Development of a Learning Management System for Instructors, Students, and Administrators

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Abstract:- This study aimed to develop a Learning Management System that addressed the learning gap at St. Peter's College. The Rapid Application Development framework was used for the development of the study. Furthermore, the Technology Acceptance Model (TAM) was utilized by the instructors and students to evaluate level learning platform's acceptance the and effectiveness. Also, the standard ISO 9126 Quality Model was used to determine the quality of the system being developed by an expert. A survey was conducted among 100 St. Peter's College instructors, 100 Bachelor of Science in Information Technology students, and seven (7) identified experts to gather feedback. It was found that most of the instructors and students of St. Peter's College strongly accept the Learning Management System. Most experts who have been in the field for more than nine (9) years highly accept the system's software quality standard. Therefore, the Learning Management System is ready for implementation.

Keywords: ISO 9126; Learning Management System; Rapid Application Development; Technology Acceptance Model.

I. INTRODUCTION

One of the challenges in teaching is how to address the different needs of the students. Instructors primarily incorporated lectures to deliver their lessons; lecture notes, whiteboards, presentation slides, and liquid crystal display projectors facilitate the learning delivery approach. The downside is that students need help coping with their leftbehind lessons whenever they cannot attend class. Along with the problem mentioned in the schedule conflict, whenever instructors plan remedial classes, an issue arises regarding the availability of venue and equipment where lectures could be done. Another problem is that lectures cannot be eventually carried out whenever there is a disturbance in classes due to holidays and other school activities. Thus, to address the issues cited, the researchers developed a Learning Management System, which assessed both the instructors and students to access, retrieve, and understand various information on time, which would then serve as an alternative process to discuss aside from the lecture method that was commonly used.

Learning Management Systems (LMSs) have different application tools, such as Moodle and ATutor, which various learning institutions utilize. Furthermore, LMS's concept was for the instructors to conduct online courses using a system that allowed them to post lecture notes and slides, assessments, forums, and announcements and provide facilities for electronic submissions and exercises related to the course. The Learning Management System (LMS) would increase the sense of community among students, help them learn communities, and enhance student engagement and performance. Therefore LMSs have become a core business component in many universities [18].

In conjunction, [8] pointed out that LMS provides an inclusive learning environment for academic success. The use of LMS resources, active learning, and certified curricularstandards should all be balanced by the instructor. An LMS enables the instructor to create online activities, guide and model dialogues, establish learning objectives, provide students with options, and support problem-solving through decision- making procedures. The presence of an instructor in an LMS fosters a stimulating environment. Using an LMS, students can maintain their independence, excitement, and motivation.

The researchers aimed to improve the classroom discussion of students and instructors by improving the Learning Management System using new features such as recorded audio or video for student assessment and SMS notification. The researchers also implemented the Reinforcement Q- Learning Algorithm for the notification to set an appropriate time to notify or alert the instructor once the student had obtained and downloaded the instructor's uploaded course materials. The instructor would also receive another notification once the student has submitted the course assessment that has been taken. Once the student and instructor had successfully obtained the login details, the administrator would also receive a notification. The platform of the study for developing Learning Management was CodeIgniter. This CodeIgniter was designed to deliver a stable, safe, and optimized framework for instructors, administrators, and students to build customized learning environments. It is also PHP's best open-source development platform.

This research paper offers a unique approach to students' academic learning outcomes. Implementing and using a learning management system of the institution improve the students' knowledge acquisition skills. A. Theoretical and Conceptual Framework

This section contained the conceptual paradigm, the proposed structure of the study, and the theory, which was utilized to evaluate the user's acceptance level and the system's efficacy.



Fig 1 Conceptual Paradigm Using IPO Model

Fig 1 shows the research's conceptual paradigm using the Input-Process-Output model. The Input included a review of existing practices by all participants, stakeholder consultation, and a survey. Data collection, data interpretation, and analysis were involved in the Process. The researchers also used Rapid Application Development to create and develop the proposed study. The Output included the system which was developed.



Fig 2 Learning Management System for Instructors, Students, and Administrators' Framework

Fig 2 above shows the researchers' Learning Management System framework with three entities directly connected to the system: the administrator, instructor, and student.

- The Admin Module Comprised Several Data-Centered Activities and Processes, and it was Intended for the System Administrator:
- A system user was added the ability to add system users is allocated in this module.

- *The school year was added* the ability to add school year and semester is allocated in this module.
- *Notification* the ability to notify if the users successfully received the account login details and if there is new user registration.
- Accounts verification was added the ability to verify a new user's registration by the administrator.
- *The index page content was* added the ability to add the school's mission, vision, objectives, announcements of the school's/college's upcoming events, and user's manual are allocated in thismodule.
- Users/Activity Log was adding the ability to track the users/activity log is allocated in this module.
- *System user rights are added* the ability to set privileges for the instructors and students is allocated in this module.
- For the Instructor's Rights, the following were Cited below.
- ✓ Notification
- ✓ Message
- ✓ Data Back-up
- ✓ Integrated Media Tools (recorded audio/video for the student requirements assessment, whiteboard/video conferencing)
- ✓ Adding Course Assessments (examinations, quizzes, and assignments)
- ✓ Upload Materials
- ✓ Discussion/Forum
- For Student Rights, these are the following:
- ✓ Notification
- ✓ Messages
- ✓ Students Class (course syllabus, downloadable materials, course assessment, course announcement, and course activity calendar)
- ✓ Internal email/messagingnotification from the instructor
- ✓ Data Back-up
- ✓ Discussion/Forum
- ✓ Whiteboard/Videoconferencing
- The Instructor Module was Composed of Class-based Activities:
- *Notification* the ability to access or view the announcement from the administrator. The instructor received information if the student successfully took up the course assessment and downloaded the course materials uploaded by the instructor.
- *The message is adding* the ability to add or create a message for all the students or selected students in the course is allocated in this module.

