# Performance Efficiency Enhancement Using School Web-Based Management System

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## Abstract

The study delved on the performance efficiency enhancement of the big schools in Pangasinan I using School Web-Based Management System. The study determined the perceptions of the teachers and personnel on the level of availability, adequacy, and effectiveness of the computer facilities; level of readiness of various computer operations; performance efficiency of the personnel in producing form 137; performance efficiency of the big schools using school web-based management system; level of usability and acceptability. The descriptive developmental method of research was used in this study. Findings showed that the computer facilities of these schools are available, adequate, and effective; teachers and personnel are ready in various computer operations; performance efficiency of the personnel is very much efficient; and the School Web-Based Management System is usable and acceptable.

**Keywords:** efficiency; information system; management information system; performance

## Introduction

In these contemporary times of modernized society, coping mechanisms and innovative ways of doing things is a must. Thus, to meet the demand of quality and excellence in every field of specialization, particularly in technological innovation, radical changes are inevitable toward performance management of transformational society.

Performance management is essential in organizational management to yield the expected results and behavior. It covers not only in the aspect of work but also in other areas such as schools, community, meetings, churches, sports teams, and to some extent, in political environments or in any place of the world where social and human interaction generate the desired outcomes. Baron and Armstrong (2010) define performance management as an integrated and a strategic approach towards enhancing the organizational efficiency by bettering the performance of employees and through developing the individuals and teams' capabilities.

Efficiency is the level of performance that describes a process that uses the lowest amount of input in producing the desired amount of output. Efficiency is an important attribute because all inputs are scarce. Time, money, and raw materials are limited, so it makes sense to try to conserve them while maintaining an acceptable level of output or a generation production level. Therefore, being efficient simply means reducing the amount of wasted inputs (Investopedia, 2012).

The desire to change stems not only from the demands of the improved quality of life, but also from the pressing need to be active participants in the fast changing world as a staple and as ration in the 21st century (Rajaraman, 2012). It is necessary that administrators should take less conservative role and explore the technological advances of computers. The increase in the use of computer technology in today's management has an effort to the future benefits in all areas of society (Williams & Sawyer, 2013).

The advent of Information and Communication Technology in education has become one of the emerging concerns in educational institutions today. It is a vital tool to boost the accessibility to learning opportunities. Under appropriate conditions, ICT can have a monumental influence on the development of learning opportunities as it enhances the teaching pedagogy by modifying typical delivery systems, enhancing the quality of learning achievements, assisting lifelong learning and improving institutional management (Albay, 2013).

Since, computerization nowadays is the most promising goal and mission of ICT, all agencies, establishments, and the like organizations must be modernized with those sorts of technology. It is either in the way of upgrading their process or hooked up in the development of the system to diminish the processing of documents or compromise with the people for quality service (Florencio, et. al., 2008).

Furthermore, the internet facilities speedy delivery of information and gratifies to the widest possible spectrum of readers who inquire, acquire, and gain information. In like manner, agencies and business organizations in the global community can also promote products and services as well as important information though the internet (Suguitan, 2007).

The computerization of all aspects of society has made computer literacy a necessity for administrators and managers and future recruits in government and non-government organizations. Everyone is encouraged to study the basics underlying ICT operations and applications to remain competitive in the job market and to keep up with the trend (Jemma Development Group, 2011).

This kind of change requires integrating traditional management system into the future of digital technologies. Among the challenges that managers face as they approach the digital age is to know significantly how to use effectively the Management Information System (Laudon & Laudon, 2014).

Sarras (2011) explained that Management Information System (MIS) is an integral system of man and machine works for quick access of information which

facilitates the decision making and managerial function in the organization dubbed as Information and Decision System and Computer-Based Information System.

MIS influences managerial functions such as marking, finance, production, and personnel (Haag; Stephen, et. al., 2011). Managers are well updated on the current development in every aspect of business; hence, tracking and guidance of functional objective become easier because of information is already accessible when combined with data analysis which is of great help to manager's essential time (Pearlson Keri E., Saunders, Carol S., 2012).

