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Palawan Technological College, Inc. e-Learning Management System: A Feasibility Study

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Abstract: The use of Information and Communications Technology (ICT) in the teaching-learning process has influenced various dimensions of human communities especially educational institutions. The effective integration of technology into the classroom has improved the tools and methods used in the teaching-learning process. This paper aims to assess the readiness of Palawan Technological College, Inc. (PTCI) in the implementation of an e-Learning Management System (e-LMS) based on the perspective of its faculty and administrative personnel, using determining factors namely, infrastructural, human, support, cultural, and pedagogical. These factors were used for data collection as indicators for the technical, operational, economic, and schedule feasibility of an e-LMS. Convenience sampling was used to select the ten participants of the study. A questionnaire was designed and divided into two parts. The first part required the respondents to choose from Likert-scaled options. The second part contained closed questions answerable by yes or no and open-ended questions that captured the opinions of the respondents on the factors influencing the use of ICT to make teaching-learning effective in a technological school. Chronbach Alpha was used to test the reliability of the Likert-scaled survey questionnaires. Descriptive statistical methods including frequency, percentage, average, and mean were used to analyze and interpret the quantitative data of the study. Results showed that although the technical, operational, economic, and schedule feasibility of implementing an e-LMS in PTCI falls into different levels of preparedness, the institution moderately ready.

Key Words: e-Learning Management System; information system; teaching and learning process; feasibility study; school system

1. INTRODUCTION

There are developing countries that are still in the initial stages of integrating information and

communications technology (ICT) in the teaching-learning process. Though it is limited by a number of barriers that may hinder this endeavor, there are many factors influencing the use of ICT to make teaching-learning effective in educational



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institutions. The use of ICT in the classroom teaching-learning is very important for it provides opportunities for teachers and students to operate, store, manipulate, and retrieve information, encourage independent and active learning, and self-responsibility for learning such as distance learning, motivate teachers and students to continue using learning outside school hours, plan and prepare lessons and design materials such as course content delivery and facilitate sharing of resources, expertise and advice. This versatile instrument has the capability not only of engaging students in instructional activities to increase their learning, but of helping them to solve complex problems to enhance their cognitive skills.

The use of ICT as a medium for teaching and learning focuses on the use of ICT for the enhancement of the teaching and learning process. It is a fact that teachers are at the center of curriculum change and they control the teaching and learning process. Therefore, they must be able to prepare young people for the society in which the competency to use ICT to acquire and process information is very important.

Palawan Technological College, Inc. (PTCI) is a private, non-sectarian school in Puerto Princesa. It was established in 1995 to promote technical education in Puerto Princesa and in Palawan. PTCI has the mission to develop workers and entrepreneurs who skillfully respond to the needs of the Filipino society. The institution under the Commission on Higher Education – MIMAROPA Region. It is currently governed by Mr. Celestino C. Mauleon, Sr.

The college currently provides technical vocational courses. There is the Technical-Vocational-Livelihood (TVL) strand for Senior High School students. There are also Technical and Vocational Education and Training (TVET) courses from the Technical Education and Skills Development Authority (TESDA), like consumer electronics servicing, food and beverage services, and programming.

This study includes four categories mainly technical, economic, operational, and schedule feasibility of the implementation of an e-learning management system (e-LMS) in PTCI. In addition, infrastructural factors were used as determinants for technical feasibility, while human, support, cultural, and pedagogical factors were used as determinants for the operational feasibility of the subject matter.

2. METHODOLOGY

Descriptive method and quantitative analysis of data were used in the study. The target sample of the study was ten people composed of faculty and administrative personnel. The sample was selected using convenience sampling technique from the employees of PTCI. A questionnaire was designed and divided into two parts. The first part were questions in which respondents only have to point their score in the Likert-scaled options in which 5 (Strongly Agree) is the highest while 1 (Strongly Disagree) is the lowest. The second part contained closed questions answerable by yes or no and open-ended questions containing opinions of the respondents on the factors influencing the use of ICT to make teaching-learning effective in a technological school. Chronbach Alpha was used to test the reliability of the Likert-scaled survey questionnaires. Descriptive statistical methods including frequency, percentage, average, and mean were used to analyze and interpret the quantitative data of this study.