- *Data Back-up is add*ed the ability to copy or archive the data is allocated in this module.
- Integrated Media Tools are adding the ability to add or create recorded audio or video for the student requirements assessment and provide a room id notification for whiteboard or video conferencing with the students or specific students allocated in this module.
- *Course Assessment is adding* the ability to add or create examinations, quizzes, and assignments is allocated in this module.
- *Upload Course Materials* the ability to add or creates course materials/resources allocated to thismodule.
- *Discussion/Forum* the ability to access discussion/forum among instructors and students to collaborate on learning ideas is allocated in this module.
- > The Student Module was Composed of the following Activities:
- *Notification* refers to the ability to access or view announcements from the instructor.
- *Message* the ability to add, create, access, or view an announcement from the instructor and co-student allocated in this module.
- *Student class access* the ability to access or view the course syllabus and downloadable course materials, take course assessments such as examinations, quizzes, and assignments, and see the course activity calendar allocated to this module.
- Whiteboard or Video conferencing access the ability to access/view the room id and password notification for whiteboard or video conferencingfrom the instructor is allocated in this module to join a particular room name.
- *Discussion or forum* The ability to access the discussion/forum from the instructor is allocated in this module to join a particular room name.

The active directory module was used to allow singlesign-on users accessible through the system portal.

The Simple Mail Transfer Protocol (SMTP) section required admission to the system's SMTP architecture and enabling system-generated responses to the system administrator or instructor activities.

The Star card module was the facility that accessed instructor and student identification information in the central database.

B. The Theory used in the Study

This study was anchored on the various views which illustrated the usage and usefulness of the proposed study.



Fig 3 Technology Acceptance Model (TAM)

The tremendous advances in information and communication technology and the growing use of the internet brought lots of opportunities in various fields, particularly instructional technology. Technology Acceptance Model has proved to be a theoretical framework to assess whether it can help explain students' behavioral intentions to embrace and use it. It was adapted from the Theory of Reasoned Action (TRA) Model. In 1985 Davis created TAM. It focuses on why users accept or reject IT and how to boost acceptance while offering support to predict and clarify acceptance.

This research was therefore evaluated based on TAM, which included perceived usefulness (PU), perceived ease of use (PEOU), and attitudes towards using (ATU).

In [10] described perceived usefulness (PU) as "the degree a person believes will improve their job performance by using a particular system. The students and instructor find the Learning Management System's use beneficial in this research, especially in terms of efficiency and producing betterresults.

Perceived ease of use (PEOU) is the degree to which a person believes using a specific program should be effortless[10]. In this research, users only need a little time and energy commitment to learn the Learning Management System.

In [10], they described the attitude towards using the person's positive or negative thoughts using the system. Attitude toward using the Learning Management System in the sense of this study should evaluate the student's and instructor's attitudes and whether they are open to it or not.

In evaluating the level of acceptance and efficiency of the Learning Management System, Perceived usefulness (PU), perceived ease of use (PEOU), and attitude towards using (ATU) are the basis of analysis. TAM model has been applied to assess user acceptance of IT within an organization in various studies [13], [17], [2]-[3]. The users must determine whether the program being developed is acceptable. This will ultimately influence whether a user keeps or stops using the system. The following two (2) hypotheses were determined using TAM:

H1: There is a strong relationship between the user's perceived usefulness, ease of use, and attitudes toward using the Learning Management System.

H2: The user's perceived usefulness and ease of use positively impact their attitude toward using the Learning Management System.

C. Research Objectives

In this section, the researchers identified both the general and specific objectives.

➢ General Objective

This study aims to develop a Learning Management System. This study used the Technology Acceptance Model (TAM) to evaluate the Learning Management System's acceptability level and effectiveness, which served as a virtual classroom extension for students and instructors. Finally, ISO 9126 was used to assess the quality characteristics of the system.

- Specific Objectives Specifically, this study aims to:
- Develop A Learning Management System Which Includes The Following Functionalities:
- ✓ Registration and enrolment of instructors and students
- ✓ Adding/updating courses by the system administration
- ✓ Set the different user roles/rights and user account
- ✓ Content repository
- ✓ Setting the course calendar
- \checkmark Setting the users and admin logs
- \checkmark Setting the school year and semester
- ✓ Uploading/downloading and retrieving examinations, quizzes, assignments, and resources
- ✓ Online checking and scoring for the students' exams, quizzes, and assignment
- ✓ Discussion or Forum

- ✓ Integrating Media Tools (video or audio recorded for assessment/feedback of the student's class requirements and whiteboard/video conferencing)
- ✓ Internal mail/messaging notification
- ✓ Email/SMS notification
- Evaluate the Learning Management System's Acceptance Level and its Efficacy Using the Technology Acceptance Model by the Instructors and Students.
- Evaluate the Software Quality Level of the System as Perceived by the Experts in Terms of the following:
- ✓ Functionality
- ✓ Reliability
- ✓ Usability
- ✓ Efficiency
- ✓ Maintainability and
- ✓ Portability

D. Scope and Limitation of the Study

This study aims to develop a Learning Management System which was conducted within St. Peter's College in Iligan City, situated at Barangay Saray, Sabayle St., Iligan City, specifically for the Bachelor of Science in Information Technology (BSIT) students along with the participation of the St. Peter's College instructors.

