

# A Study on ICT Related Issues for School-Based Assessment Online System in Malaysian Secondary Education

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*Abstract:* - School-based assessment is one of the initiatives under the Multimedia Super Corridor Malaysia that was introduced in the year 2010. The implementation of the SPBBS online system is an introduction of a new method of recording and reporting system for students' activities and academic achievement. This online system has been reported to trigger issues from the teachers as the major stakeholders in the system development and deployment. The online SPBBS system is claimed to be difficult to access and slow in response. The objective of this study is to identify, whether the claimed made is true or on the contrary. In ICT aspect, what is the element that causes the main problem? The infrastructure such as internet connectivity and hardware and knowledge of the users are studied. Surveys and interviews with the relevant parties were conducted, namely the teachers from Sekolah Menengah Sultanah Asma, Alor Setar, Kedah as well as the officers from Bahagian Teknologi Pendidikan Negeri Kedah. Comparison of data and information gathered are analyzed. Facts and findings should show that the problem would generally circulate around the internet capacity, hardware involved and ICT knowledge of the respondents or parties involved. The tasks and perception of each user involved are also evaluated.

*Key-Words:* - School-based assessment, SPBBS, ICT infrastructure, BTPN

## 1 Introduction

School-based assessment has been used around the world since 1970s (Linda & Laura:2008), particularly in countries such as Finland, England, Scotland, Australia, New Zealand Canada. The main objective of this initiative is to eliminate the traditional ways of accessing and evaluating students' achievement in their academic and curricular activities, which have been through centralized examinations.

Instead of having official and special examinations in designated areas, school-based assessment can be carried out in an ordinary classroom. The SBA is believed to stimulate both teachers and students in their ways of teaching and learning processes, respectively. Nevertheless, proper examination at school level is also to be conducted as it will complement other form of assessment or evaluation.

School based assessment in Malaysia was started back in the year 2010 (Shanusi Ahmad : 2007). It was implemented as a reformation in our education system, to lessen the emphasis on examinations as a tool to evaluate academic achievements. A student will not be evaluated on his ability to score good results in major examinations only but will also be evaluated on other aspects eg. participation in class, completing their homework and participation in cocurricular activities to contribute to his overall academic performance.

According to Naimah Ishak, the Examinations Director from Ministry of education Malaysia (2011), the rationale reasons in implementing SBA in Malaysia are :

- a. To achieve the aspirations of the National Philosophy of Education towards developing

learners or students physicals, emotional, spiritual and intellectual abilities

- b. To reduce exam-oriented learning among students.
- c. To evaluate students' learning progress.
- d. To enhance teachers' integrity in assessing, recording and reporting of students' learning or academic performance.

The major components in School-based assessment are:

- a. Academic
  - School base assessment using performance standard.
  - Centralized assessment or year-end compilation.
- b. Non-academic
  - Physical activities or curricular activities and sports assessment also known as Pentaksiran Aktiviti Jasmani, Sukan Dan Ko-Kurikulum (PAJSK).
  - Psychometric / Psychological test.

## 2 Problem Statements

In this study, researcher has scrutinized the school-based assessment aspect directly related to the SPBBS online system, which involves the process of recording and reporting mechanism. Nevertheless, a brief study on the manual system of recording and reporting in the SBA for certain subjects will also be analyzed.

Since the inception of SPPBS online system, the problem of accessing and updating the record is a major set-back for the teachers' module. Put aside another major issue, i.e. assessment method of the students, the recording and reporting in SPBBS involved the ICT element.

SPPBS online system can be accessed on the Ministry of Education link or direct web access at

[http://apps.moe.gov.my/sppbsmlat/sppbsm/index\\_m.cfm](http://apps.moe.gov.my/sppbsmlat/sppbsm/index_m.cfm). The system normally will be opened for access by the users during a specific time. The users must be aware and alert to the announcement made by the Ministry of Education or Malaysian Examinations Syndicate. However, once the system is accessible, the teachers involved are advised to update and record the data

frequently, and not to wait or delay until the last minute. The main objective of this research are:

- a. To identify the problem of accessing the online SPPBS system.
- b. To create a model of the workflow in the online mode and offline mode.
- c. To measure the effectiveness of both situation or mode

## 3 Literature Review

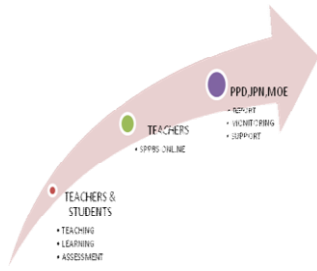
### 3.1 Information and communication technology (ICT) in school-based assessment.