3. RESULTS AND DISCUSSION

3.1 Technical Feasibility

Technical feasibility refers to the technical resources needed to develop, purchase, install, or operate a system. Infrastructural factor was used to assess the technical feasibility of an e-LMS for PTCI. Infrastructural factor refers to the physical ICT equipment of the school that will be utilized for the implementation of the said e-LMS.

The result indicates that the readiness level with a mean of $\bar{x}=2.66$ for PTCI to implement an e-LMS from the infrastructural factor view is moderately “low”, with only 22% in the level of agreement for infrastructural factor’s point-of-view. This means that ICT infrastructures in place need a thorough evaluation if they could accommodate either a minor or major change/innovation. PTCI has an Internet facility to support the teaching-learning process that made it easy for the faculty, staff and administrators to integrate ICT in education thus improving students and their knowledge.

3.2 Economic Feasibility

Economic feasibility means that the projected benefits of a system outweigh the estimated cost. Payback period and return on



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investment (ROI) analysis were used to assess the economic feasibility of an e-LMS.

Payback period is the time it takes to recover the system's cost and is computed by dividing the system cost by the annual benefit. The estimated system cost is PhP 264,950. This cost includes man hours for developing the system, acquisition of hardware and software resources, and user training. The projected annual benefit, which is the difference between the proposed and existing operating costs is PhP 353,344. These two amounts yield to a payback period of approximately 11 months. Since the estimated life of an e-LMS is 5 years, this shows that it is economically feasible.

ROI is a percentage rate that measures the profitability of a system by comparing the projected benefits to the estimated costs. Based on the two amounts, the ROI is 33.33%. Since there is a positive return from the e-LMS, this also shows that it is economically feasible.

3.3 Operational Feasibility

Operational feasibility means that a system will be used effectively after it has been developed. Human, support, cultural, and pedagogical factors were used to assess the feasibility of an e-LMS for PTCI.

3.3.1 Human Factor

Human factor refers to the relationship and communication between the administrative personnel and their faculty and their perspective in investing on technological innovations like an e-LMS.

The result indicates that the readiness level with a mean of $\bar{x}=3.12$ for PTCI to implement an e-LMS from the human factor view is moderately high. With 42% level of agreement, there is an avenue for a change to occur in the human factor perspective. Administration, faculty, and staff have a good educational background and relevant ICT training. The leadership of the administration is supportive with new ICT endeavors in which the communication remain open from the suggestions of different offices regarding ICT integration in a technological education institution.

3.3.2 Support Factor

Support factor refers to the coordination and harmonious enthusiasm of achieving technological innovations in the school. It shows the support of the

people involved in delivering learning services.

The result indicates that the readiness level with a mean of $\bar{x}=3.3$ for PTCI to implement an e-LMS from the support factor view is moderately high. A 43.33% level of agreement implies the institution's readiness when it comes to operational attributes. This percentage and mean still need more support when it comes to monetary matters since budget still holds to one of the primary support required for every ICT program and project.

3.3.3 Cultural Factor

Cultural factor refers to the way school personnel look into ICT to help deliver their services. It shows their willingness to undertake ICT-mediated study and teaching and their positivity towards ICT use in every life.

The result indicates that the readiness level with a mean of $\bar{x}=3.88$ for PTCI to implement an e-LMS from the cultural factor view is high. This 62% level of agreement for cultural factor implies a really positive point-of-view since PTCI as a technological higher institution is heading towards investing on ICT in order to improve the quality of service delivery especially in the teaching-learning process. There is a high and positive response when relating to the willingness to use ICT in teaching. This means that the culture in PTCI would have a positive response for implementation of an e-LMS.

3.3.4 Pedagogical Factor

Pedagogical factor refers to the teachers' willingness to collaborate using ICT-aided teaching and learning process as well as their inclination in ICT-facilitated learning. It shows their views on ICT as a tool to improve teaching-learning process.

