 17, 2024 Accepted: Jul 8, 2024</p>	<p>Nowadays, information management system plays a vital role in organizations. Schools are among the organizations that utilize an information management system in their operation. The purpose of this research is to predict the influence of the School Management System's (SPS) usability, acceptance, and changes toward school effectiveness, predict the gender of teachers responsible for moderating the influence of usability, acceptance, and change toward school effectiveness, and build a prediction model suitable for the usability, acceptance, and changes in the management of the SPS, with school effectiveness in mind. This research was done for four districts which had been chosen at random, according to the states and zones in Peninsular Malaysia including Central Zone (Petaling Perdana district, Selangor), North Zone (North East district, Penang), East Zone (Kota Bahru district, Kelantan) and South district (Johor Bahru district, Johor). Descriptive research design and correlation through survey were used in this research. Survey questionnaires were distributed to 420 teachers, who were the samples of this research. Samples are chosen by the stratified random sampling technique and random sampling. Five constructs involved in SPS usability include SPS quality, SPS information quality, SPS quality service, SPS satisfaction, and SPS usage. For SPS acceptance, there are four constructs involved namely performance expectation, effort expectation, social influence, and condition of facility. For SPS change management, there are five constructs involved - awareness, eagerness, knowledge, ability, and reinforcement. Data was analyzed descriptively, and inference was made using IBM SPSS and AMOS version 22.0. Structural Equation Modelling (SEM) was used for the hypothesis testing. The result of the analysis shows that the SPS usability, SPS acceptance, and SPS change management towards school effectiveness reach a good correlation based on the value (RMSEA=.046, p=.000, CFI=.903, IFI=.903, TLI=.900 dan CMIN/df=1.815). Variables of SPS usability, SPS acceptance, and SPS change management holistically contribute 64% toward school effectiveness. Variables SPS usability and SPS acceptance are significantly related to school effectiveness. However, it was discovered that gender is not a moderator for the variables of SPS usability, SPS acceptance, and SPS change management toward school effectiveness. There are recommendations that the SPS change management should be encouraged to help teachers prepare and understand the implementation of SPS to increase school effectiveness and school management. This is important to ensure that teachers can effectively accept any change taking place in any new change of policy. For</p>
<p>Keywords SPS School Effectiveness Teachers</p>	
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the SPS usability aspect, researchers suggest that the system applied at school be given high priority and consideration by the policymakers to ensure that the system's application in school is effective and beneficial to the school. This is to ensure a more systematic school governance, yielded from this effort of improving the school management system (SPS).

INTRODUCTION

The management and administration of an organization nowadays use a lot of management information systems to further improve the efficiency of their organization. The management information system is one of the component initiatives in the data integration education to improve school effectiveness. The data integration system allows many users to access and share information at a certain time (Mohd Nizam, Rosmaizura, Suriani, and Zulkifli, 2010). With the latest technological breakthroughs, management information systems play an important role in ensuring that an organization can develop effectively and be more competitive (Yaser, Alina, and Nor Aziati, 2014). According to Abdelrahim (2016), computer-based information systems are important and rapidly growing in technological innovation in this century to facilitate the administration of an organization.

There is a lot of school change management currently taking place in the era of digitization, where data is one of the most important resources for an organization. It is growing to be important because in the previous management, collecting, processing, and storing information had been conducted manually. Nowadays, most organizations and even schools store too much information, causing this manual system to become impractical to implement. Therefore, it was found that the technological revolution and information systems have become very important in all fields, especially in management (Yaser, Alina, and Nor Aziati, 2015). In addition, it was found that information technology has provided convenience and benefits for an individual in data processing (Kadek and Gusti, 2014). However, based on the changes made by stakeholders in applying the system in schools, various things need to be looked at and considered to ensure that the developed system can be accepted by administrators and teachers. Stuart, Mills, and Remus (2009) have said that the weaknesses of the information system implementation, such as the lack of technology integration in schools, are part of the factors that contribute to low information system competence. According to Nadkarni and Gupta (2007), the views and opinions of users in accepting a new system are important and should be given attention because it is one of the determinants of success for the system implemented.

Therefore, this study aims to see the applicability of SPS, acceptance of SPS, and change management of SPS on school effectiveness. This study looks at the perspective of teachers on the effectiveness of using SPS in schools. Evaluation research allows the government to determine whether SPS can make schools more effective in terms of their administration and facilitate teachers in performing their duties as expected. This study focuses on evaluating the success of SPS from the perspective of teachers in secondary schools in Peninsular Malaysia.

In addition, gender demographic factors are seen in this study to see the difference the use of SPS between boys and girls and whether this affects the school's effectiveness. The gender factor seen in this study is to see whether it has a moderating effect, and also to see if there is a difference between male and female teachers in the use of SPS. Studies by Christensen, Knezek, and Overall (2005) and Li and Kirkup (2007) showed that there is a difference between the sexes where it is found that men are more competent, confident and have a positive attitude towards the use of technology compared to women. In addition, the study carried out (Venkatesh, Morris, and Davis, 2003) also stated that there is a difference between the sexes in the use of information systems where it was found that

women are more inclined to accept information systems than men, and female students tend to place an easier emphasis on the use of this system when deciding whether or not to adopt the system.

However, Wang Y, Wu, and Wang H (2009) found no gender difference between men and women in the use of technology. Their study revealed that both sexes use technology equally at moderate levels. Based on the findings of previous studies, it was found that gender differences also play an important role in the use of technology. The gender factor seen in this study is to determine if there is a difference between genders in terms of the influence of SPS usability, SPS acceptance, and SPS change management on school effectiveness. This is because there are findings pointing to the gender differences and there are studies that show no differences between the sexes. Therefore, this study is to confirm whether there is a difference between the sexes in this study. The implication from this study is that it can serve as an early reference to the next study where a comparison can be made to determine whether gender factors play a role in a study related to information management systems. Therefore, based on this study, the aim is to ensure whether there is a difference or not in the use of SPS in schools that determines school effectiveness.

In general, the importance of the study can be explained from two main aspects, namely the practical aspect and the theoretical aspect. The practical aspect of theory can be relied upon, based on the fact that there are many complaints from teachers who say that the system applied in schools sometimes does not work well, and it can even lead to workload (Mohd Nuin and Ambotang (2019) so this study plays a significant role at the level of policy formulation and implementation, which may be a guide for policymakers in the Ministry of Education regarding the implementation of the school management system (SMS) in school effectiveness. Accordingly, the results of this study can provide more information, and any findings are novel in the study of information system acceptance, information system usability, and school change management not only in Malaysia but also in foreign countries. The proposed model aims to provide a more comprehensive explanation of the contribution of SPS acceptance, SPS usability, change management, towards school effectiveness.

