The Design Of Virtual Learning Environment: A Case From Pangasinan State University, Open University Systems

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Abstract: The Pangasinan State University, Open University Systems, is one of the institutions in the Philippines that offers blended and distance learning approaches. Since the initial operation, last 1997 up to the present, the transition to different learning strategies was adopted to deliver quality education different from the conventional method. The objectives of this study are to be able to determine the practices of professors in online education, discuss the readiness model for online education based on the needs of Open University Systems and propose a designed virtual learning environment for Open University Systems. An interview and constructed questionnaire were utilized to gather the practices and requirements of the professors in open and distance education. Observations and previous researches were analyzed in order to come up with a proposed readiness model and design of a virtual learning environment for Open University Systems. As a result of the study, most of the professors are utilizing the free platform, personal accounts such as social media and email were used in order to deliver learning. To solve the need of the institution, a proposed eLearning readiness model was discussed which includes content readiness, technological readiness and proper attitude towards eLearning. A proposed virtual learning environment with interconnected applications was addressed in order to satisfy the need of the Pangasinan State University, Open University Systems. This practice of the Pangasinan State University is documented in order for starters in online education to adopt one of the best practices in distance education.

Index Terms: virtual eLearning environment, open university systems

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1. INTRODUCTION

Electronic learning has become common nowadays, seeing students use even the most basic social media platforms as a tool in education. Researchers have been conducted to show that technology plays a vital role in education. There are many platforms available for distance education, and even social media is being used in collaborative learning [1]. While Several LMS (Learning Management System) can play a part in providing technological solutions to schools, servers, and maintenance costs bring about another problem altogether. It is because of this reason that many providers introduce a new tool to help the tutors become more effective in learning. Mayes and de Freitas, in the review of eLearning theories, frameworks and models, insisted that it is important to be clear about the assumptions underlying eLearning designs [2], they claim that there are no specific models for eLearning, but only enhancements of existing models of learning which use technology to achieve better learning outcomes [2]–[4]. In this study, a proposed readiness framework and proposed design of VLE specifically for Open University Systems are introduced. Pangasinan State University is one of the state university in the Philipines that has Open University Systems, and despite the presence of the OUS in the institution, there lacks a pure online instruction done by the institution's component. Since the OUS is located in Lingayen Campus, the researchers observe the mode of learning in the Open University and come up with possible utilization of technology and possible collaboration in the future. Based on the benchmarking of the institution in the UP Open University and Don Mariano Marcos Memorial Statement University, the pioneer institution uses Moodle as a distance eLearning platform while DOUS uses free based LMS such as NeoLMS. For Pangasinan State University, which doesn't have yet adopted Moodle due to the absence of the budget in the

Annual Procurement plan, GSuite eLearning platform (provided by Google) will serve as a solution to the problem. The institution itself is a recipient of GSuite for Education plan, a suite of free productivity tools that help students and teachers interact seamlessly and securely across devices for free [5].

1.2 Objectives

The objective of the study are as follows (1) To be able to determine the practices of Professors in Online Education. (2) Discuss the readiness model for online education based on the needs of Open University Systems. (3) Proposed design of Virtual Learning Environment for Open University Systems.

1.3 Significance of the Study

As technology increases, there are several studies that contributed to the body of knowledge in education regarding the use of technology in education. The integration of Massive Open Online Courses could change the way the teachers teach [6], and new development in education was implemented. The integration of Massive Open Online Courses could change the way the teachers teach [6], and new development in education was implemented. Several big universities use MOOCs to accommodate the growing demand of learners. Despite the development of other tools for online courses, Moodle is still the most common LMS used. In this study, other Open University Systems may be able to understand how the Pangasinan State University encountered different challenges in terms of eLearning readiness. This could help other State University in the Philippines to be able to adopt the practice of the university in terms of readiness and requirements.