In the present study, the external variables were excluded. Behavioural Intention to Use and Actual System Use from Figure 3 in Technology Acceptance Model (TAM) [10]. In evaluating the level of acceptance and efficiency of the Learning Management System, Perceived usefulness (PU), perceived ease of use (PEOU), and attitude towards using (ATU) are the basis of analysis. Furthermore, ISO 9126 was used to assess the quality features of the program.

The researchers limited herself to developing a Learning Management System comprising the major processes or functionalities cited in the previous section of the study. Furthermore, the researchers implemented a notification Reinforcement Q-Learning algorithm to set the time to notify or alert the instructor once the student received and downloaded the uploaded course materials and submitted the course assessment. Therefore, once the student and instructor successfully receive the login details, the administrator will also receive a notification. Also, the researchers used a third- party agent Cron-Job to set an appropriate time for the instructor and administrator to receive the schedulenotification.

Graphic analytics reporting and annotations were not included in the study. Moreover, the video or audio recorded for assessment or feedback of the students' class requirements run on the specified browsers, Firefox and Chrome.

E. Significance of the Study

This study would be significant to students, instructors, and school administrators.

Students and Instructors

This would benefit them since they can use it as an alternative venue for their discussions and sharing of resources because it is a virtual extension of the classroom accessible via the internet.

School Administrators

This would implement tighter control on course content and delivery since they can also access the site.

F. Definition of Terms

To understand the study better, the following terms wereoperationally defined:

Attitude Towards Using refers to a person's perspectivetowards using that technology.

CodeIgniter refers to an open-source, easy-to-use, object- oriented application framework for application development.

- CronJob refers to a third-party agent to set up a suitable time for the instructor and administrator to receive the timetable's notice.
- Database refers to a structured set of data held in a computer.
- Efficiency refers to a system resource used when providing the features concerned with these characteristics.
- *Experts refer to someone who evaluates the system developed to determine the program's quality features.*
- Functionality refers to the main objective of every product or service.
- Google Calendar refers to a scheduling and time management service developed by Google Calendar, allowing users to create and edit events.
- Hypertext Preprocessor (PHP) is a scripting language used to create dynamic and interactive HTML Web pages.
- ISO 9126 refers to the software assessment universal standard.
- JavaScript (JS) is a programming language widely used in webdevelopment.
- JQuery refers to a library allowing web developers to add functionality to their websites.
- Learning Management System is a software application or Web-based technology used to prepare, execute, and analyze aspecific learning process.
- Maintainability refers to an ability within a software function to detect and correct a fault that these features address.

- Perceived Ease of Use refers to the degree to which a person believes it would be effortless to use a particular system.
- Perceived Usefulness refers to the degree a person believes will improve their job performance using a particular system.
- Portability refers to how well the software can adapt to changes in its context or needs.
- Reliability refers to once a designed and distributed software system is running. The consistency attribute determines the system's ability to sustain service delivery over defined periods under defined conditions.
- SMS Twilio API refers to a well-defined software interface. That allows code to send short messages via an SMS Gateway.
- Usability refers to the ease of use for a given function.
- Technology Acceptance Model (TAM) refers to a theory of aninformation system that describes how users adopt and use it.

Web Real-Time Communication (WebRTC) is a free, open- source project offering real-time communication to web browsers and mobile applications.

II. REVIEW OF RELATED LITERATURE ANDSTUDIES

The studies and literature in this chapter provided background and theory relevant to the proposed study.

A. Learning Management System

The usage and rising improvement of the Learning Management System give a new way to enhance classroom education. It is also a driving force in education today. It has reshaped how instructors teach and how students learn. Also, LMSs are centralized, online platforms that commodify instruction and distribution and reception evaluations [24].

For over fifteen years, the LMS has supported organizations and institutions. Since then, the LMS has developed from accomplishing administrative tasks associated with e-learning and content support to representing the many aspects in which digital content and just-in-time learning are now comfortably available.

A few terms and associated acronyms refer to elearning platforms that are similar yet conceptually different. Thus, LMS refers to structured cloud-based or client-based software primarily intended to support or set up teaching and learning. An LMS is an online system with a collection of software that enables the teaching-learning process.

In [34] claimed that the LMS is an automated, collaborative platform that enables instructors and students to share data and to give access to the content and administrative features of specific courses. [7] clarified that LMS offers an online and interactive learning assessment.

In [12], the active learning management system promotes teamwork and coordination, facilitating group activities and a constructive approach to information acquisition. Assessments of the learning management system are essential for the students on how useful, desirable, and reliable such a learning platform is. Increased use of the multimedia feature will draw student interest and increase the students' attractiveness, engagement, and retention. The management will also consistently monitor and enhance instructor sensitivity and student inquiries [32].

In [27] listed the LMS as an instruction delivered on a computer that provides learning-related content, uses instructional strategies such as examples or practice activities to aid in learning, uses a range of media elements to deliver content and processes, and builds new knowledge and skills linked to the improved establishment.