Based on the theoretical aspect, this study contributes to the discovery of the use of DeLone and McLean Model (2003), UTAUT Theory (2003), ADKAR Model (2006), and Woodward's Contingency Theory (1965) in the use of school management system (SMS) to determine school effectiveness. Woodward's Contingency Theory (1965) is based on the relationship between independent variables consisting of the Delone & McLean; McLean Model (2003), UTAUT Theory (2003), and ADKAR Model (2006). The basic concept of Woodward's Contingency Theory was introduced by Woodward (1965) comprising of three factors, namely technology, environmental structure, and organizational structure. These three factors focus on the effectiveness in an organization.

Aim and Hypothesis

This study has three main objectives which are to predict the direct impact of SPS usability, SPS acceptance, and SPS change management on school effectiveness. The second objective is to identify the moderating effect of gender in SPS usability, SPS acceptance, and SPS management change that has a direct impact on school organizational effectiveness, and the third objective is to form a corresponding model related to SPS usability, SPS acceptance, and SPS management change on school organizational effectiveness.

Hypotheses

- i. H1: There is a significant direct effect between SPS usability and school effectiveness.
- ii. H2: There is a significant direct effect between the acceptance of SPS and school effectiveness.
- iii. H3: There is a significant direct effect between SPS change management and school effectiveness.
- iv. H4: There is a moderating effect of gender on the relationship between SPS usability and school effectiveness.

- v. H5: There is a moderating effect of gender on the relationship between SPS acceptance and school effectiveness.
- vi. H6: There is a moderating effect of gender on the relationship between SPS change management and school effectiveness.

Conceptual Framework of the Study

The conceptual framework of the study is produced to explain the relationship between the three variables of the study, namely the usability of SPS, and the acceptance of SPS towards change management in schools. In this study, the usability and acceptance of SPS are the independent variables, while the change management in the use of SPS in schools is the dependent variable. In addition, gender is described as a moderator.

SPS Usability

The usability of SPS is measured by looking at the influence of system quality, information quality, service quality, information system use, and user satisfaction (DeLone and McLean, 1992) on school effectiveness. The quality of the system in this study is to explain the extent of the effectiveness of the SPS system used in schools from the point of view of the interaction between the teacher and the computer. Based on the quality of the system in the study conducted, there was evidence of the reliability of the computer system, response time, and ease of use of the computer provided in the school to use SPS. In addition, the system quality measurement also aims to see the content found in the SPS, the effectiveness of the database provided, the response time, and the accuracy of the SPS system.

The quality of the information in this study lies in the accuracy of the information and the extent to which the information found in the SPS at school is trusted to help teachers carry out tasks at school. The quality of information in this study also indicates the extent to which the SPS has uniqueness, is simple but has dense content and clarity in reading. Among the characteristics of the quality of information seen in this SPS are punctuality, accuracy, suitability, the fact that they are inter-related, and there is appropriacy of format. There are also observations on the extent to which the information conveyed in the SPS from the KPM superiors to the users of the SPS is accurate and the extent to which there are errors in the system.

The quality of service in this study indicates how far the facilities and requirements are provided to make it easier for teachers to use SPS in schools. Service quality in this study found in the SPS encompasses its responsiveness, assurance, reliability, and empathy. Considerations and attention have been placed on the internet conditions for the SPS to be accessed in schools – this will make it easier for teachers to use it and for administrators and officers in charge to assist the teachers to use the SPS. The use of the system is measured based on the time required to achieve connectivity with the system, the functions contained in the system according to the needs of the user in performing a task and the frequency of use of the system by the user. System satisfaction is one of the most important factors as far as the usability of a system is concerned. Measuring a system's satisfaction is an important and useful phase, especially when the system developed must be used by all users. The system satisfaction in this study focuses more on the extent to which teachers are satisfied in using the SPS in schools. The construct seen in this study is the extent to which the SPS used can provide some benefits to the teachers and to the schools in particular or the Ministry in general.

All the constructs are used to see the extent to which the SPS found in the school can interact well with the teachers in carrying out their tasks in the school, also to see the extent to which the usability of the system is beneficial to the change management as they use the SPS in schools. The usability of the system is supported through the DeLone and McLean Success Model introduced by DeLone and McLean (2003).

Acceptance of SPS

The level of acceptance of SPS is measured by four main aspects, namely performance expectations, effort expectations, social influence, and facility conditions. The four aspects were introduced by Venkatesh (2003), through UTAUT. Variables in the acceptance of SPS are teacher's performance expectations, teacher's effort expectations, teacher's social influence, and facility conditions. Expectations of performance are seen in this study as the extent to which individuals believe that using and accepting the system available in this school can help them achieve an improvement in work performance. This factor concerns with whether teachers and administrators believe that using and accepting current information systems at school helps to improve their performance in doing tasks at school. The expected performance in this study is to identify whether this factor can have a significant impact on the acceptance of information systems and whether the use of information systems in schools helps improve the performance of teachers compared to using manual systems as information can spread faster than does the traditional media.

The expectation of effort in this study represents the extent to which teachers will use the new technology if they find the technology very easy to use and only a little effort is made. The expected effort in this study is that teachers need to believe that the information system is easy to use and does not burden teachers to understand the way to use the SPS. The scope of this study is to identify whether this factor can make a significant contribution to the acceptance of information systems. Social influence in this study is defined as the extent to which an individual influences other to use the system and the extent to which they are influenced by others to believe how important/necessary it is to use and accept the information system at school. The social influence in this study is to identify whether this factor can make a significant contribution to the acceptance of the information system. school. This facility seeks to see if the organization has the minimum (basic) resources for the use of information systems in schools such as electricity, infrastructure, computers, and the Internet. The facility of this study refers to the need to identify whether this factor can make a significant contribution to the acceptance of the information systems.

SPS change management.

The next dependent variable in this study is the change management towards the use of SPS in schools. This highlights the need to see the extent to which teachers can implement the use of SPS in schools based on the reform of the system that has been implemented by the ministry. In addition, change management is about the extent to which SPS is used in schools to ensure that schools can be more effective.