Figure 1
Timeline of PSU Open University Systems
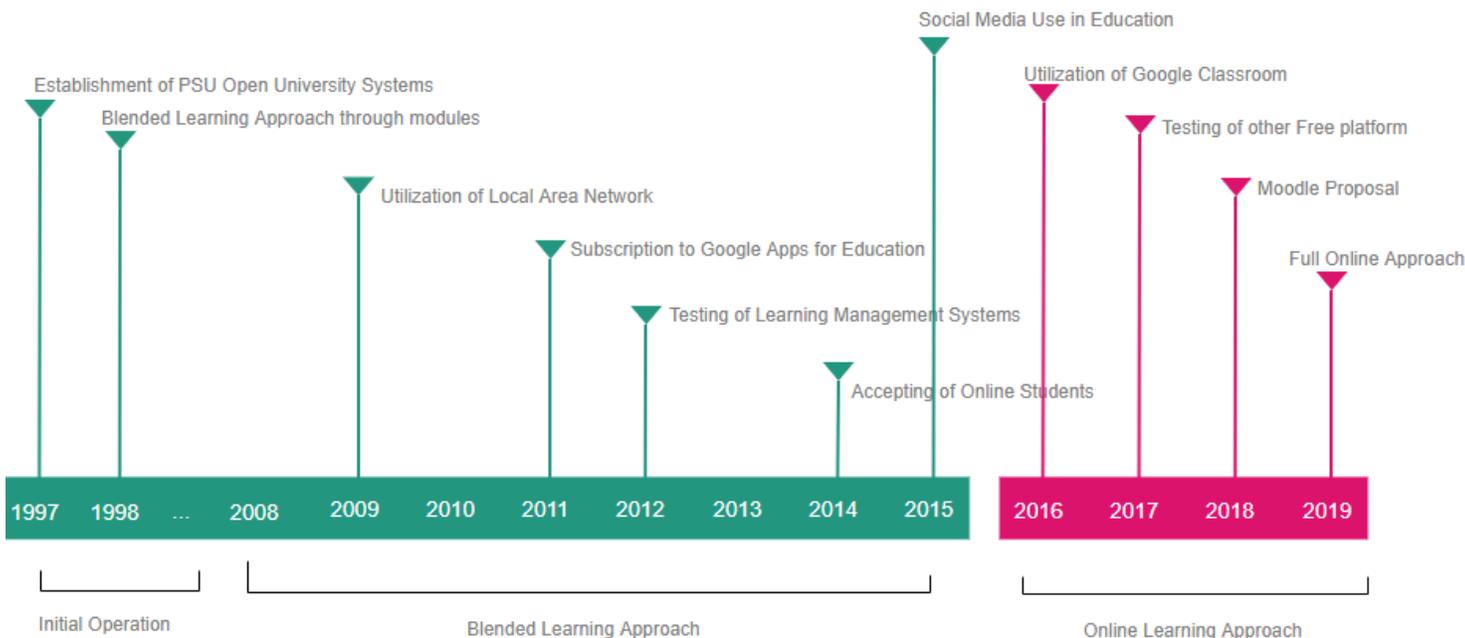
Based on the history, the PSU Open University Systems started its operations last 1997. At the year 2009, offline networking was utilized as a part of the blended learning approach. In the year 2012, LMS Moodle was tested to determine its usability. Despite the early testing of the Moodle application, full utilization was just implemented in the year 2019. As shown in the Table 1, PSU Open University Systems embraced the online learning approach since the start of 2016.

3. METHODOLOGY

3.1 Data Source
The respondents are the faculty member of PSU Open University Systems The sampling of respondents is purposive since only those teaching in the said term is the one who is qualified to respond. During the 1st Semester of 2018-2019, a total number of 18 faculty respondents.

3.2 Data Processing
The online form was used as a mode of answering the questionnaire; the link was given to the faculty members.
The result generated from the forms that were used to interpret the data. The CSV format data was exported for analysis using google sheets and Microsoft Excel.
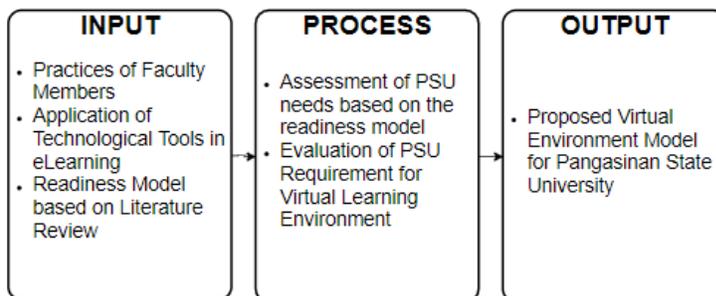
3.3 Interview Questions
(1) What technological tools you used in online learning (2) How frequent your are using technological applications. (3) What problems you encountered while utilizing the current tools in online education and suggestions to improve the online learning environment of PSU Open University Systems.