LMS typically provides the instructor the means to develop and deliver content, track student engagement, and assess student completion. Further, it enables students to use collaborative features such as discussion threads, video conferencing, and discussion forums [20]. [6] explored how content is distributed. The underlying learning methods also play essential roles in the Learning Management System, including tools for analyzing and managing learning information [31].

In [21], LMS is a strategic, creative method designed to deliver teaching and learning effectiveness. LMS plays an essential role in helping students to learn and grow in a wide array of different subject areas online. It also enables instructors to give their students access to high-quality educational content from anywhere, collaborates remotely on class topics and assignments, and allow them to view, store, and submit content as required. He also identified the following functional areas of LMS to include: delivery of course content, registration, and administration of students, certification of curricula, management of skills and competencies, assessment and recording, reporting, and evaluation.

Furthermore, [28] stated that LMS is commonly used throughout higher education to provide various instructional resources, including content delivery, discussion boards, shared workspace, assessment methods, and grade book functions.

In [14], the purposeful use of educational technology in today's schools plays a vital role in teaching and learning. LMSs can be used asynchronously or synchronously to facilitate online, classroom-based, and hybrid learning, incorporating face-to-face and online instruction. A significant process is selecting a suitable LMS for a college, university, orstate higher education system.

Several factors determine the results of the learning management system. As [15] figured out, the critical problems that influence the consistency of the learning management system are classified into four primary levels: administration, availability, instruction, and involvement.

The LMS's effectiveness is believed to depend not so much on information technology but on how the instructor uses it [12]. The primary instructor characteristics influencing the Learning Management System's performance are IT skills, teaching style, and attitude. These should be demonstrated through the efficient management of a course based on LMS and the use of encouragement of feedback and twoway contact with the students.

In [5], they aimed to systematically address the characteristics and efficiency of technical equipment on learning outcomes for students using advanced learning platforms. Investments in learning technologies are moving toward teaching modes of low cost tailored to the student's speed and ideal for lifelong continuous training. Educational institutions can change projects' nature by combining e-learning and management processes relevant to conventional training/learning/evaluation systems, increasing the capacity for lifelong learning. The policy of the LMS is vital in ensuring the quality of distance learning. An excellent learning platform must meet specific technical standards associated with the used hardware and software and, simultaneously be combined with unique content to ensure the best learning outcomes.

On the other hand, [19] cited that institutions should find numerous ways to maximize LMS use within their facilities for an LMS to deliver the expected benefits. The following are some approaches that can be used to improve the use of LMS: enhancing the accessibility of LMS, creating and uploading quality learning materials, improving LMS usability, developing and uploading quality learning materials, raising awareness of LMS; making use of mobile applications and complementing public network.

Simultaneously, to promote effective teaching and to learn for the student's benefit, school administrators will continue to support the instructor in incorporating technologies. [32] found that to boost the instructor's willingness, it is essential that overall support, such as the available instruction on howto use knowledge or resources, and administrative support be identified as critical factors influencing the use of instructionaltechnologies in teaching.

B. Notification Algorithm

Significantly, [15] researched a notification timing approach as a Reinforcement Q-learning algorithm and suggested a notification timing selection technique in which the system can alert the user on time. Alerts (including emails, mobile/desktop push notifications, and SMS) are potent and useful online service platforms for user engagement [35], [25]. The unregulated rise of alerts, however, is known to cause unnecessary interruptions and discomfort and even impact the lifestyle of users. It may have adverse effects and be ineffective and even annoying if they prompt or divert the user's attention at an inappropriate or wrong time [35], [25], [15]. Numerous earlier efforts to address some of the issues were made. [16] concentrated on solving the " when " problem to send a notification causing minimal disruption (i.e., choosing appropriate moments to alert users). [25] derive features such as the hour of the day based on the time when a notification is released.

C. Technology Acceptance Model

Davis Technology Acceptance Model (TAM) (1985), in particular, discusses user acceptance of technology based on user expectations. As stated, the purpose of the model is to tellthe determinants that capture the attitude and behavior of a broader range of users of information technology and the influence of its determination on how and when to use the instructional materials. Thus, the instructor developed teaching skills and instructional methodology using such technology.

Similarly, [17], [13], [22], [2], [29] applied the TAM model to analyze and classify the determinants of students andtheir intentions to use the Learning Management System to identify factors that may impede or influence students' use of LMS. In this context, the TAM model can be used as a useful theoretical basis for understanding students' intentions to use the Learning Management System, highlighting the students' positive attitudes toward LMS. Also, the student's perception of ease of use, usefulness, attitudes towards online learning, and the social influence of the referent group of students was established as significant as significant determinants of the intention of students to pursue online education.

D. International Organization for Standardization (ISO) 9126

ISO/IEC 9126 was defined in 1991 by the International Organization for Standardization (ISO) as the standard for software quality assessment [30] and was adopted in 1991. This norm can decide the software quality model and guidelines for measuring the related characteristics.

Also, ISO/IEC 9126 has been used extensively in work undertaken to assess the quality of a system [4], [23], [1], [9]. ISO/IEC 9126 specifications comprise six (6) quality features, i.e., functionality, reliability, usability, efficiency, maintainability, and portability. These characteristics representa detailed software system evaluation model [9].