The management of changes in the use of SPS in schools in this study covers five factors. The first one is the awareness from teachers about the changes in the use of SPS in schools that have been implemented by the ministry. Next, the construct of desire is to apply the value of motivation and high desire among teachers in implementing SPS changes that have taken place in schools. The knowledge factor in this study is to identify the extent to which teachers have skills and knowledge in the changes in the use of SPS that take place in schools. The ability factor in this study is to identify the extent to which teachers can use the SPS in schools and the extent to which they can apply the use of SPS in the changes that occur in schools. Next, the reinforcement factor in this study is to focus on the extent to which teachers can maintain in continuing to use the SPS in schools by using it manually.

School Effectiveness

School effectiveness in this study refers to the extent to which the use of SPS based on three variables namely SPS usability, SPS acceptance, and SPS change management provides effective benefits/impact to both the development and management in schools. The perceived effectiveness of the school includes the overall effectiveness of the teachers and the school organization. It includes

how the use of SPS in this school can help and benefit teachers and organizations. Overall, among the school's perceived effectiveness is the extent to which the use of SPS makes teachers productive in their tasks, facilitates their overall tasks at school, reduces inventory costs, and improves their skills in the use of ICT at school.

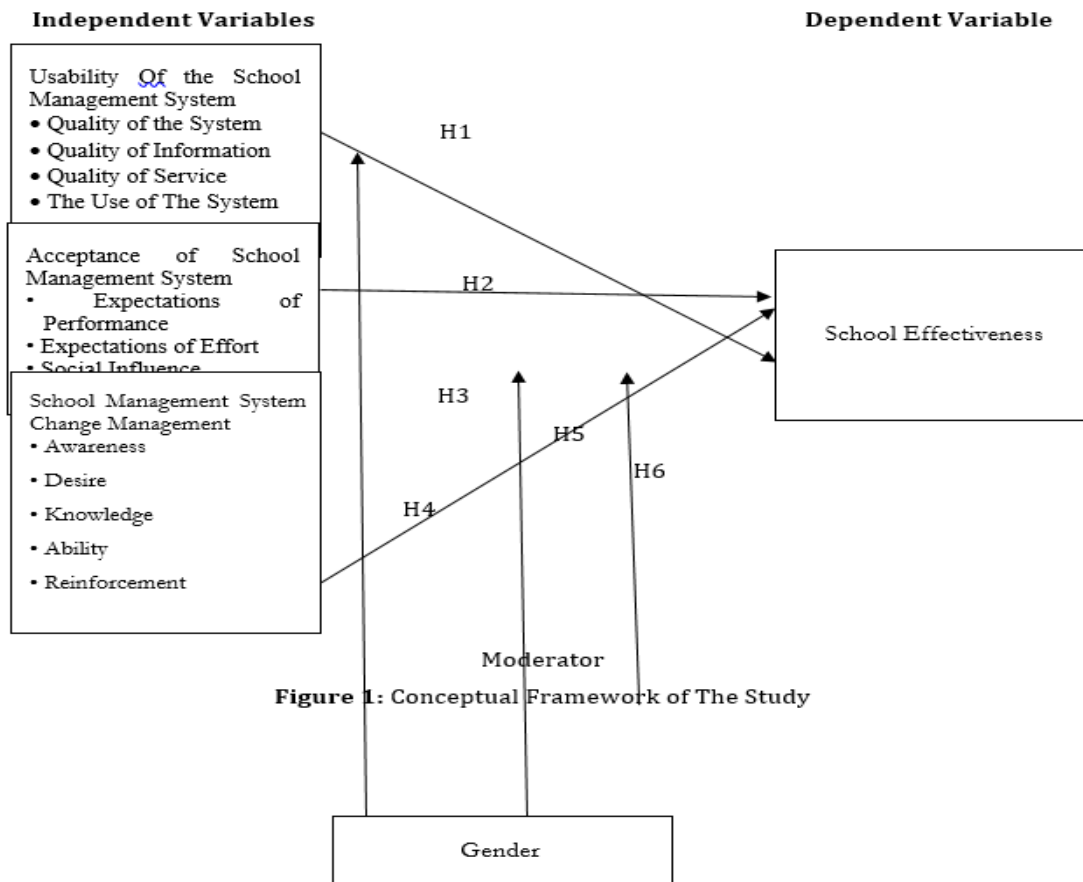


Figure 1: Conceptual Framework of The Study

RESEARCH POPULATION

The study population is teachers at daily secondary schools in Peninsular Malaysia. The sampling method used is stratified sampling. The states in the Peninsula are divided into four Zones (North, South, Central and East). One state is randomly selected by zone. In each selected state, one state education department (JPN) and one district education office (PPD) are randomly selected. For each PPD five schools are randomly selected. This study involves the secondary school teachers who have been randomly selected by considering several school exclusion criteria such as boarding schools, private schools, vocational colleges, technical schools, art schools, sports schools, and religious schools. In addition, the respondents involved in this study are teachers who have the same training background and qualifications in the teaching profession in terms of the philosophy and curriculum, are under an education system that implements the same educational policy, and with the same implementation of curriculum and co-curricular activities.

In this study, a stratified random sampling method was used. Stratified random sampling is suitable for large areas and there is a population heterogeneity in all identified clusters (Chua, 2016). Stratified random sampling was used in the selection of study locations involving state selection. In the first stage, a simple fishbowl random selection technique was used to select the states represented for each zone, namely the southern zone, the northern zone, the central zone and the eastern zone. Four of the thirteen states were randomly selected as study locations, namely Johor

Bahru representing the Southern zone, Penang representing the Northern zone, Selangor representing the Central zone and Kelantan representing the Eastern zone. Then, the selection of each PPD was done using the fishbowl method. Next, five secondary schools were randomly selected for each PPD that has been selected. Each number of respondents for each PPD was divided according to the ratio of the entire sample that has been selected which represents the total of four PPDs that have been selected. The total number of schools, sample, and total sample according to each district based on the stratified random sampling is shown in Table 3.3 below.

In addition, these selected states represent schools for each zone. The stratified random sampling was carried out on the PPD selection of each state. In total, 420 questionnaires were distributed to identified respondents and the respondents were selected as a random study sample. They were secondary school teachers in the selected PPD district.

Research Instrument

This research questionnaire consists of five parts, namely Part A (Demographics), Part B (Usability of SPS), Part C (Acceptance of SPS), Part D (Management of SPS changes) and Part E (Effectiveness School). Part A contains the demographic questions. Sections B, C, D and E use a Five Point Likert Scale rating. Each question item contains five answer options from strongly disagree for one, disagree for two, neutral for three, agree for four and up to strongly agree for a scale of five. **Table 3.4** shows the measurements for the items in the questionnaire.

