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International Journal of Current Research
Vol. 9, Issue, 09, pp.58080-58082, September, 2017

INTERNATIONAL JOURNAL OF CURRENT RESEARCH

ISSN: 0975-833X

RESEARCH ARTICLE

SYSTEM EVALUATION ON LAN-BASED STUDENT ACCOUNT SYSTEM OF JOSE RIZAL MEMORIAL STATE UNIVERSITY-KATIPUNAN CAMPUS, KATIPUNAN, ZAMBOANGA DEL NORTE, PHILIPPINES

***Theresa Mee S. Habagat and Sugar Mae T. Galeza**

Information Technology Department, Jose Rizal Memorial State University-Katipunan Campus, Katipunan, Zamboanga del Norte, Philippines

ARTICLE INFO

Article History:
Received 19th June, 2017
Received in revised form
27th July, 2017
Accepted 15th August, 2017
Published online 30th September, 2017

Key words:
Information Systems,
System Evaluation,
Descriptive Method,
ISO 9126-1,
Philippines.

ABSTRACT

The evaluation of software is paramountly important for an organization to have a quality and reliable system that is in compliance with the international standards. System evaluation administered on a periodic basis can remarkably improve the management and effectiveness of the organization. The system evaluation on LAN-based student account system of Jose Rizal Memorial State University– Katipunan Campus, Philippines aimed to assess if this system performs efficiently in processing the students school fees and determine whether it complies all the requirements needed at present by the Cash Disbursing Office (CDO) personnel. This study used the descriptive method involving respondents' interview and observation on system's operation in the operational environment. The system was evaluated using the system quality factors of the International Organization for Standardization (ISO) 9126-1 and used the mean computation in tabulating the results. The research revealed that system possesses the six standard software quality characteristics of ISO and complies all the technical requirements of the CDO personnel. It also revealed that there is no problem in the utilization of the system despite insufficient system documentation. The study concludes that the evaluated system is still a useful tool in serving the clientele which performs faster, efficient and accurate processing.

Citation: Theresa Mee S. Habagat and Sugar Mae T. Galeza, 2017. "System evaluation on LAN-based Student Account System of Jose Rizal Memorial State University-Katipunan Campus, Katipunan, Zamboanga del Norte, Philippines", *International Journal of Current Research*, 9, (09), 58080-58082.

INTRODUCTION

Information system plays an increasingly important role in the organization in line with the development and application of computers and network. The information system has become an absolutely necessary tool for many business operations. Menascé (2014) said that people are relying increasingly on computer systems to support daily activities. When these systems fail, significant breakdowns may ensue. The demand for qualitative and reliable system software that is compliant to international standards as well as easily integrated to an existing system structure are increasing continuously. Stamelos *et al*. (2014) stressed that the cost of software production and software maintenance is raising dramatically as a consequence of the increasing complexity of software systems and the need for better designed and user friendly programs. They stressed that the evaluation of such software aspects is of paramount importance. Mhadhbi et al. (2014) study revealed that the choice of the good configuration have a significant impact on the system performance.

Corresponding author: **Theresa Mee S. Habagat,**
Information Technology Department, Jose Rizal Memorial State University-Katipunan Campus, Katipunan, Zamboanga del Norte, Philippines.

They stressed that performance analysis is involved in several stages of the design. Based on the classification showed by John (2002), performance evaluation can be classified into two categories namely performance modelling and performance measurements. On the other hand, Martinez (2005) defined evaluation as a periodic process of gathering data and then analyzing or ordering it in such a way that the resulting information can be used to determine whether the organization or program is effectively carrying out planned activities, and the extent to which it is achieving its stated objectives and anticipated results. The purpose of an evaluation is to assess the system if it performs according to what it was supposed to do, that it is working effectively**.**

Platisa and Balaban (2009) also stated that the necessity to evaluate the functionality performances of Information System has emerged from the importance of Information Technology in effectiveness and efficiency of work processes in an organization, causing rapid growth of demands in terms of resources performances in Information System. They stressed that evaluation of Information System performances means evaluation of performances in hardware, software, computer

networks, data and human resources. They further stated that the main purpose of Information System functionality performances evaluation is upgrading and especially improvement in quality of maintenance. Valenti *et al.* (2002) pointed out that set of quality factors that can be used to evaluate a Computer Based Assessment (CBA) system is using the standard ISO 9126, which provides a general framework for evaluating a commercial off the shelf software without covering the specificity of the application domain. They stated that the ISO 9126 standard is a quality model for product assessment that identifies six quality characteristics: functionality, usability, reliability, efficiency, portability and maintainability. Each of these characteristics is further decomposed in a set of sub characteristics. According to Emmanuel and Choji (2012), one of the largest investments in many organizations is the creation, maintenance, and retrieval of information. It has been estimated that in an organization such as a tertiary educational community, information is highly essential for correct students' record. Student information, if not properly created and stored, will cause many errors in usage. Hence, once the new computerized system has been implemented and is in full use, this system should be evaluated. Martinez (2005) also stressed that program evaluation that is conducted on a regular basis can greatly improve the management and effectiveness of the organization and its programs. With this goal, this research aimed to evaluate the LAN-Based Student Account System of Jose Rizal Memorial State University-Katipunan Campus.

A newly developed computerized system does not only end in deploying into the target environment. It does not enough that computerized system will be applied in the transaction and system users will only use it. However, a computerized system should also be evaluated during its implementation phase so that it will be reach to the remaining system's operational life. The research on system evaluation of LAN-Based Student Account System is anchored from the concepts of Kingsbury (2012) which stated that evaluations answer specific questions about program performance and may focus on assessing program operations or results. It may also assess whether a program had unidentified or undesirable outcomes. Evaluation results may be used to assess program effectiveness, identify how to improve performance or guide resource allocation.