E. Review of Available Learning Management System

Table 1 Available Learning Management System								
		Learning Management System						
Features	ATutor	Claroline Connect	Dokeos	Ilias	Moodle	Sakai	Proposed Study	
Real-Time Chat		\boxtimes	\boxtimes		\checkmark	\checkmark		
Discussion/Forum			\checkmark		\checkmark	\checkmark		
Internal Mail		\boxtimes			$\mathbf{\nabla}$	\boxtimes		
Whiteboard		\boxtimes	\boxtimes	\boxtimes		\boxtimes		

Table 1 Available Learning Management System

Video	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
Conferencing							
Video/AudioRecorded	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
(Assessment/							
Feedback)							
Email	K	V	$\mathbf{\nabla}$	$\mathbf{\nabla}$		$\mathbf{\nabla}$	$\mathbf{\nabla}$
Notification							
SMS Notification	\boxtimes	$\mathbf{\nabla}$	\boxtimes	\boxtimes	\boxtimes	\boxtimes	
Assignment Manager	K		\mathbf{V}	\mathbf{k}			\square
Content		\checkmark					
Repository							
Calendar		\checkmark	\checkmark			\checkmark	

Table 1 above compares the existing open-source Learning Management System (LMS) with the proposed system. The table presented the differences and similarities between each available Learning Management System based on the modules each provider had given. In general, the difference between the proposed study and the available open-source LMS was the whiteboard, video conferencing, video or audio captured

F. Review of Available PHP Framework

	PHP Framework							
Features	Proposed Study	CakePHP	Zend	Yii	Symfony			
Model-View-Controller BasedSystem			\mathbf{V}	K	\checkmark			
Extremely Light Weight		\boxtimes	\boxtimes	\boxtimes	\boxtimes			
Full Featured database classes with support for several		\boxtimes	\boxtimes	\boxtimes	\boxtimes			
platforms								
Query Builder Database Support	\checkmark		\checkmark	\checkmark	\checkmark			
Form and Data Validation			\mathbf{V}	K	\checkmark			
Security and XSS Filtering	$\mathbf{\nabla}$		\boxtimes	K				
Session Management			\mathbf{V}	K	\checkmark			
Email Sending Class. Supports Attachments, HTML/Text	$\mathbf{\nabla}$		\boxtimes	K				
email, multiple protocols (Sendmail, SMTP, and Mail), and								
more.								
Image Manipulation Library (cropping, resizing, rotating,	\checkmark		\checkmark					
etc.). Supports GD, ImageMagick, and NetPBM								
File Uploading Class		\checkmark	\mathbf{V}	\mathbf{V}	\checkmark			
Large library of "helper" functions		\boxtimes	\boxtimes	\boxtimes	\boxtimes			
Search-engine Friendly URLs		\boxtimes	\boxtimes	\boxtimes	\boxtimes			

Table 2	Available	PHP	Framework
1 auto 2	Available	гиг	1 TAILE WOLK

The comparison of the current PHP framework with the proposed CodeIgniter PHP framework is shown in Table 2. Table 2 displays the differences and similarities of each available PHP framework based on each vendor's supplying modules. The difference between the proposed PHP framework and the open-source was its incredibly lightweight, full-featured database classes with support for several platforms, a vast library of "helper" functions, and search-engine-friendly URLs.

III. METHODS

The researchers used the following methods and procedures to support the design and construction of the proposed system.

For the class specifications of the students, and the SMS notification.

A. Research Setting

The study was conducted at St. Peter's College (SPC), the school year 2019-2020, an academic institution in Iligan City, Lanao del Norte. Students from the College of Computer Studies, specifically the Bachelor of Science in Information Technology and St. Peter's College instructors were the primary users of the system. They were the initial surveyquestionnaire participants.

B. Research Design

Rapid Application Development (RAD) is a system design software development methodology. The main objective of the term 'rapid' is to shorten development time and implement it much quicker. (Sasmito et al, 2020; Delima et al., 2017)



Fig 4 RAD Framework ([26], [11])

The proposed system was developed using Rapid Application Development (RAD), shown in Fig 4, to develop the system faster. Also, RAD is comprised of four distinct phases. These are:

> Phase 1: Requirements Planning Phase

To address the proposed system's specifications and project scope, the researchers consulted with those responsible for developing a learning management system (LMS). The researchers also defined the main procedures or features of the suggested system. Also, the researchers' ability to assess the demands and specifications of both students and instructors was aided by this stage.

- These were the Procedures Observed:
- ✓ Identification of individuals involved in creating the St. Peters' College Learning Management System. These are the Executive Officer for Administration or Registrar, Executive Officer for Academic Affairs, and College Dean.
- ✓ Conducted a discussion with the persons involved in creating the Learning Management System to create the appropriate systemfunctions.

Phase 2: User Design Phase

Based on the specifications acquired in Phase 1, the researchers produced a system prototype, including the database design structure. A system prototype includes the user interface, such as the forms and reports that will be designed, whereas the database design includes a graphical representation of the database entities and relationships.

- These were the Procedures Observed:
- ✓ Developed the Prototype of the Proposed Learning Management System
- Designed the system administrator dashboard, which contained the system's major processes.
- Designed the dashboard for the instructors and students, which includes the modules
- Designed the database structure for theproposed Learning Management System.