Table 1: Instrument Based on Questionnaire Set

Questionnaire Set	Instrument (Section)
Teachers	Section A: Demographics
	Section B: Usability of SPS
	Section C: Acceptance of SPS
	Section D: Management changes of SPS
	Section E: Effectiveness School

Questionnaire

The questionnaire used in this study is divided into five parts namely Part A, Part B, Part C, Part D and Part E. The items contained in Part B are based on the usability of the SPS built on the construct and Model of DeLoan and McLean (2003) according to the instrument that has been taken, adapted and modified according to the study done from (DeLone and McLean, 2003; Nils and Benjamin, 2012; Halonen et.al, 2010; Hanae and Youssef, 2015; Davis, 1989; Ojo and Popoola. 2015; Tilahun and Fritz, 2015). Part C involves the acceptance of SPS which is built based on the construct and theory of the Unified Theory of Acceptance and Use of Technology (UTAUT) according to the instrument that has been taken, adapted, and modified according to the study done from (Venkatesh, 2003). Part D involves the change management where the items contained in it are built based on the ADKAR construct and model (Hiatt, 2006) according to the instrument that has been taken, adapted, and modified according to the research done from (Charu, 2018). Part E involves school effectiveness taken, adapted, and modified according to studies done from (Jehad, Nazem and Fayez, 2007; Halonen et.al, 2010; DeLone and McLean, 2003).

Validity Assessment of the Measurement Model

After the validity for normality and outliers is carried out, the validity of the measurement model can also be done. At this level, the process of determining the fit of the model to determine the validity and reliability of the construct is done based on several indicators. The complete measurement model in this study has been done with four variables and 13 constructs that have been accurate (fit) based on several criteria, namely (CFI=.903; IFI =.903; TLI = .900; RMSEA= .046). The table below shows the value of the measurement model.

Hypothesis Testing

The analysis is described according to the objective and based on the research hypothesis being tested. The following are the findings to meet the objectives of the hypothesis testing.

Analysis of the Direct Relationship of Usability Model Influence, Acceptance, and Change Management of the Use of the School Management System (SPS) on School Effectiveness.

This section describes the findings obtained to achieve the objectives of the study which are related to the direct relationship analysis of the influence model of SPS usability, SPS acceptance and change management of the School Management System (SMS) use on school effectiveness. There are three hypotheses tested to see the direct relationship in this study. The hypotheses tested are as described below:

H1: There is a significant direct effect between the usability of SPS and school effectiveness.

H2: There is a significant direct effect between the acceptance of SPS and school effectiveness.

H3: There is a significant direct effect between change management SPS and school effectiveness.

The hypothesis testing for the direct relationship analysis is done through the Structural Equation Model (SEM) analysis, Amos. The R² value shows that 64% of the total variance of organizational usability is explained by SPS usability, SPS acceptance, and SPS usage change management. The results of the analysis of the SPS usability ($\beta=.530$, $p=.000$) and SPS acceptance ($\beta=.527$, $p=.000$) on school effectiveness show a significant positive relationship. However, the analysis of SPS change management ($\beta=.028$, $p=.782$) on school effectiveness showed insignificant findings. This finding supports the hypotheses, H1 and H2 but does not support hypothesis H3 as shown in Table 4.23 below:

Overall, two of the tested hypotheses, which are (H1 and H2) are supported. Hypotheses H1 and H2 show that there is a direct influence between the usability of SPS and the acceptance of SPS on school effectiveness. Hypothesis H3 shows that there is no direct influence between SPS change management on school effectiveness. Overall, this finding means that H1 and H2 for this study are accepted and supported while H3 is rejected and not accepted.

Table II. Result Hypothesis Testing Decisions for Direct Relationship Analysis

Path Hypothesis	Relationship	B	p	Result Hypothesis
H1: KSPS → KO	+	.530	.000	Supported
H2: PSPS → KO	+	.527	.000	Supported
H3: PPSPS → KO	+	.028	.782	Rejected

Analysis of Teacher's Gender as a Moderator for the Relationship of SPS Usability, SPS Acceptance, SPS Change Management on School Effectiveness

Based on this structural equation modeling analysis, the study samples are 385 teachers from Peninsular Malaysia who have been selected. The Multi-Modal Analysis (MMA) test seeks to identify whether gender is a moderator in the predictor model of SPS usability, SPS acceptance, and SPS change management on school effectiveness. The moderating effect is measured to identify whether or not the difference in teacher gender acts as a moderator on school effectiveness. Hypothesis H4 aims to see the moderating effect of gender on the usability of the School Management System (SMS) on the school's effectiveness. Hypothesis H5 aims to see the moderating effect of gender on the acceptance of the School Management System (SMS) towards the school's effectiveness. Next, hypothesis H6 aims to see the moderator effect of gender on the change management and how it determines the school's effectiveness as the SPS is used in schools.

This section describes the findings for H4, H5 and H6, which test gender as a moderator for the influence model of usability, acceptance and change management of SPS use on school effectiveness. The results of the analysis show that this model achieves a good model matching accuracy and is suitable for use in the next analysis. Moderation effects were tested through; (i) overall model and (ii) individual pathways. The overall model is established by comparing Unconstrained (Variant-Group) against Measurement Residuals (Invariant-Group) (Hair et al., 2010). In the overall model, χ^2 (CMIN), df and p between Unconstrained and Measurement Residuals were compared. The results of the study show that both models are significant ($p < .05$) and Unconstrained is better than Measurement Residuals, where χ^2 (CMIN) Unconstrained is smaller. To determine whether the difference between two χ^2 (CMIN) is significant or not significant, the statement 'Assuming model Unconstrained to be correct' is also referred to. The results show that the p value $p < \alpha$, where p is .000. Therefore, it can be concluded that there is gender moderation in the overall model in this study. The invariance measurement test shows the following findings:

The tests for different gender groups (Individual Paths) continue to identify variables that have a moderating effect.

The results of the analysis show the usability of SPS and school effectiveness (KSPS \rightarrow KO) for the male group ($b=1.100$, $p=.000$). Meanwhile, the female group showed a value ($b=.435$, $p=.000$). Both criteria do not meet the conditions for determination as a moderator. Overall, this finding means that there is no moderating effect that exists between SPS usability variables on school effectiveness. Therefore, H4 is not supported and found not to be a moderator. In conclusion, gender is not a moderator for the SPS usability variable on school effectiveness.

H4: There is a moderating effect of gender on the SPS usability relationship with school effectiveness.