Sistem Pengurusan Pentaksiran Berasaskan Sekolah (SPPBS) online system is a web-based system designed for the purpose of recording and reporting of the students' academic activities. At the moment only students in the lower forms are involved in this school-based assessment, i.e. Form 1 and Form 2. However, Lower 6 students are also involved starting this year, 2013. For the SPPBS online system, there are several major ICT components involved, namely:

- a. Web based software.
- b. Internet infrastructure.
- c. Centralized servers.
- d. Hardware such as computers and notebooks.

This study was conducted based on the objective to identify and justify the claim made regarding the problem in accessing the SPPBS online system, which has been voiced out by the teachers. As cited by Faizah A Majid (2011), the role of teachers in the new assessment system is vital. However, the teachers must be equipped with sufficient knowledge and skills in performing their task for the SPPBS system in general.

According to Hamzah and Sinnasamy (2009), based on their preliminary study, the implementation of PBS or SPBBS in general was not in line with the guidelines and objectives provided by the Malaysian Examination Syndicate. The SPPBS online system is the second step of the whole process of the SBA, which only represents the task of recording and reporting the students' activities and achievement.



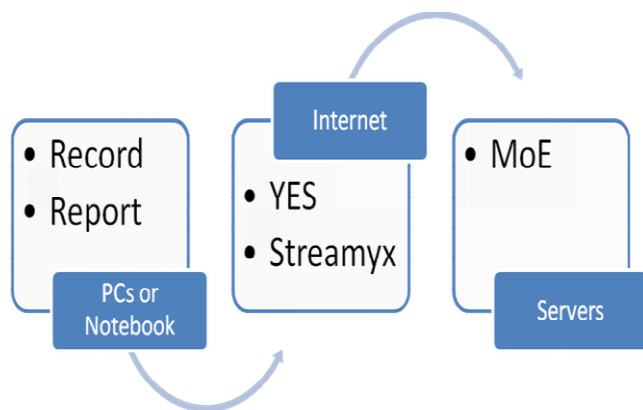
**Figure 1. The basic workflow of the SPPBS process**

Figure 1 shows the workflow of SPPBS process where the initial teaching and learning process is carried out as per normal. However, the teachers will also start their assessment of the students' abilities as they teach. Next, the teachers will record their assessments in the SPPBS Online system. These reports will be updated and saved in the server at MOE and will be accessible by the relevant authorities at PPD, JPN and MOE.

In SBA, the process of teaching and learning is a normal or routine activity as in the past. The SBA will only come in picture when conducting the assessment for the students. It is actually the assessment process in SBA which is the most crucial part. Graham Maxwell (2006) has claimed that the component of successful school-based assessment is teachers' expertise. Two kind of expertise are involved;

- a. Obtaining good information on students' learning by using good assessment procedures.
- b. Making good judgments which are applying relevant performance standards.

In general, the workflow of the SPPBS system is data and information collection. Teachers will maintain every student who involved in the PBS and update their record based on teaching evidences gathered.



**Figure 2. The basic layout of the workflow of the SPPBS online system.** Based on Figure 2, all the data and information will be sent to the server at the Ministry of Education for collections. Looking at the current situation, the process of collecting data and information is on a large scale. According to Liong K.C (NST 2012), teachers are complaining that they are burdened by their online data entry tasks and about apparent inefficient and often “dysfunctional” computer system. The existing structure is believed to be overloaded with data and information collection which can be minimized by segmenting the data collection by region, district or even school itself.