- Define the relationship and primary keys
- Database normalization
- Finalize the database structure
- > Phase 3: Construction Phase

The researchers created the Learning Management System's physical application system based on the prototypes and database structure generated in Phase 2. This involved the creation of reports and the formation of stored procedures. The researchers used CodeIgniter, a PHP framework, to create the proposed study, which served as the front end, and MySQL as the system's back end.

- These were the Procedures Observed:
- ✓ System design and creation of the proposed Learning Management System.
- ✓ Actual testing of the proposed Learning Management System per major system functionalities or processes cited in the previous section. These are:
- Unit Testing was carried out by the researchers and the user for each finished program to find and fix execution issues that could lead to an unexpected program termination. Actual student and instructor data were used for the test.
- Integration Testing link testing is conducted when a certain module is associated with another. Since each module in Learning ManagementSystem was intimately related to the others, it follows that when student and instructor processes are followed, the results of the previous process will be accurate and accessible.
- *System Testing* during this test, the system went through all the usual processing scenarios compared to the anticipated performance for different users. The system is fed with real test data to imitate real processing. Users check processes and outputs to ensure the system is operating properly.

Phase 4: Implementation Phase

In this step, the program developed was incorporated into the school's learning process by the researchers. Also, this process included an evaluation of the level of acceptance and its effectiveness of the system to be

performed by the St. Peter's College instructors and the students of the College of Computer Studies, which involved Perceived Ease of Use (PEU), Perceived Usefulness (PU) and Attitude Towards Use for the user acceptance testing and effectiveness of the system, end-user training, and creation of the user's manual. Student and instructor questionnaires were a standard and pilot question from the study [2], [17], and ISO 9126 for System Quality Characteristics questionnaire for expert assessment is a standard and pilot question from the study of [9] to assess itsoverall performance.

- These were the Procedures Observed:
- Creation of a user manual for the Learning Management System.
- Learning Management System for pilot run testing at St. Peter's College.
- *Evaluation of the students' and instructors' acceptance* and efficacy of the LearningManagement System.
- Evaluation of the Learning Management System by the *identified* experts

C. Physical Environment and Resources

This section presented the Learning Management Systemhardware and software specifications.

Hardware Requirements

Table 3 shows the following hardware specifications that fit the system to run.

Table 5 Hardware Requirements for Server						
Server Hardware and System Configuration						
Processor Intel i5/ i7/ Xeon recommended						
Memory	16 GB of RAM, 40 GB HDD Free Space.					
Other Hardware	GPU that is compatible with OpenGL 3.2. (integrated graphic cards Intel HD					
	4000 or					
	above)					
Operating System	Any Microsoft OS					
Database Server MySQL						
Web Server	Apache					

Software Requirements Web Server

Learning Management System was developed using open source technologies integrating free and available server-installed software, including:

- PHP framework, which is the CodeIgniter3.1.7, Bootstrap, and other standard libraries enabled or installed
- PHPMyAdmin a graphical interface for handling MYSQL transactions

D. Architectural Design

This section presented the architectural design and the tools and techniques, including the Context Diagram, Use Case Diagram, and Entity Relationship Diagram (ERD).



Fig 5 Architectural Design

As shown in Fig 5, the LMS system consists of one LMS web server, one LMS DB, and one LMS VoD server. If these three network components stopped working, the LMS service wouldn't be available.

➢ Context Diagram

Context Diagram, also known as the scope of the study or research, depicts the full area of studied activity.



Fig 6 Context Diagram

The high-level view of the system is shown in Fig 6. This included all the user flow, which shows the relationship with the other external entities that the Learning Management System has.

➢ Use Case Diagram

A use case depicts a capability (a particular system usage) that the system offers and shows how the actor (the system behavior as the user views it) perceives it externally. It does not, therefore, explain how the system provides functionality.



Fig 7 Use Case Diagram

Fig 7 shows several external actors and their relation to the use cases provided by the system. The system administrator, instructor, and student are the main actors inthis figure.

Entity-Relationship Diagram

Entity-relationship diagrams allow designers and users to interpret what the planned database is destined to doso and how it could work and communicate about the database through a common language. This illustrates how data will be handled and structured within the various elements of the final database. Therefore, the entity-relationship diagram is used logically to give the instructor, student, and administrator a clear LMS picture.



Fig 8 Entity Relationship Diagram

Fig 8 illustrates an entity-relationship diagram. The ERD has different entities in the Learning Management System for the instructor, student, and administrator. That entity is composed of attitudes that define that entity's records.

E. Participants and Sampling Procedure

A survey was conducted randomly based on the Technology Acceptance Model (TAM) and the ISO 9126 Software Quality Model to gather information on the developed Learning Management System. In this case, the following were considered as the participants of the study:

- The current 100 students enrolled in St. Peter's College Bachelor of Science in Information Technology;
- 100 Faculty members of St. Peter's College;
- and 7 identified Experts

F. Research Instruments

The Technology Acceptance Model served as the basis for the survey preparation. The survey prepared was a standard and pilot evaluation of students' and instructors' questions from the study by [2], [17] was done. A five (5) - point Likert scale was used to determine the level of agreement or disagreement with particular questions and statements for the respondents' survey. Table 4 on the agreement level and their concise description are shown on the following page.

Scale	Range of Means	Verbal Description
5	4.50 - 5.00	Strongly Agree
4	3.50 - 4.49	Agree
3	2.50 - 3.49	Neutral
2	1.50 - 2.49	Disagree
1	1.00 - 1.49	Strongly Disagree

Table 4 Agreement Levels and their Concise Description

An expert using the Standard ISO 9126 Quality Model was given another set of survey questionnaires. A five-point Likert scale was used to determine the level of agreement or disagreement with the participants' responses to particular questions and statements. Table 5 shows the agreement level, and their concise description is below.