Magal and Word (2012) explained that online systems allow users to directly initiate various functions such as: (a) introducing transactions; (b) making analysis; (c) seeking information; and (d) restore prominent files. In addition, online computer systems use different types of terminal devices so that they can perform widely; and depend on their logic, communication, storage, and essential processing efficiencies.

Previous data and the present status data in organization's activities are contained in data based maintained by the organization. These are essential component of an MIS where manual procedures and computer processing of information are integrated. Thus, MIS plays a significant role in providing information that supports managerial functions in planning and decision making (Bidgoli, 2013).

Hence, a computerized Information System would wisely benefit both the administration and the whole organization because it speeds up the processing of data, retrieval and storage of information as proposed by Razon & Tabili (2005). This was vividly depicted in their study on Computerized Student Information System (CSIS).

The Department of Education (DepEd) developed another system called Learning Resource Management and Development System (LRDMS) and Learner Information System (LIS) to improve the efficiency, effectiveness, and equitability of educational management in the Philippines. As a result, information systems in DepEd are synchronized to regional, division, and school level (Learners' Information System, 2012).

Schools in the Division of Pangasinan I, especially the big schools, still use the conventional way of keeping records such as the use of Form 137 and Form 138 despite the fast-paced technological information seemingly demands paperless transactions.

One innovation that school managers and faculty staff are employing to shifting into modernization is the School Web-Based Management System (SWBMS). Telem (2010) opined that the initiation of a MIS into a school situation can contribute to improved performance, heightened educational management, and attained goals. Thus the system is seen as an aid in overcoming sluggishness in school. However, schools have historically lagged behind non-educational organizations in the execution and implementation of management information systems (Edelhauser, 2009).

The use of technology for management of resources, particularly in schools, is vividly fruitful for managerial functions. As a matter of fact, Dr. Alfredo Galano, ICT Coordinator of Mangatarem National High School, said that the use of SWBMS would be a big help for easier and compatible data handling - especially with students' records that are bulky. Likewise, Mr. Marvin Manuel, personnel of Calasiao Comprehensive National High School, testified that SWBMS would carry out data and information anywhere with simple internet connection for structured student's track records.

Moreover, it may be noted that the management of resources and workflow such as documentation is faster as compared to the previous systems of CCNHS Citizens Charter 5 working days in the issuance of forms and services.

Thus, the management of resources and performance of routine work will be quicker. Likewise, access to resources will be easier to carry out. This has been emphasized by Ms. Lyn Rosal, personnel of CCNHS. She said that the advancement of technology must keep the pace of modern day of management and administrative trends as modern day school.

Thus, the researcher was motivated to test the performance efficiency of the big schools using School Web-Based Management System (SWBMS) in securing and accessing information using technology in its most systematic way.

**Framework of The Study**

The present study focuses on the emerging development of performance efficiency of School Web-based Management System. It anchors deeply on the concept of Management and Technological theories informed by views drawn from Efficiency Theory, concept of Total Quality Management, Socio-Technical Systems Theory, Cognitive Fit Theory, Technology Acceptance Model, Unified Theory of Acceptance and Use of Technology, Task Technology fit and – all of which contributes to the conduct of this research.

Efficiency Theory is used by economists in different contexts to support this study. Allocative (price) efficiency tells whether or not a good or service is provided. Technical (production) efficiency is concerned whether or not a firm or decision making unit (DMU) produces the same observed output at the least possible cost (Galban, 2010). Moreover, accessible efficiency refers to the number of electronic materials in providing services to the customers. When the allocative, technical, and accessible efficiency of an institution is combined, productive or total performance efficiency is achieved (Archer, 2010).

Total Quality Management (TQM) becomes prevailing culture of the institution. The cornerstone of TQM is customer - focus which seeks to integrate all organizational functions to focus on meeting customer needs and organizational objectives. On the other hand, benchmarking is another approach which refers to the process of analyzing work and service techniques against the best practices and to determine changes that will result in higher - quality outcomes.

Meanwhile, socio-technical theory implies two fundamental perceptions: (1) a social and (2) technical system. Socio-Technical Theory describes the complex relationships between society, function, and technology. It helps regulate how these relationships can be used for convenience (Cooper, Gencturk & Lindley, 1996).