The paths of SPS acceptance and school effectiveness (PSPS \rightarrow KO) for the male ($b=.421$, $p=.004$) and female ($b=.529$, $p=.000$) groups did not comply with the moderator criterion in the structural model. Both criteria do not meet the conditions for determination as a moderator. Therefore, overall, this finding means that there is no moderating effect that exists between the variables of SPS acceptance and school effectiveness. Therefore, H5 is not supported and found not to be a moderator. Therefore, gender is not a moderator for the SPS acceptance variable on school effectiveness.

H5: There is a moderating effect of gender on the relationship between SPS acceptance and school effectiveness.

Meanwhile, the analysis of the moderator effect for the path of change management and school effectiveness (PP \rightarrow KO) for the male group ($b= -.097$, $p=.320$) and the female group ($b= .058$, $p=.655$). This criterion also does not meet the condition of the existence of a moderation effect in the structural model. Both of these criteria do not meet the conditions for determination as a moderator. Therefore, overall, this finding means that there is no moderating effect that exists between SPS change management variables on school effectiveness. Therefore, H6 is not supported and found not to be a moderator in this study.

H6: There is a moderating effect of gender on the relationship between SPS change management and school effectiveness.

The findings for the test of the invariant structure of each hypothesis path are obtained in Table 4.26 below:

Jadual 4. 26: Invariant structure test results for the hypothesis path

Path Hypothesis	Relationship	B	p	Result Hypothesis
KSPS → KO	Male	1.100	.000	Not a moderator
	Female	.435	.000	
PSPS → KO	Male	.421	.004	Not a moderator
	Female	.529	.000	
PP → KO	Male	-.097	.320	Not a moderator
	Female	-.058	.655	

Therefore, the conclusion is that gender is not a moderator for change management and school effectiveness. The table for unconstrained for both gender is as below:

Jadual 4. 21: Regression Weights: (Male - Unconstrained)

			Estimate	S.E.	C.R.	P
KO	<---	KSPS	1.100	.243	4.533	***
KO	<---	PSPS	.421	.144	2.917	.004
KO	<---	PPSPS	-.097	.098	-.994	.320

The unconstrained schedule for the women's group is as follows.

Jadual 4. 22: Regression Weights: (Female - Unconstrained)

			Estimate	S.E.	C.R.	P
KO	<---	KSPS	.435	.115	3.770	***
KO	<---	PSPS	.529	.084	6.260	***
KO	<---	PPSPS	.058	.130	.447	.655

Appropriateness Analysis of the SPS Usability Model, SPS Acceptance, and SPS Change Management on School Effectiveness

To achieve the third research objective, a predictive model (input model 1) was formed using the AMOS graphics program which aims to investigate the shape between the influence of three exogenous variables or independent variables (change management, usability, and acceptance of the School Management System (SMS)) against endogenous variables or dependent variables (the effectiveness of school organization in the use of SPS in schools).

Based on this structural equation modeling analysis, the number of study samples totals 385 teachers from Peninsular Malaysia. This section explains the findings obtained to achieve the fifth research objective, which is related to SPS usability, SPS acceptance, and SPS change management on school effectiveness. acceptance of SPS and change management of SPS on school effectiveness.

The third objective is to form a corresponding predictive model related to the applicability of SPS, SPs acceptance and SPs change management on school effectiveness.

Table 4.29 shows that the matching value for the usability model, acceptance, and change management in the use of SPS on the effectiveness of school organization has achieved matching accuracy with the study data. RMSEA indication value=.046. Next, CFI=.903, TLI=.900, IFI=.903 and CMIN/df=1.815 values confirm the findings for the analysis of the fit of this model and show that the developed model achieves a good fit value. This finding answers the objective of the third study.

Table 4.29: Finding the value of equivalence for the model of applicability, acceptance, and management of changes in the use of SPS on the effectiveness of school answering the fifth study objective.

Indications	Accepted Indication Value	Value of Conformity
Structural Model		
Absolute Fit Indices		
PROB (P-Val)	> .05	.000
RMSEA	< .08	.046
Incremental Fit Indices		
CFI	> .90	.903
TLI	> .90	.900
IFI	> .90	.903
Parsimony Fit Indices		
Chisq/df	< 5.0	1.815

Based on Figure 2, the squared multiple correlation value (SMC or R²) shows that 64% of the variance of school effectiveness can be explained by usability, acceptance, and change management in the use of SPS in schools. The suitability value of usability, acceptance, and change management in the use of SPS on school effectiveness has been achieved. The fifth objective of this study is to verify the model of usability, acceptance, and change management in the use of SPS on school effectiveness. Next, the matching value of the corresponding model is tested to obtain an acceptable model.

Figure 4.1 below, shows the three variables for school effectiveness in this study which are the usability of SPS, acceptance of SPS, and change management in the use of SPS. These variables are linked to form three structural relationships. The findings of the study show that these variables contribute to school effectiveness. The relationship formed shows that the model of usability, acceptance, and change management in the use of SPS achieves good matching accuracy, that is (DF=385, p=.000, CFI=.903, TLI=.900, IFI=.903 CMIN/df=1.815 and RMSEA=.046).

The model of usability, acceptance, and change management in the use of SPS in schools accounts for 64% of the variance in school effectiveness. The study found that factors related to the usability of SPS, namely (a) system quality ($\lambda=.71$), (b) information quality ($\lambda=.70$), (c) service quality ($\lambda=.67$), (d) use ($\lambda=.70$) and satisfaction ($\lambda=.67$) influence the school's effectiveness.