Scale	Range of Means	Verbal Description
5	4.50 - 5.00	Highly Acceptable
4	3.50 - 4.49	Acceptable
3	2.50 - 3.49	Neutral
2	1.50 - 2.49	Unacceptable
1	1.00 - 1.49	Highly Unacceptable

Table 5 Agreement Levels and their Concise Description

Nonetheless, the anonymity of the responses was underlined with the guarantee that the study would not state the respondents' identities. Finally, all the questions were restricted; only one respondent's answer was needed.

G. Validity and Reliability of the Instruments

The researchers carries out the test instrument validity and reliability. The questionnaire was pretested to 30 instructors, 30 St. Peter's College students, and 5 identified experts.

Also, the validity of the measurement in terms of the design's reliability and validity was determined. The reliability analysis was performed to ensure the internal validity and accuracy of the items used for each variable. Cronbach's alpha was used to assess that the survey questions are a reliable measurement instrument.

Table 6 shows the reliability of the three (3) survey questionnaires. Based on the results shown in Table VI, both constructs exhibited Cronbach alpha values higher than 0.70, which means it was a reliable tool.

Items	Cronbach's Alpha	N of Items	Number of Respondents
Instructor	0.960	16	30
Student	0.917	11	30
Expert	0.900	23	5

Table 6 Reliability Statistics of the Three Questionnaires

H. Data Gathering Procedure

The data were collected in the following phases: The researchers sent a letter to the School of Graduate Studies and the Vice President for Research and Extension's office to approve the study. After the study was approved, theresearchers sent a letter to the president of St. Peter's College (SPC) requesting that the institution, students, and faculty participate in this study's pilot test. Also, the researchers consulted with some experts to evaluate the system. A written letter of consent to the participants informing

them about the scope of the study and requesting them to participate was also expedited.

The program deployed on the cloud server, and there were actual system uses. A questionnaire was given to the students and instructor to assess the system after the system's first use.

An expert evaluated the system to determine thequality characteristics of the system.

I. Statistical Techniques

The data collected were entered into the Statistical Analysis System (SAS), and the researchers sought assistance from a statistician to ensure the right understanding and analysis of the findings.

For Objective 2, Mean and Standard Deviation were used to determine the Learning Management System's level of acceptance using the Technology Acceptance Model. Also, for Objective 2, Pearson Product-Moment Correlation and Multiple Regression were used to assess their efficacy.

For Objective 3, Mean and Standard Deviation were used to assess the Learning Management System Software Quality level as perceived by the experts.

IV. PRESENTATION, ANALYSIS, ANDINTERPRETATION OF DATA

This section conferred the results of the system layout and assessment. This includes the appearance, investigation, and explanation of data gathered from the questionnaires distributed to the respondents. This also consists of the tabular presentation of data along with their respective interpretations.

A. Final Project

This is the homepage of the final product, as shown in Fig 9—the system's homepage for instructor, student, and administrator web applications.



Fig 9 System's Homepage

After clicking the Login Portal button on the homepage, Fig 10 will be shown.



Fig 10 Login Page

> Adding and Updating System Users Account in theSystem

A user account was created in two (2) ways. First, the student or the instructor would create their account on the Login Page see Fig 10 on the previous page, after which the user chooses whether they are a student or an instructor. The form found in the administrator account would be redirected to register a student or an instructor. The second way is the administrator, who is the one who will create a user account. It could be an instructor, a student account, or the administrator account itself.

• System Module

Learning Management System was accessible through the three (3) user levels, the system administrator, instructors, and student.

The system was grouped based on each user's role. Each user has to enter their username and password on the Login Page, as shown in Fig 10 above.

St. Peter's College Running Session : 2019-2020 • Running Session : 2019-2020 • Image: College Mathematic College Running Session : 2019-2020 • Image: College Ima

> The Administrator Area

Fig 11 Administrators Dashboard

The administrator area is where the administrator can add New System Users, Notification, Pending Accounts, School Year, Class, Noticeboard, Messages, Website Settings, Index Page, and System Users' Rights and Website Activity Log, see Fig 11.

Once the administrator has signed in, a list of administrative items will be displayed on the screen's left side.



rig 12 System Osers Diop-Down Menu

Fig 12 shows the system users drop-down menu forcreating system users.

After the system administrator selected any of the users to be created, the following figures below, Fig 13, 14, and 15, showed the different user forms, such as the administrator, student, and instructor forms, would appear.