Vessey (1991) introduced Cognitive Fit Theory to explain the inconsistent results of successive studies in the area of information presentation using graphs and tables. Moreover, the main point of this theory is information acquisition and information assessment errands and absolutely made up the information presentation (Zhang & Galleta, 2006). Hence, School Web-based Management System uses the best presentation to show the information of the database of the system.

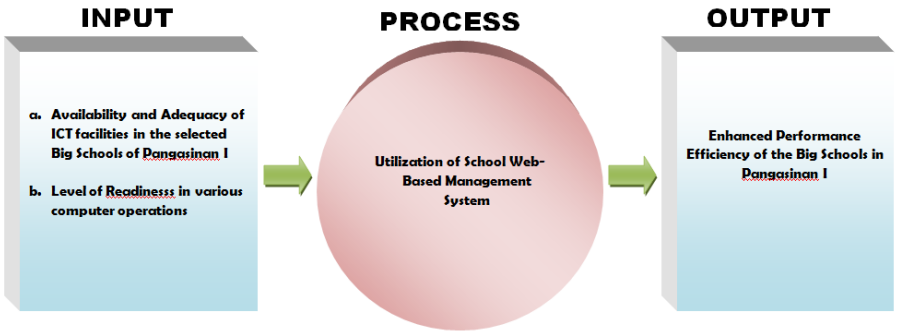
On the other hand, Technology Acceptance Model recognizes practicality and ease of use to determine an individual's intention to use the system. This is a long process done by the programmer to satisfy the need of the users. Utilization of the School Web-based Management System is required to test the performance to maintain the quality assurance of the system and the service.

Meanwhile, Unified Theory of Acceptance and Use of Technology (UTAUT) was formulated by Venkatesh to accept the information technology by the user in unified view. In addition, this theory is used to identify whether the information system is accepted in the practice of the administrators or personnel. Questionnaires administered serve its purpose if the agency is ready to employ the system. On the other hand, this study will use the system as an instrument to assess the performance efficiency of the big schools (Schepers & Wetzels, 2007).

The Task Technology Fit theory advocates that an enhanced fit between technology functionalities, task requirements, and individual activities will lead to better performance (Davis, Bagozzi, & Warshaw, 1989). Putting everything into perspective, the theoretical framework shows how School Web-Based Management System was developed using Management concept and Technological theories relevant to the study. Furthermore, enhancing a system through feedbacks will be used to assess the performance of the user.

Figure 1 represents the schematic diagram of the conceptual framework of the study using the Input-Process-Output Model of the study. In line with the input, availability and adequacy of the ICT facilities in the selected big schools in Pangasinan I. Likewise, included as an input are the level of preparedness of the personnel in the various computer operations in using the School Web-Based Management System. Meanwhile, the process is the utilization of the School Web-Based Management System for a month to familiarize the system and finally to measure the performance efficiency of the big schools in using the School Web-Based Management System.

Fig. 1. Paradigm of the Study




## Methodology

The data gathering tools used in the research were three (3) sets of questionnaire, interview, and actual performance of the teachers and personnel to determine the performance efficiency of the big schools in Pangasinan I using School Web-Based Management System.

Weighted Means were utilized to answer the research problem on the level of availability, adequacy, and effectiveness of computer facilities, level of readiness of various computer operations, performance efficiency of the personnel in producing form 137, and level of usability and acceptability of the School Web-Based Management System. On the other hand, F – test or Anova was utilized to answer the research question on the performance efficiency of the big schools in Pangasinan I using the System.

## Availability, Adequacy, and Effectiveness of Computer Facilities

Technology is an indispensable aspect of modern school life and has paved the way for teachers and office personnel to go on the regular routines. According to the Center for Education Science and Technology (2010), computer technology has set up the systems in attaining and reporting data that are productive and impressive. Thus, computer records are tangible items that may substitute paper records. Moreover, submission of work via email and responding to inquiries online save time and energy (Peralta, 2015).

In terms of the availability of computer facilities, desktop computer ranked first with a mean of 4.32 followed by internet connection and printer with a mean of 4.01. Moreover, computer connections and laptops are also available with a mean of 3.88 and 3.72 respectively. The overall weighted mean of the availability of computer facilities is 3.99 which are rated as “Available”. This signifies that the big schools in Pangasinan are already prepared in using the School Web-Based Management System in producing Form 137.