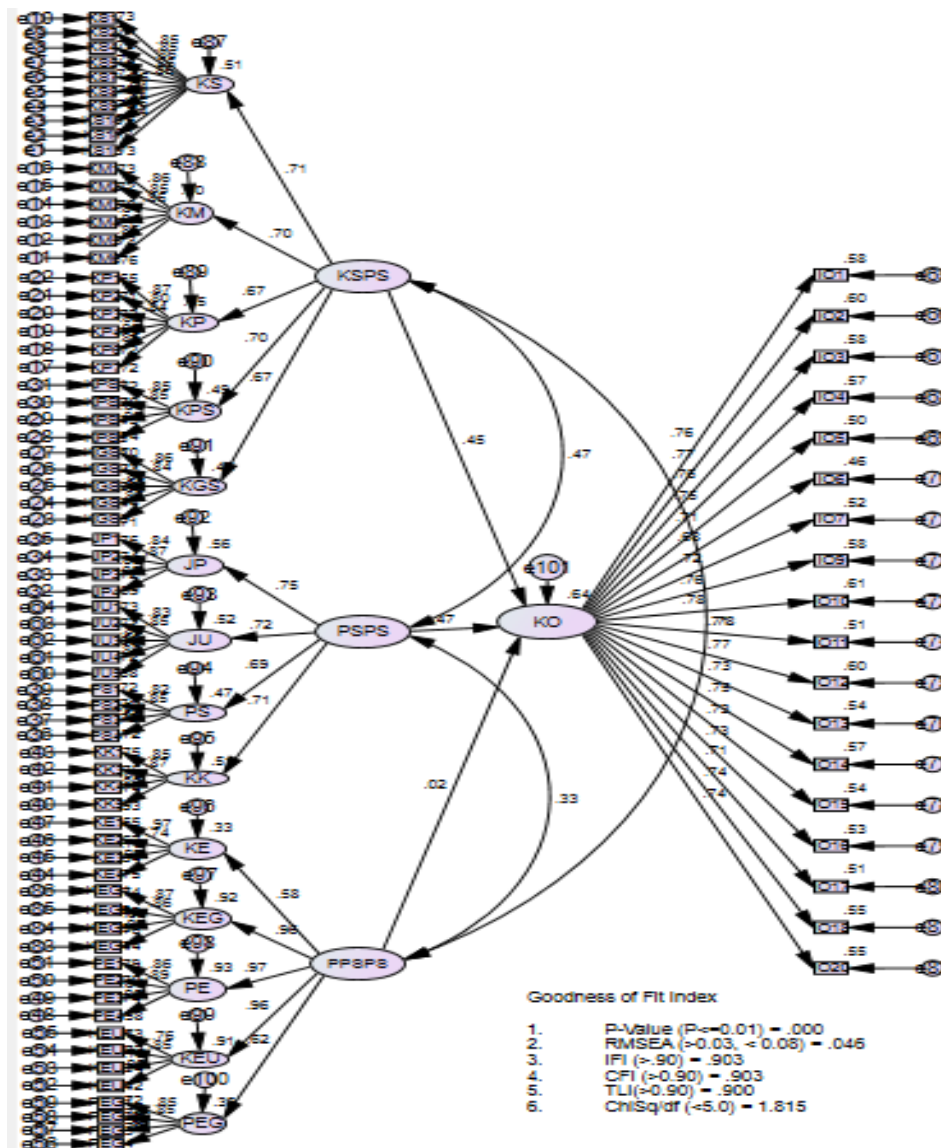


Figure 2: Output Model of the Influence of SPS Usability, SPS Acceptance, SPS Change Management on School Organizational Effectiveness

DISCUSSION OF STUDY FINDINGS

i. Usability of School Management System with School Effectiveness

The findings obtained show that the effectiveness of a system plays an important role in the school's effectiveness. Ida Bagus and Diki Putra (2017) stated that the quality of the system influences the performance of individuals and organizations at Airlangga University. It is also stated in this study that increasing the quality of the system will be followed by increasing the performance of individuals and organizational achievements of Airlangga University. When the quality of the system owned by Universiti Airlangga is good, it will directly improve the organizational achievements of the university.

In addition, this finding is also in line with the statement of Aferdita (2014) that a high-quality management information system will make the use of the system easier for its users. The efficiency of a management information system is dependent on characteristics such as being able to provide accurate information to the organization; having an information flow structure that is easy to see and

read; integrating organizational data processing such as personnel records, organizational information, and so on and making sound decisions. He also pointed out that to improve the performance of the management information system in an organization, there is a need for an increase in the reliability of the technical system to reduce the occurrence of system failure. He added that the success of an information system depends on how the system is designed and operated, considering several factors such as technical and facilities (Aferdita, 2014). In addition, the school's effectiveness is influenced by the usability of the system.

Based on the findings of the study obtained, it shows that there is a direct effect between the usability of the school management system and the effectiveness of the school. The findings of the study (Wixom and Watson, 2001) show a strong relationship between the usability of the system on organizational performance factors. In addition, if the system used in an organization can operate well, it can save a lot of time, and tasks can be completed quickly and more effectively (Wixom and Watson, 2001). Randy, Jeannie, and Terry (2006) also agreed that the usability of an effective system in an organization is important to ensure that the tasks performed can be done strategically and tactically according to the time that has been set.

In the field of education, there is a lot of information produced every day. Among the information in the school is the personal information of the staff members, of the students, information regarding teaching and learning, curriculum and co-curriculum, and lesson plans in the school. Therefore, an effective and efficient management information system is needed to facilitate the work of teachers in schools to be carried out more regularly and systematically (Tosun and Baris, 2011). Heavier workload would be increasingly overwhelming and pressurizing if teachers still have to adopt the manual methods. Past studies prove that the efficient use of computers will lead to improved information management and generate the vision of the Malaysian Ministry of Education to make the entire Malaysian education management world-class (Ernie Dharlya and Aslina Saad, 2013). In addition, the management system not only provides space and new experiences for teachers, but it can also encourage a revolution in the use of databases to ensure that the data obtained is flawless.

In the use of a management information system, teachers in schools need conducive conditions and sufficient infrastructural facilities such as easy access and internet access, and the system provided has a positive effect on users (Ernie Dharlya and Aslina Saad, 2013). This finding is in line with the study of Farhad, Reza, and Masoud (2011) who think that the potential of applying quality computerized management systems in all fields cannot be denied and can support and improve information or data processing.

Based on the use of SPS, it can be stated that it is safe to store school information. This is to show the usability of the system includes the organizational information security, increased usage in the use of the system, and increased organizational achievement by Isaias, Almir, Blake, and Adriano (2017). In addition, the findings of a study conducted by Isaias, Almir, Blake, and Adriano (2017) show that usability is important to a system and subsequently plays a role in school effectiveness.

ii. Acceptance of School Management System with Effectiveness School

Hypothesis H2 shows that there is a direct influence between the acceptance of SPS on school effectiveness. This finding is supported by Olabanji, Gonese, and Tafadzwa (2014), who stated that system factors such as facilities, the training provided and support from management are important to ensure that a system gains acceptance and then ensure that users' expectations can be met. In addition, efficiency and effectiveness in an organization depend on resources such as technology, people, and management. The effectiveness of an organization will be affected by an effective management information system, and the system is affected by its design, the output produced, and the facilities provided to ensure that it is accepted by users and user performance can be enhanced.

Performance expectations and effort expectations are the biggest contributors to the acceptance of SPS among teachers where the construction of SPS acceptance consists of (a) performance expectations ($\lambda=.75$), (b) effort expectations ($\lambda=.72$), (c) influence social ($\lambda=.69$) and (d) facility conditions ($\lambda=.71$). The performance expectation factor includes aspects such as how the use of SPS can improve the achievement and performance of teachers in carrying out daily tasks at school. Expectations of performance are a factor that causes the acceptance of a system use that has been empirically proven to encourage the development of personal achievement of teachers in schools (Oye, Lahad, and Rabin, 2011).