Figure 2
Research Paradigm

4. RESULTS AND DISCUSSIONS

4.1 Practices and utilization level of OUS Professors in delivering online education
The current practices the OUS professors in deliverying online was found out to be traditional despite utilizing technology. Based on the result of the study, a messaging tool such as Messenger by Facebook was utilized in announcing different course requirements, course information, assignments, discussion, and chat session. The professors are creating Group Chats for each class in order to communicate with students.

Table 1
Practices of OUS Faculty on different Learning Activities

	With Technology			Without Technology
Activity	Messaging Tool	Email	GSuite	Face to Face
Course Announcement	12	3	12	3

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Course Information	13	0	13	3
Assignments	10	9	5	5
Class Discussion	14	NA	12	14
Class Chat room	10	NA	5	NA
Class Video Conferencing	1	NA	3	NA
Grading	NA	NA	4	11
Examination	4	3	13	8

Majority of the participants are still using electronic mail in sending document such as module, presentation and videos. Most of the respondents are also utilizing social media specifically Facebook groups and Messenger in order to upload materials and to communicate with students.

Table 2
Application of Technological Tools

Application Used	Never		Rarely		Occasionally		Frequently		Always	
	F	P	F	P	F	P	F	P	F	P
Messenger/Facebook	0	0%	0	0%	1	7%	1	7%	13	87%
Other Messeging Tool (SMS and others)	13	87%	1	7%	1	7%	0	0%	0	0%
Email	0	0%	0	0%	5	33%	1	7%	9	60%
Institutional Email	0	0%	0	0%	6	40%	4	27%	5	33%
Edmodo	12	80%	2	13%	1	7%	0	0%	0	0%
Moodle	12	80%	2	13%	1	7%	0	0%	0	0%
Google Classroom	0	0%	1	7%	1	7%	1	7%	12	80%
Google Drive	0	0%	0	0%	1	7%	1	7%	13	87%
Google Docs, Sheets and Slides	0	0%	1	7%	2	13%	7	47%	5	33%
Google Forms	2	13%	1	7%	2	13%	8	53%	2	13%
Google Sites	15	100%	0	0%	0	0%	0	0%	0	0%
Google Calendar	14	93%	1	7%	0	0%	0	0%	0	0%
Google Hangouts	0	0%	2	13%	10	67%	2	13%	1	7%
Google Currents	14	93%	1	7%	0	0%	0	0%	0	0%
Google Keep	7	47%	1	7%	4	27%	2	13%	1	7%
Google Vault	15	100%	0	0%	0	0%	0	0%	0	0%

The Pangasinan state university is currently subscribed to the Google GSuite Applications. Majority of the respondents are using messenger and electronic email for communication to the students. While most of the faculty members are utilizing technological tools related to electronic learning. Learning platform is not yet utilized in the Open University Systems. Most of the respondents are using Google classroom and Google Drive. Are using Google Hangouts for video conferencing.

4.2 Problems encountered and suggestions
Despite most of the faculty are utilizing technology, there are still problems that are encountered by the professors. Internet connectivity is the main concern of the faculty. Computer laboratory is also limited, and number of computers could not accommodate the growing number of students in the Open University Systems. For the internal problems encountered by the respondents, several functions are not available in the Google applications for examinations and quizzes. Unlike other platforms such as Moodle, respondents can see the number of chat sessions of the student for the tally. It is also a problem encountered by the respondents that they need to install several applications for the full functionality of the GSuite applications.

4.3 Readiness Model for PSU Open University Systems
Based on the previous studies conducted in the Open University Systems. eLearning readiness is important to achieved a complete Virtual Learning Environment for PSU Open University Systems. From the previous studies of different faculty from PSU Open University Systems, technology, content, and attitude are requirements to become eLearning ready. As shown in figure 3, the eLearning Readiness Model for Pangasinan State University is shown.