The result indicates that the readiness level with a mean of $\bar{x}=2.67$ for PTCI to implement an e-LMS from the pedagogical factor view is moderately low. The institution provides computers, multimedia projectors, and whiteboard facilities, among others to support the teaching-learning process. This therefore made it easy for them to integrate the use ICT for the teaching-learning process. Majority of the faculty used computers for teaching, mostly to prepare their lessons. They are familiar with the software so they are able to teach and compute their students' grade easily. However, the 25% level of agreement means that there might be some risk and challenges that may arise as far as pedagogical factor is concerned. In addition, this implies low response on pedagogical



factor for the implementation of an e-LMS.

3.4 Schedule Feasibility

Schedule feasibility suggests how long a possible implementation would fit best for the organization's readiness to acquire an e-LMS based on different selected factors.

This project has to do an early planning to complete the scope. The entire PTCI has to agree to support the implementation of the e-LMS in a timely manner in which the top management should have to respond by conducting a schedule feasibility evaluation based on a list of requirements, out-of-scope items. However, 2021 is the ideal year for them to implement the system since a budget has to be carried out in this kind of technological investment.

4. CONCLUSION AND RECOMMENDATIONS

ICT is very much needed for the development of higher institutions. This is because it makes administrative work easier for administrators and the teaching-learning process more effective for faculty and students. It is helpful for improving the techniques of the teaching-learning process in higher institutions. Majority of the administrative personnel regularly use ICT facility in clerical works. This makes their administrative work easy. Therefore, it is suggested that for effective administration, the institution should use ICT in order to facilitate their administrative work.

The school has a policy on ICT literacy for teachers and administration. Although the institution has an ICT Policy, it lacks ICT Security Policy, Bandwidth Management Policy, and ICT standards for all hardware and software. This therefore calls the institution to set policies/plans for ICT security, bandwidth management and standards for hardware and software and improve the existing ones for quality ICT services.

The level of awareness of e-LMS knowledge by administrators and faculty is moderate. Therefore, this calls for more training on ICT to the administrators so that they can easily integrate it in administration.

The teaching staff have knowledge on e-LMS but they are not able to integrate it in teaching. They encourage their students to use ICT for learning so that they can be proficient and widen their knowledge. Through this, PTCI may replace some of

their traditional teaching aids by new ICT like learning management tools. This is because ICT is very important in education and should be integrated in the teaching-learning process. Students will be more motivated to learn if e-LMS tools are used in PTCI. This can only be through introduction of many ICT courses and opening modern ICT facilities and learning media.

PTCI sometimes do some necessary evaluation on the current state of their ICT assets currently used. With this, it is recommend that the school IT personnel should conduct a comprehensive information system strategic plan in order for them to identify necessary changes that needs to be done when it comes to their ICT investments. They may also consider entertaining technology trends such as hypermedia for learning tools in order to upgrade the level of their service delivery to their clientele.

With the new trends on the use of e-LMS, it is recommended to use free e-LMS software such as Schoology and Edmodo. These can be utilized for learners of PTCI in any year level in different programs. Another one is the use of a free version of Canvas while waiting for the best time to invest on a system.

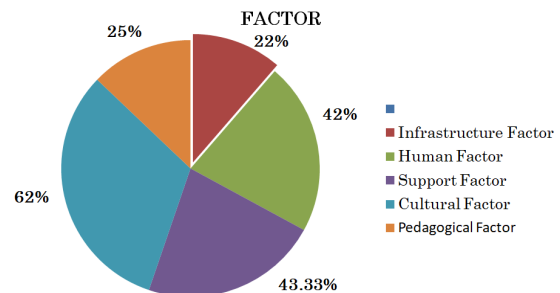


Fig. 1. Percentage of responses

Figure 1 shows a summary of the respondents' answers to the questions regarding the above-mentioned determining factors in the feasibility of an e-LMS.

On the other hand, the level of desirability of users is high which denotes PTCI's desire to acquiring an e-LMS in their campus to uplift the level of competency of their teachers and learners as well. Finally, this research shows that PTCI is moderately ready for the implementation of an e-LMS. Cost-wise, the school has the potential to run a successful e-LMS.



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