In addition, the expected effort factor also plays an important role in the acceptance of a system. Through this, users will usually use a new system if it is found that the system is easy to use and does not burden the user. Also, in line with the research done by Oye, Lahad and Rabin (2011) they stated that the use of a system that requires individual ability to be easily used will cause the system to be able to help users in performing tasks. The social influence factor is important to influence users in using a developed system. This finding is in line with the findings of a study conducted by Oye, Lahad and Rabin (2011) who pointed out that personality, behavior, and support from the organization/surroundings are some of the factors in getting the system to be accepted by users. However, there are studies mentioning that social influence does not play an important role in the acceptance of the use of technology / system (Chau and Hu 2001), because it established that they use a technology / system due to their own confidence, without caring about the opinions of others.

In addition, the expected effort factor also plays an important role in the acceptance of a system. This suggests that users will usually use a new system/thing if it is found that the system is easy to use and does not burden the user. Also, in line with the research done by Oye, Lahad, and Rabin (2011) it is revealed that when a system is easy to use, this enables the system to help users in performing tasks. The social influence factor is important to influence users in using a developed system. This finding is in line with the findings of a study conducted by Oye, Lahad, and Rabin (2011) who stated that personality, behavior, and support from the organization/surroundings are some of the factors in the system acceptance by users. However, some studies assert that social influence does not play an important role in the acceptance of the use of technology or system (Chau and Hu 2001), because they use a technology or system because they are already confident, without caring about the opinions of others.

Next, the findings of the factor of facilities provided in the use of SPS in schools are related to the facilities available to help teachers apply SPS in their assignments. The findings of the study conducted by Oye, Lahad, and Rabin (2011) also supported that the complete facilities provided in the use of a system will cause users to have more clear knowledge of using a system and can subsequently improve their achievement in ICT skills.

Overall, the findings in this study show that the acceptance of SPS has a significant influence on school effectiveness. It is also consistent with the findings of Oye, Lahad, and Rabin (2011) where the acceptance of the management information system by academic officers in universities is significantly positive to the university organization which shows that the University's ICT system makes tasks easier to achieve, which in turn makes them more productive in doing the next task and further enables them to increase the achievement of the organization.

iii. School Management System's Change Management and School Effectiveness

However, the findings for H3 (PP \rightarrow KO, $\beta = .028$, $p=.782$) show that there is no direct relationship between the management of changes in the use of SPS and school effectiveness. However, this is not supported by the findings obtained by Wan Idros, Noorzihidayah, Ali, and Maizatul (2017) who pointed out that changes in the use of information technology in organizations further increase organizational efficiency. In addition, the use of technology has also been found to be growing and

widely used in the organizational realm in addition to being able to improve the effectiveness of organizational management (Wan Idros et al., 2017). Among the things that can improve the effectiveness of the school are being able to reduce costs, reduce the error rate, and improve the performance and achievement of employees in carrying out multiple tasks and jobs (Wan Idros et al., 2017). Other findings also contradict the findings obtained in this study where most change management in the use of management information systems has an impact on the effectiveness of the organization (Farhad, Reza, and Masoud, 2011; Fisseha, 2011). Their findings show that changes in ICT can be a catalyst in the change management and help ease the process of accessing information.

Most of the studies shedding light on the significant findings of the influence of information system change management on the success of an organization, are conducted abroad. This may be due to several factors such as there are adequate facilities and sufficient costs to be disseminated to all school organizations, unlike in Malaysia where there are still intensive schools that still lack the Internet and computer access. Therefore, change management based on the use of information technology should be expanded. Therefore, what can be seen in the use of management information systems in schools is relevant to use; however, based on the findings of this study, what can be concluded is that the change management carried out in the use of SPS still needs to be improved among the responsible parties. It may be due to the lack of explanation about the changes in implementing SPS in schools which causes teachers to feel that the changes that occur in the use of SPS are too sudden and that they are not ready to receive the new system, especially without careful preparation.

iv. Teacher's Gender Acts as a Moderator for the Relationship of SPS Usability, SPS Acceptance, and SPS Change Management with School Effectiveness

The research findings show that gender is not a moderator among SPS usability, SPS acceptance, and SPS management with school effectiveness. This is consistent with a study done by Wang et al. (2009) which states that gender is not a moderator in the acceptance of information systems for an individual. This may be because nowadays, computer learning can be known and learned easily by all races whether male or female. Therefore, there is a sense of equality in the use of computers/internet where men and women can be skilled in using information management systems if they have an interest in using them.

However, some studies do not support this finding, for instance the one conducted by Hu, Han; Al-Gahtani, Said S.; and Hu, Paul Jen (2010), who said that the individual acceptance of the use of information systems in an organization is also influenced by gender. Research findings by Venkatesh et al., (2003) also suggested that gender is a moderator in the acceptance of students' use of information systems in universities. The findings of the study conducted by (Venkatesh et al., 2003) also supported the fact that women are more likely to accept information systems than men, which shows that female students tend to put more emphasis on the ease of use of this system when deciding whether or not they want to use the system.

In conclusion, all variables studied produce findings that show dependence on each other. Each variable also has its importance and contributes towards better school effectiveness. Therefore, there is a need for a combination of these three elements to be practiced in the management structure at the school level so that teachers can facilitate the school development at the same time boost their own professional achievement as well as the school's achievement.

SUMMARY

Hypothesis testing was carried out in this study through the Structural Equation Model (SEM) analysis using Amos version 22.0 to test the relationship between the variables studied. A total of three hypotheses was listed to test the direct relationship effect and three hypotheses to test the moderator effect. Findings show that two of the three hypotheses that test the effect of direct

relationships find significant positive relationships, namely for H1 and H2. Meanwhile, there is an indirect relationship which is H3. Meanwhile, the three Hypotheses which are H4, H5, and H6 seek to see the moderator effect that exists between the influence of SPS usability, SPS acceptance, and SPS change management on school effectiveness. The three hypotheses namely H4, H5, and H6 were found to have no moderating effect on school effectiveness. A summary of the findings of the hypothesis testing is shown in Table 4.30.