Every school organization will appoint several teachers to lead the SPPBS implementation process. These teachers will represent their school in seminar and conference in learning the process of data recording and reporting using the SPPBS online system. However, at school level only a few hours are taken to teach and train other teachers at their schools on the procedures and guidelines. As mentioned by Faizah A Majid (2011), there is a “leakage” of instructions and information in this level which can contribute to the so called “dysfunctional” computer system.



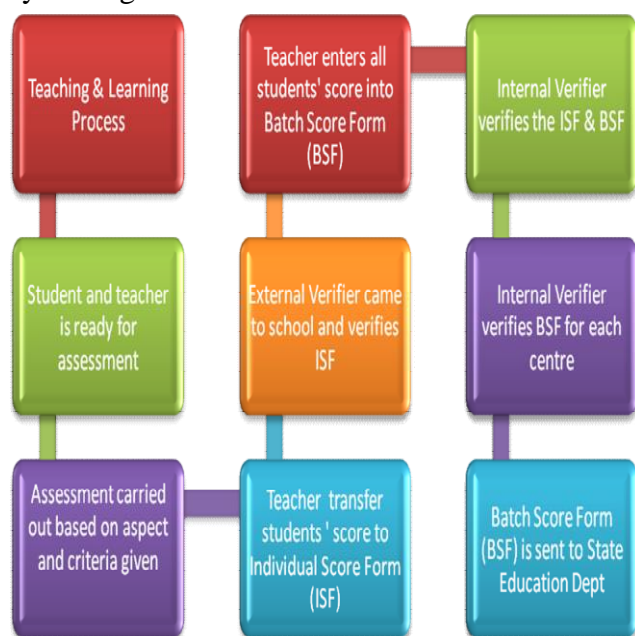
**Figure 3. The workflow of the manual or standalone SBA process**

There is also another method of recording and reporting process in the SPPBS system which is standalone mode or manual procedure as shown in Figure 3 above. The standalone mode is applied only for certain subjects and students, i.e. Information and Communication Technology subject for Sijil Pelajaran Malaysia or SPM. Generally, for the form 5 ICT subject, there are 13 modules of coursework which the students have to complete. Hardcopy forms are

to be filled in by the students and their teachers will monitor and assist them in completing each modules and forms. At the end of the given time, summaries and reports will be submitted to the Jabatan Pelajaran Negeri.

With this method, there is not much complaint except for extra work load by the teachers concerned. Data and information are manually generated and hardcopy evidence is submitted to the respective authorities. With the manual method, the teachers are required to maintain an individual file for each and every student, with proper filing system. Thus, a specific and secure filing cabinet with a lot of students files have to be made available which means that if one form consists of 15 to 30 students, a lot of files have to be maintained.

The workflow of the manual SBA process for ICT subject for SPM students can be represented by the Figure 4 below.



**Figure 4. The overall process of SBA for ICT subject for SPM or Form 5. (Courtesy of SMK Sultanah Asma)**

The workflow was taken from the Head of Committee for ICT subject of SMK Sultanah Asma operation manual supplied by Malaysian Examinations Syndicate. As we can see, the process is quite long and time consuming. However, the process is easy to understand and teachers can carry out their teaching and

learning process as usual, except that a different and independent Examiner or External Verifier will come and visit and verify their work. The External Verifier is a teacher who is appointed by the State Education Department.

In this manual or standalone SBA process, no internet connection or application software is involved. Teachers and students are only required to fill in some forms in Microsoft Excel and Microsoft Office format. The process of assessment and learning are usually carried out by both parties at the same time in the classroom or ICT lab.

## 4 Research Methodology

This study only took place in Sekolah Menengah Kebangsaan Sultanah Asma, Alor Setar, Kedah. A total of 20 teachers who are involved in the SPPBS online system took part in a survey conducted by researcher. The school is well known as one of the best school in Malaysia and awarded as Sekolah Berprestasi Tinggi. For the year 2012 SPM results, they managed to become the second place in the overall result in Kedah state.

### 4.1 Respondent.

Survey forms are distributed to those teachers who are currently involved and using the SPPBS online system. These teachers are teaching students from Form 1, Form 2, Form 5 for ICT subject and Form 6. The researcher personally administered the survey by handing out forms and briefly explaining a few questions in the survey form.