Figure 3
eLearning Readiness Model
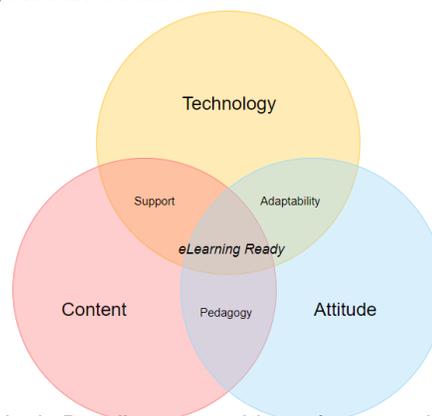
Technological Readiness – this refers to the readiness assessment of both users and the institution. Users should be competent in technology in order to be ready. This factor evaluates professors' and students' tendency to comfortably use new technologies in the utilization of hardware and software. This also refers to the availability of hardware and software for learning. Content Readiness – refers to the modules, electronic presentations, video and other learning materials to be uploaded online. Modules and multimedia outputs are required for faculties. Students maybe able to develop document in paperless way. Attitude and Cultural Readiness - Is self-motivated, and independent learner which can learn and teach without hindrances. Routinely communicates with others using electronic technology and Is eager to try new technology or software applications. Support (Content + Technology) – A content and technology could not

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be implemented without the support of the administration. Support includes financial readiness Pedagogy (Content + Attitude) – The administration should determine the pedagogy to be use in delivering online education. New methods in teaching should be conducted by the administration in order for faculty members to be equippted with new pedagogy in online education. Adaptability (Attitude + Technology) – The administration should be able to adopt with the changes in technology. Leaders should be able to understand

technological competencies in order to be adoptable with the changing trends in education.

4.4 Proposed Virtual Learning Environment Model

The proposed Virtual Learning Model for Pangasinan State University is based on the readiness proposed model. Figure 4 shows the VLE Model for Pangasinan State University. Content is necessary in order to deliver

Figure 4
Virtual Learning Environment Model for Pangasinan State University, Open University Systems
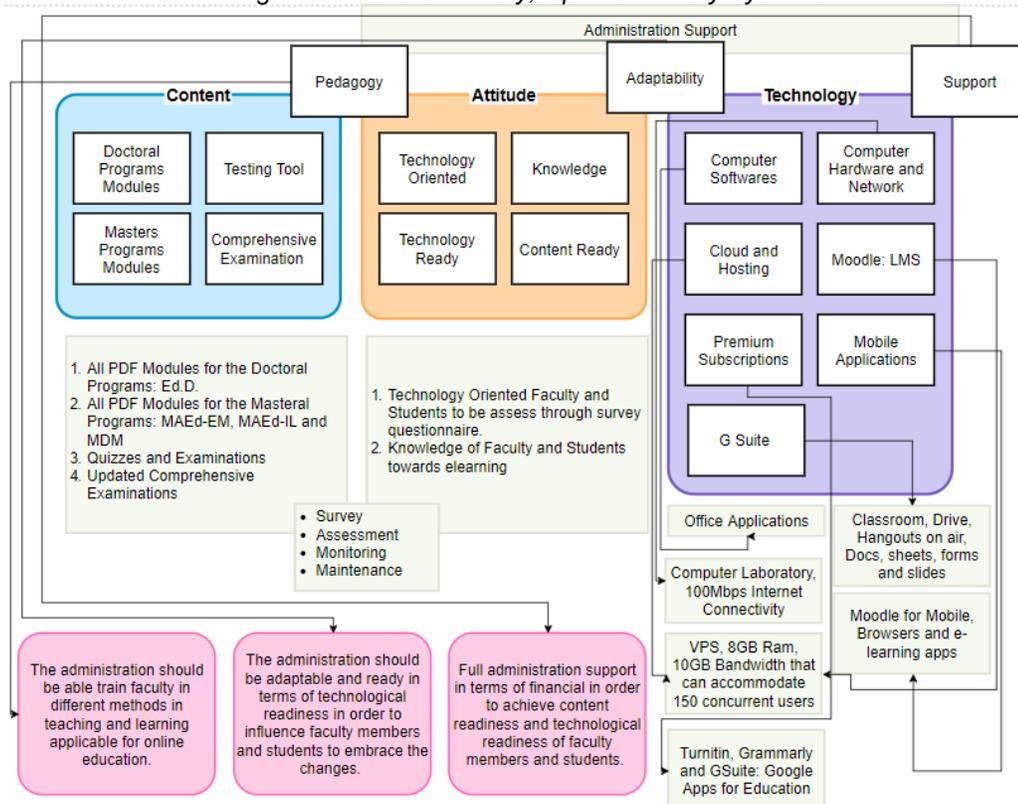
5. CONCLUSIONS

The proposed VLE Model for Pangasinan State University contains comprehensive information about the needs and requirements of the institution. It is recommended to create a regulation or policy based on the model.

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