It can be observed that all the computer facilities enumerated are adequate with a mean of 3.84. This is to increase the productivity of the school personnel in managing finances, communication and storage of data.

Thus, the adequacy of the computer facilities in the selected big schools is relevant to the computer literacy of the teachers, students and school personnel in the field of management information system. In terms of effectiveness of computer facilities, desktop computer (4.24) and printer (3.99). Internet connection (3.98), laptop computer (3.80), and computer connection (3.77) are also effective.

These findings indicate that computer facilities are well maintained by the teachers and school personnel. The TLE Education Supervisor said that computer teachers in the selected big schools are required to get NC II Computer Hardware and Maintenance in the preparation of the K12 curriculum. Thus, they are knowledgeable enough to maintain the effectiveness of the computer facilities.

**Level of Readiness in Various Computer Operations of Teachers and Personnel**

Regardless of the capacity and nature of technology accessible in classrooms, the key on how computers are used is the teacher. Therefore, it is important that teachers are proficient and possess the right attitude towards technology (Kadel. 2005). A school could have computer hardware and software, but whether used efficiently will depend on the teachers' conviction and participation, levels of knowledge, attitude towards computer, educational applications, the expected result and the teaching and learning approach (Thomas and Stratton, 2010). An ICT competency describes what a teacher should know to be able to use technology in his profession.

The overall weighted mean of the level of readiness of teachers and personnel is 4.00 which means they are ready. Result reveals that the respondents are competent in searching using different kinds of web browser (4.12), typing / encoding (4.10), uploading and downloading files / data (4.01), followed by installing printer (3.91) and printing files (3.88).

These studies show that the majority of respondents possess a positive belief towards the use of computer in teaching. It implies that the respondents are adept in various computer operations.

**Performance Efficiency of the Personnel using School Web-Based Management System**

School Web-Based Management System used in school organization for its operation (Manish Kumar, 2011). It provides strong progress in the field of technology through which organization can easily achieved the strategic objectives. The use of SWBMS is an institution support processes, competitive strategies and school operation which result and impact the achievement of the workforce of the

specific organization. SWBMS plays the life blood role for an organization as no human can survive without it. Investment is SWBMS by the organization support it in core competencies. It also helps in production process, human resource needs, economic record and controlling and monitoring of the various activities which in turn impact the organization growth and development likewise, it also provides sound basis for strategic decision making process.

The respondents, in general, are very much efficient in using school web-based management system (4.83). This means that personnel can minimize the time in issuing Form 137 and can perform other related responsibility and activities which can result in saving money. The results were supported by the study that SWBMS is a way to increase the operations and improve the overall effectiveness.

**Performance Efficiency of the Big Schools Using School Web-Based Management System**

Improving productivity through the use of school records is an issue of critical concern for school institutions. Indeed, the management and use of computer technology serve as major indicators of how efficient and effective some school organization deliver the services. The quality of service provision has often become synonymous with how timely and accurate information is provided to clients. To meet client demands, the student records in a school organization continue to grow substantially even in these times of retrenchment and cost controls.

The study reveals that there is a significant difference of the big schools in using School Web-Based Management System in terms of time with F-ratio of 8.224 at .05 level of confidence. This indicates that schools in Pangasinan I vary each other in preparing Form 137 due to different factors such as the speed of computer and the interaction of the clientele.

However, there is no significant difference of the big schools in using School Web-Based Management System in terms of money and manpower. It may be inferred that schools in Pangasinan I spent the same amount of money and number of personnel in producing Form 137.

The study reveals that there is significant difference of School A and C with the mean difference of 9.33 at .05 level of confidence compares to School A and D 5.33, School A and D is 5, School B and C is 4.33, D and C is 4.00, and B and D is 0.33. It is safe then to assume that School C is more efficient in preparing and producing Form 137 based on the statistics generated.

**Level of Usability**

Usability is the amount of the quality of a user's practice when collaborating with a system whether a web site, application, mobile technology, or whatever handled device. According to Usability Expert Jacob Nielsen (2012), usability is a

mandatory condition for endurance. People leave if the web site is difficult to use, homepage fails to openly state what a company offers and what users can do in the site.