The survey form was designed as simple as possible in order to encourage and ease the understanding of the respondent. Nevertheless, facts and criteria are stated clearly to ensure quality data and information is gathered.

### 4.2 Questionnaire Design.

The questionnaires were constructed by dividing into 3 sections, Respondent Demographic, Analysis on System Usage and

Suggestion. The first two sections contained closed-ended questions while the last section contained open-ended questions (Loughborough Univ, 2012).

### 4.3 Data Analysis.

All data collected were analyzed using method of descriptive statistic (William MK, 2006) in order to extract data and information to formulate the findings. The SPPBS online system consists of several modules designed for different users or stakeholders.

### 4.4 Interview.

Bahagian Teknologi Pendidikan Negeri Kedah (BTPN) is another agency or department which is under the Ministry of Education Malaysia. One of the core function of this unit is to provide technology services enhancement for schools in Kedah. For the purpose of this study, researcher managed to conduct an interview with Puan Zabidah Salleh, the Assistant Director of ICT Services for Kedah state.

The purpose of this interview was to get information on the latest development in ICT for SBA in general. During the interview, the questions are focused on the internet connection facility provided and any other initiative provided. The unstructured interview method was used, which tend to be more open, informal, non-directed and flexible (Annabel, 2005).

### 4.5 Model Development

The combination of both method, i.e. surveys or questionnaires and unstructured interviews had enabled the researcher to gather valuable information to formulate the findings and recommendations later.

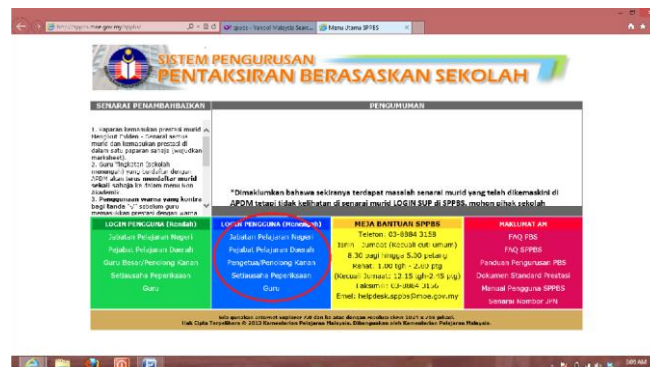


Figure 5. The extract of the SPPBS online system for sekolah menengah or secondary school.

Figure 5 shows the start Menu for the SPPBS online system. From the user login menu, respective users can login according to their post or task. For this study, only the “guru” or teachers module will be analyzed. Teachers’ module is very important as the whole system process starts with this module. Below are the modules available from the system:

Table 1. List of users’ modules and tasks

Module	Task /Function
State Education Department (JPN)	Monitoring / Print / Support
District Education Department (PPD)	Monitoring / Print / Support
Principal / Assistant Principal (School)	Monitoring / Print / Support
Secretary of Examination (School)	Monitoring / Print / Support
Teachers (School)	Record / Report / Print

As shown in Table 1 above, every user has almost similar tasks and functions, except for teacher’s module as mentioned earlier.

However, the monitoring, printing and support function for each module is subjected to level of access.



LEARNING AREA 5 – PROGRAMMING

5.1 Basic Programming Concepts

5.1.1 Define Program and Programming Language

5.1.1.1 State the definition of program

A computer program is a series of organized instructions that directs a computer to perform tasks

5.1.1.2 State the definition of programming language

A programming language is a set of words, symbols and codes that enables humans to communicate with computers.

5.1.2 Level and Generation of Programming Languages

5.1.2.1 Identify the generation of low-level programming language with examples.

Low Level	Description	Examples
First Generation – 1GL	Machine language is a set of instructions and data (written in binary code) that a computers can execute directly.	Machine language
Second Generation – 2 GL	Assembly language is the human-readable notation for the machine language used to control specific computer operations.	Assembly language

5.1.2.2 Identify the generation of high-level programming languages with examples

High Level	Description	Examples
Third Generation language	Procedural language uses a series of English-like words, that are closer to human language, to write instructions.	PASCAL, FORTRAN, COBOL, BASIC, C, ADA
Fourth Generation Language – 4GL	Non-procedural language, enables users to access data in a database.	SQL, NOMAD and Focus
Fifth generation_ 5GL (natural language)	Provides a visual or graphical interface, (visual programming environment) Allows people to interact with computers without needing any specialised knowledge.	Prolog and Mercury

Figure 6 . Extract Form for Schema Coursework or Learning Area 5, courtesy from SMK Sultanah Asma.