METHODOLOGY

The study on system evaluation of LAN-Based Student Account System used the descriptive research method. In performing the system evaluation the researchers evaluated the computerized system to identify its performance in terms of software quality characteristics by the International Organization for Standardization (ISO) 9126-1. The proponents used the evaluation phase in planning-evaluation cycle of William M.K. Trochim (2006) applying the participant-oriented evaluation of Trochim (2006) as the evaluation strategy. In the process of investigation approach as shown in figure 1, the researchers formulated the major objectives and goals on system evaluation of LAN-Based Student Account System. Then this was followed by the conceptualization of the major components of the system evaluation which includes the computerized system, system users, and the operational environment where the system is implemented. In this phase the researchers conceptualize how to evaluate the system. After which the researchers were detailing how these components will be coordinated during the design phase. Since the participant-oriented model emphasizes the central importance of the evaluation participants, especially clients and users of the computerized system, the researchers observed them in their interaction with the program as well as conducting interviews to them to learn more about the program. Once data are already collected from the operational environment, the researchers analyzed these data. Lastly, the researchers presented the evaluation results and formulate possible recommendations to be utilized in the operational environment. Simple random sampling technique was used in the selection of research respondents which composed of the students, Cash Disbursing Office personnel and Information Technology personnel. All of them have the interaction to the system evaluation of LAN-Based Student Account System. A 5-point Likert's scale was used to measure the system software quality characteristics which are functionality, reliability, usability, efficiency, maintainability and portability.

RESULTS AND DISCUSSION

The LAN-Based Student Account System of Jose Rizal Memorial State University – Katipunan Campus is a computerized system that is used to facilitate the payments of the students' school fees. It stores school account details of the students per semester and per school year. This system generates reports for payments, balances and unpaid accounts per students in daily and semestral basis. It can also create and restore database backups. The research conducted utilized the International Organization for Standardization (ISO) 9126-1 standard as the basis for the evaluation of LAN-Based Student Account System of Jose Rizal Memorial State University – Katipunan Campus.

Research Problem 1: Determine the system performance of the LAN-Based Student Account System in terms of:

- functionality
- reliability
- usability
- maintainability
- efficiency
- portability

Table 1 discloses that the LAN-Based Student Account System is very much functional with a weighted $\bar{x}$ equal to 4.48, very much reliable with a weighted $\bar{x}$ equal to 4.37, very much usable with a weighted $\bar{x}$ equal to 4.69, very much efficient with a weighted $\bar{x}$ equal to 4.76, very much maintainable with a weighted $\bar{x}$ equal to 4.61, and very much portable with a weighted $\bar{x}$ equal to 4.27 as rated by all the respondents, namely, the Information Technology (IT) Professionals, Cash Disbursing Office personnel and IT students using the five (5) point Likert scale.

The system is very much functional because it possesses different functions that address the needs of the Cash Disbursing Office personnel in order to cater the students in processing the school fees. It is a reliable system because it consistently providing accurate student account details. The high rating of usability indicates that the system can be easily understood, learned and used by the Cash Disbursing personnel despite of insufficient documentation. The mean of 4.76 for efficiency and 4.61 for maintainability indicate that the said system provides the expected output and supports for

modification respectively. Furthermore, the LAN-Based Student Account System has the ability to adopt changes in its environment whenever it is necessary. Student Account System is open for enhancement to meet future end-user requirements.

Figure 1. The Process of Evaluation from Trochim (2006)

Table 1. System Performance of the LAN-Based Student Account System as rated by IT Professionals, CDO Personnel and IT students

Descriptors	IT Professionals		CDO Personnel		IT Students		Average	
	$\bar{x}$	Description	$\bar{x}$	Description	$\bar{x}$	Description	Weighted $\bar{x}$	Description
Functionality	4.67	very much functional	4.72	very much functional	4.38	very much functional	4.48	very much functional
Reliability	4.52	very much reliable	4.86	very much reliable	4.23	very much reliable	4.37	very much reliable
Usability	4.67	very much usable	4.67	very much usable	4.71	very much usable	4.69	very much usable
Efficiency	4.85	very much efficient	4.91	very much efficient	4.70	very much efficient	4.76	very much efficient
Maintainability	4.58	very much maintainable	4.63	very much maintainable	4.62	very much maintainable	4.61	very much maintainable
Portability	4.22	very much portable	4.63	very much portable	4.28	very much portable	4.27	very much portable

Research Problem 2: Identify the existing problems encountered in using the said system.

There was no problem encountered in using the system since it has high rating of the ISO software quality characteristics. However, the system has less documentation. From its implementation in 2009 until at present all the modifications made to said the system were not recorded by the JRMSU-Katipunan system developer.

Research Problem 3: Determine whether the computerized system meets all the requirements needed at present by the Cash Disbursing Office personnel.

Based on the results of system evaluation using the ISO 9126-1, LAN-Based Student Account System meets all the technical requirements of the end-users or Cash Disbursing Office personnel. However, the study revealed that this system has insufficient documentation.

Conclusion and Recommendation

The common goal of most evaluations is to provide useful feedback to a variety of audiences like administrators, staff, students and other relevant constituencies. The findings of the study manifests that LAN-Based Student Account System complies the International Organization for Standardization (ISO) 9126-1. Furthermore, this system is still a useful tool in serving the clientele of the Cash Disbursing Office on processing the student school fees. The system can still performs faster, efficient and accurate processing of student account details with automated file management.

The researchers recommend to the administration of Jose Rizal Memorial State University – Katipunan Campus to continue using the system in serving their clientele. It is also recommended that the administration will spend for the creation of system documentation for references of modification. It is also recommended that the LAN-Based

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