According to Quensenbery (2015) usability target can be tied into five attributes such as efficient, effective, engaging, error tolerant, and easy to learn. Users often place a low emphasis on characteristics which they simply predict to be well presented in the interface. An interface that fails in this area will not be usable, even if it meets other requirements. Thus, basic failure will likely cause failures in other areas.

The study shows that the system is very usable in the schools (4.50). Results reveal that the respondents will use the system frequently (4.71), the system is manageable to use (4.59), consistent (4.55), well - integrated (4.52) and respondents are confident in using the system (4.51). This implies that the system evaluated by the respondents is ready to use and the direction of the flow of the system is very clear.

Likewise, the other users would learn very quickly (4.48), system is very easy to use (4.45) and unnecessarily complex (4.38), and one can work with one's own pace because one does not need the support of the technical person to be able to use the system (4.33). This signifies that the developed management information system is very usable, and it performs and functions effectively.

**Level of Acceptability**

Campbell (2010) articulated that the goal of the level of the acceptability of the system is to test the content or site and then using the results to improve the design and content to meet the users' needs. Generally, the system is planned carefully and implements methods in a logical sequence.

User acceptance can be defined as determined willingness within a customer to engage in information technology for the tasks it is designed to support (Dillon, 2015). By improving and evaluating models of the forces molding user acceptance, human factors researchers seek to influence the process of design and utilization in a manner that will reduce the risk of resistance or rejection by users.

The developed system is very much acceptable, reliable, user friendly, and needed to be implemented. The system is very useful in providing information to the teachers, administrations, and students.

**Discussion**

The findings of the study focused on the Performance Efficiency Enhancement of Big Schools in Pangasinan I using School Web-Based Management System. Specifically, the study tried to determine the (1) level of availability, adequacy, and effectiveness of computer facilities as perceived by the teachers and personnel; (2) level of readiness of the personnel and teachers in the

various computer operations; (3) performance efficiency of the selected big schools in Pangasinan I as perceived by the personnel; (4) efficiency of the selected big schools in Pangasinan I using School Web-based Management System in terms of time, money, and manpower; and (5) level of usability and acceptability of School Web-based Management System.

On the whole, this study showed a positive result in terms of the level of availability, adequacy, and effectiveness, level of readiness of the teachers in various computer operations, and performance efficiency of the personnel in producing Form 137. The finding implies that schools in Pangasinan I are ready in embracing technological innovations in accessing and securing data. Thus, approving the goals and objectives of the Computerization Program of DepEd.

Another notable finding reflected in the study is that School Web-Based Management System is usable and acceptable in the big schools in Pangasinan I. This implies that the developed system is very much acceptable, reliable, user friendly, and needed to be implemented. The system is very useful in providing information to the teachers, administrations, and students.

Moreover, users will be satisfied, enjoy interacting with the system, achieve goals effectively and efficiently, and cultivate confidence and trust in the system.

## Conclusion

This study concludes that the big schools in Pangasinan I are well-prepared in using the School Web-Based Management System since computer facilities are available, adequate and effective; teachers and personnel are ready in various computer operations; and personnel are efficient in preparing Form 137. Furthermore, the system is usable and acceptable in meeting the needs of the selected big schools.

## Recommendation

Since this study found positive results on the performance efficiency of the big schools in Pangasinan I using School Web-Based Management, the following are recommended:

1. Schools may purchase more computer facilities and updated software to maintain the status of the big schools in terms of availability, adequacy, and effectiveness.
2. Continuing development programs may be made available to all teachers and personnel for them to update their knowledge and competency in the use of School Web-Based Management System through trainings and seminars.

3. Performance efficiency of the School Web-Based Management System may be presented to the Schools global community for the implementation of the program.
4. Schools may utilize the School Web-Based Management System in updating the schools' database and Form 137.
5. Schools may sustain the utilization of School Web-Based Management System by reinforcing the teachers and personnel in upgrading their skills in the use of technology.
6. The Researcher may seek certification from DOST Intellectual Property to protect the rights of the developer and for security purposes of the system itself. ***

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