Figure 6 is the sample of reporting and assessment system done manually for the subject of Information and Communication Technology for Sijil Pelajaran Malaysia. The forms consist of 13 coursework or topics. For each topic covered by the students, they will fill in the forms which may consist of a minimum of 5 pages to 15 pages, depending on the topic itself.

The assessment and reporting system is quite simple and can be done instantly by the teachers and students. However, the process of compiling and completing the whole process involved many parties such as External Verifier appointed by State Education Department, Head of Committee for subject and State Education Department as well as Ministry of Education.

### 5 Findings and Discussion

The menu for teachers in Figure 7 shows the login and start using the system. The red circle is indicating the disclaimer or requirement stated by the system developer. In this case, it clearly stated that users should use a specific browser, as the

system was developed and tested using this application.



Figure 7. The extract of the teachers’ login menu.

From the survey, it was found that not every teacher is aware of this issue and they would use other browser application as they wish. This is an evidence to prove that proper guidelines and instructions are not fulfilled by the teachers. Lack of training or awareness can lead into difficulties in accessing and further use of the system.

Previously, Hamzah and Sinnasamy (2009) have stated that assessment was not implemented according to the guidelines and objectives provided by the Malaysia Examination Syndicate. The assessment was carried out for the sake of fulfilling the administrative directives.

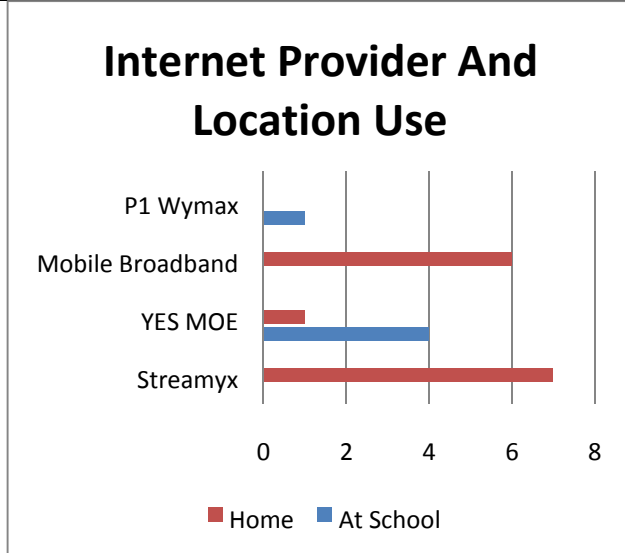
During the study also, researcher found that majority of the respondents stated that the SBA is consuming too much time. The teachers are facing with time constraint and having to handle large numbers of students but at the same time, they indicate a positive perception towards the implementation of the School-Based Assessment.

Teachers are required to assess and evaluate their students based on the “evidences” in the classroom. These “evidences” can be in form of quizzes, question and answer session or even a simple exercise in the classroom.

From the finding, it is noted that younger generation teachers aged between 20 to 40 years old have agreed and declared that the SPPBS online system is easy to understand. This is a good sign or indicator considering these young teachers will be the next generation who will continue to implement the system. This is illustrated in Table 2 below which shows the data from respondents’ answer based on their perception of the SPPBS online system.