Next, based on the findings of the second hypothesis, it also shows that the acceptance of SPS has a significant influence on school effectiveness. This is based on the significant value obtained based on the Structural Equation Measurement Model done. The constructs found in the acceptance of SPS, namely performance expectations, effort expectations, social influence, and facility conditions, were found to have high validity (CFA) and construct reliability. This shows that these constructs have a high influence on the acceptance of SPS. Based on the findings obtained, it shows that the acceptance of SPS on school effectiveness according to teachers' perceptions is one of the important factors in the implementation of SPS in schools. Therefore, in conclusion, it proves that a system developed is found to be successful if it is well received by users. This echoes the statement of Venkatesh (2003) who also stated that user acceptance is important in the implementation of a system. This is because, if there is a good acceptance among the teachers in the use of SPS in the school, then the management that takes place in the school will also be orderly and systematic. Therefore, the suggestion that can be given is that the ministry should always ensure that the use of SPS implemented in this school provides teachers with facilities to access SPS in the school where it can facilitate the progress of their tasks in the school. Among the facilities needed are providing a comfortable space for computer use for SPS use, providing more laptops, and providing experienced technicians in solving problems related to the use of SPS in schools.

Based on the findings obtained in hypothesis 3 (H3) it is revealed that SPS change management is not significant to school effectiveness. Nevertheless, based on the CFA analysis conducted, the constructs found in SPS change management, namely awareness, desire, knowledge, ability, and reinforcement, were found to have high validity (CFA) and construct reliability. This shows that although this variable is not significant, it also helps to contribute to the school's effectiveness based on the value of the construct that is measured with high findings. Among the reasons why the construct of change management is not significant for the school's effectiveness is that, other factors may have a closer relationship with usability and acceptance that influence the school's effectiveness, such as knowledge management. However, what can be suggested is that the ministry needs to ensure that teachers in schools have been given sufficient information in the implementation of this SPS to ensure that teachers will have the first-hand knowledge about the need to create SPS in schools. This is also to ensure that teachers have enough knowledge about SPS operations in school.

It can further be concluded that the gender factor is not a moderator for the three variables in this study, namely the influence of SPS usability, SPS acceptance, and SPS change management on school effectiveness. In conclusion, it shows that there is no significant difference in the aspect of gender, i.e. male and female, for the three hypotheses, namely the usability of SPS, acceptance of SPS, and change management of SPS on school effectiveness. This means that demographic factors are not an important factor in the use of SPS in schools. In conclusion, it was found that male and female teachers in the school were at the same level when it comes to using the SPS. This clearly shows that the gender factor is not the main obstacle for the adoption of SPS in schools.

The predictor model of SPS usability, SPS acceptance, and SPS change management on school effectiveness shows a good fit value which is RMSEA = .046, CFI= .903, TLI= .900, IFI= .903 and CMIN/df value = 1.815. SPS usability, SPS acceptance, and SPS change management contributed as much as 64% of school effectiveness. This shows that the usability of SPS and the acceptance of SPS in schools are among the main factors that contribute to organizational development in schools. In

conclusion, based on the variance value of 64% obtained, this shows that the prediction model obtained is acceptable and has a good prediction model. Therefore, the factors of usability, acceptance, and change management of SPS are variables that can be used as one of the indicators of school effectiveness for further studies later. This may be since the use of this management information system can lighten the teacher's work assignments which previously, have been done manually and might have taken some of the teachers' time unnecessarily. However, for SPS change management, it shows that it is not significant where it may be because other factors contribute to the school's effectiveness, such as the administrator's leadership factor, school culture, and teacher's job satisfaction.

Practical Implications

The findings of this study shed light on the education policy at the Ministry of Education regarding the extent of the use of SPS among teachers in schools which can help the ministry in identifying problems that occur in the use of SPS. This new finding can be improved to help unravel the effectiveness of SPS in schools which can be improved further. In addition, the implications of this study were also discussed in three aspects covering (a) improving efforts towards the usability of SPS; (b) factors that convince teachers to accept SPS at school, and (c) increasing the teacher awareness factors in the changes that occur in the application of SPS at school.

The findings of the study show that SPS usability factors influence the school's effectiveness. This is based on the finding that the usability of SPS has a significant influence on school effectiveness. Therefore, various parties need to play a role in improving the usability of the SPS implemented. This involves a lot of social interactions and three-way interactions that must be conducted by the ministry, administrators, and teachers to further facilitate the use of SPS in schools. In other words, communicating with teachers to see feedback on the usability of SPS in schools must be done consistently. This is to ensure that the effectiveness of this SPS always has an effective impact on the school. Therefore, this shows that there is a need for continuous communication between the superiors and the school.

In addition, based on the low findings obtained regarding the ease of access to the School Management System (SPS) or the things that can be done by the ministry, it is recommended that the Ministry provides a wider access to the internet where it is easier to access everywhere, rather than focusing on an area such as in the city. The next recommendation is to provide more competitive information in school administration, further expanding the scope of information found in the SPS where it is not only focused on school assignments but also disseminates information related to aspects of school development. More comfortable computer facilities can be provided, such as the space to listen to complaints and problems faced by teachers in accessing the SPS, and administrators should also assist teachers in using SPS at school and facilitate the tasks given to ensure that the system can benefit the administrators, the teachers, and the students.

Other findings show that the change management is at a low level. Among the suggestions that can be given is that the superiors, namely the ministry, provide a clear understanding and support regarding the development of the SPS application in schools to ensure that it can benefit and have an effective impact on schools, especially in the field of management and administration. This is because teachers do not have clear knowledge and awareness of the SPS implementation in the school.

Based on the findings from this study, the level of usability, acceptance, and change management of SPS is still at a low level. Therefore, the ministry/superiors can take several steps to improve the use of SPS in schools, such as updating the system information continuously. The upper management can also support the role of SPS in improving the school's effectiveness. In addition, the ministry took several initiatives by involving school staff members such as teachers in the development of the SPS system, for example in the phases of analysis, design, construction, development, and testing of the

SPS system. This is to ensure that the SPS system that is developed meets the needs of the school organization, especially without burdening the teachers, and thus can have an effective impact on the administrative development of the school organization. Administrators are also encouraged to train staff members on how to use information systems to improve their performance.

CONCLUSION

Overall, the findings of the influence model of the SPS usability, SPS acceptance, and SPS change management which is guided by theory are able to explain the influence of important elements in improving school effectiveness. Factors of SPS usability and SPS acceptance contribute directly to school effectiveness. This assessment explains the importance of a quality system and acceptance from teachers in improving the school's effectiveness as well as encouraging school excellence. Previous studies have also proven that the use of efficient and effective information systems results in systematic information management and is set to realize the vision of the Ministry of Education Malaysia to produce world-class education management in the country (Ernie and Aslina, 2013).

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