**Table 2. The respondents' perception base on age factor.**

Age (Years Old)	Difficult	Not Difficult
20-40	0	4
41-50	2	9
51-60	4	1
Total	6	14



**Figure 8. The respondent usage of internet facility against location use.**

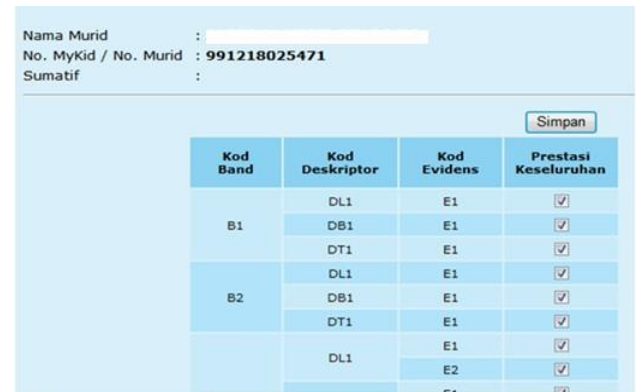
From the Figure 8, it was found that teachers are using Streamyx connection at home to perform their tasks for SPPBS online system. Only 20% of them are using the YES YTL that is provided by the MoE for the school around Malaysia. From this study also, it was found that teachers are keen to perform their recording and reporting on the SPPBS at home, which is about 70% rather than at school or during the school hours.

From the response gathered, it was learnt that about 18 person or 90% of them stated that they have not enough time to complete the task at school and which may lead to the majority of them performing the task at home.



**Figure 9. Menu for Subject Registration from SPPBS online system**

Figure 9 shows the example of subject registration for students, which normally occurs at the beginning of each year. The respective teachers will enter students' details into the system. Once the data of the students are captured or listed in the system, the teacher will be able to enter the evaluation based on the "evidence" or exercise done in the classroom.



**Figure 10. Example of evidence or data entry**

Based on Figure 10, an example of "evidences" or evaluation process done by the teacher is shown. However, teachers have two ways of entering or recording the data, i.e. either by entering via student one by one or via "evidences". Those teachers who are well informed will choose the faster way of entering the data i.e. via "evidences" entry rather than via students entry.

As mentioned earlier, interview with the BTPN Kedah was conducted to investigate the development of ICT infrastructures and services. As stated by Zabidah Salleh, the Assistant Director of ICT Sevices, YTL

Communications Sdn Bhd as the official partner for ICT infrastructure provider had given away 4 to 5 Zoom 4G Gateway or the wireless modem router for 201 schools all over Kedah state. Recently, the company also had distributed between 10 to 20 USB Free Go to every school, depending on their population or teachers involved in SPPBS.

Another initiative from the government is the supply of Chromebook for 200 schools in Kedah which is planned for this year. The Samsung Chromebook is a device which is equipped with 4G internet connection up to 20Mbps in speed and designed for internet access only. However, she added that the department has yet to receive any formal instruction on the matter.

## 6. Conclusion and Recommendation

The study of the SBA or SPPBS online system itself has further confirmed that teachers' responsibility and knowledge as well as teaching process are vital areas or elements in ensuring the smoothness and success of these initiatives. The process of learning by the teachers themselves in implementing the SBA would affect the overall progress of the system. According to Tan Sri Dr Murad Mohammad Nor, the former Education Director General, when commenting on the New Education Blueprint (The Star, 2007) was saying "...the most important part in implementation of any plan, is the teachers. However good the plan, it will be of no use if the teachers do not implement it well".

Teachers' role is very important in every aspect of teaching and learning. The success of these initiatives and transformation rely heavily on their shoulders. The transformation of education system in Malaysia is important as it is in line with the Vision 2020 initiated by the former Prime Minister, Tun Mahathir Mohamad.

From this study also, researcher would highly recommend that seminars, trainings or workshops need to be held by the relevant authorities in order to teach or train the teachers to implement the system accordingly. They have to be competent

in all aspect in handling the SPPBS online system.

As mentioned by Shanusi Ahmad (2009), The Teachers Education Division (TED) of the Ministry of Educations Malaysia is currently the authority or department responsible to conduct training for the teachers. ICT and Art Education subjects for SPM are currently among the subjects using manual or standalone assessment. For the ICT subject, the assessment method has been done in accordance with the SBA system since the beginning. Teachers who are involved or have been teaching the subject seemed not to have much difficulties with the SBA implementation.

SBA has not been fully implemented as yet. The relevant authorities target that by the year 2014, the implementation will take full swing in conjunction with the elimination of PMR and UPSR national examinations. However, the improvements in terms of ICT infrastructure as well as the SPPBS online system structure has been made and will continue to be upgraded to facilitate the use of the system.

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