4	6	i l	St. Peter's College								
		Runnir	ng Sessi	on: 2019-2020 🔹				•	Nebsite	1 1	og Out 🗗
~	Dashboard		Mana	ze Admin							
۲	System Users	-	Harlo	50 / 10/11/1					(O Add Nex	w Admin
1	Administrator								-		
	1 Student	> Show	10	entries				Search:			
ł	11. Instructor		• II	Name	i,	Email/Username	Contact #	Address		Options	
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۰	Pending Accounts	Show	ving 1 to 1	of 1 entries				[Previo	15 1	Next
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ф	Class				01.11						
۵	Noticeboard										
	Message (0)										
0	Settings										
	index Page										
0	System User Rights	» :									
8	Activity Log										
	Account										
				Fig 13 Ad	mi	nistrator Form	l				
1						St. Peter's Colle	ge				

100				St. Peter's College	
	,	Running Session : 2019	2020 •		G Website L Log Out
7h Dashboard		Add Student			
System Users	100	Addmission Form			Students Admission Notes
Administrator		ID No.3	20-2012		Admitting new Student will automatically create an enrollment to
1 Student					the selected class in the running session. Please check and recheck
11. Instructor		First Name:			the informations you have inserted because once you admit new structure uncounted by addit
Notification dll		Middle Name:			his/her class.ID without promoting to the next session.
Pending Accounts		12002201011	0		
7 School Year		Last Name:			
th Class		Class	Select	•	
Noticeboard		Birthdate			
Message (0)					
Settings		Gender	Select	*	
Index Page		Address			
System User Rights	•	Phone			
Activity Log					
Account.		Email/Username			
		Password			
		Photo	200, - 2005		
			Select image		
			Add Flew Student		

Fig 14 Student Form

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Notification			Middle Name						
O Perding Accounts									
(P) School mar			Last Name				1000	Plane: II	Eptines
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D Index Page	×:	200	Address		1			Prevent	
O System Uner Rights	1								
 AchityLog 		623				C	Ð		
Account						-			

Fig 15 Instructor Form

> Email and SMS Notification of the Account DetailsCreated

Upon registration, the system will send SMS and Email Notification to the users who have already created their account details.

dismart ∓	BISB AM	@ 48%
	INFO	
Sent from ye account - Co are now regi the St. Peter Managemen username is	our Twilio trial ongratulations, you istered as admin in r's College Learning it System, your	
and your pa and lastly ki visit the site password if	ssword is rdJJU9ft ndly visit this link to , and change your you want to do so.	
	Text Message	0
		(3)

Fig 16 SMS Notification for User's Account Registration

	SPC LMS	nbox ×				•	Ø
+ 0	tophehit@premi to me +	um76.web-hosting.com	8:5	1 AM (0 minutes ago)	☆	*	:
	Congratulations, y rexgambe0630@c password if you w	ou are now registered as admin mail.com and your password is ant to do so.	n the St. Peter's College Learning Ma dIJU9ft and lastly kindly visit this link t	nagement System, you to visit the site, and ch	ur user ange y	name is our	5
	K Reply	Forward					

Fig 17 Email Notification for User's Account Registration

Fig 16 and 17 show the screenshots for SMS and Emailnotification received by the user.

Forgot Password

When the user forgets their password, the system has afunction to reset the password.



Fig 18 Resetting User's Password

Fig 18 indicates the password reset page. The only prerequisite for resetting the user's password is email or username.

Password	l reset request 🔉 🔤	X ROAD		~	ē	Ľ
tophehit@pre to mellaniegam	emium76.web-hosting.com		9:04 AM (10 minutes ago)	☆	*	
Your account t	ype is : admin and your new passu	word is : 211a39a				
A Reply	III Forward					
	Fig 19 Email N	Notification for Resetting Use	r's Password			
	📲 SMART 🗢	9:12 AM	48%			
	<		í			
		INFOSMS				
		Today 9:04 AM				
	Sent from y	your Twilio trial				
	request: Yo	our account type is :				
	admin and is : 2f1a39a	l your new password a				
		Text Message				
	🐼 🔕	🕘 🎵 🖻	🎯 🦉			
	Fig 20 SMS N	lotification for Resetting User	's Password			

Upon successfully resetting the password, the user will receive an Email and SMS notification. See Fig 19 and 20 above.

> Notification

This page contains two (2) kinds of notification. First, a notification by the administrator of the created user accounts whether the student or instructor successfully received theaccount login details. Second, whether the instructor or the student has created a new registration.

10	St. Peter's College							
		Running	Session : 2019-2020 •			Website	L	Log Out B
n Dashboard		ΘM	anage Notification					
Ystem Users	*	= No	offication List					
Notification 🐨								
Pending Accounts		Show	10 • entries			Search:		
School Year		en li	Event Name		Event Dutails	i:	Dat	e 1
A Cass		1	Student User Account		Andrew p Ponte have successfully recieved the system account		202	0-05-16
		z	New Student Registration		New Student Registration - Student ID: 20-2009 - Name: Donald Donald Ares		202	0-02-28
Noticeboard		3	Teacher User Account		Archie Calupe have successfully recieved the system account		202	0-02-28
🗃 Message (0)		4	New Instructor Registration		New Instructor Registration - Instructor ID: - Name: Archie Genovia Calupe		202	0-02-28
A futtions		5	Student User Account		Donald Donald Ares have successfully recieved the system account		202	0-02-28
A scoulds		6	New Student Registration		New Student Registration - Student ID: 20-2008 - Name: Mellanie Sombreno Gam	be	202	0-02-27
Index Page	2	7	Student User Account		Mellanie Sombreno Gambe have successfully recieved the system account		202	0-02-27
System User Rights	•	8	Student User Account		Mellanie Sombreno Gambe have successfully recieved the system account		202	0-02-26
		9	Student User Account		Mellanie Sombreno Gambe have successfully recieved the system account		202	0-02-26
Activity cog		10	Student User Account		Mellanie Sombreno Gambe have successfully recieved the system account		202	0-02-26
Account		Desire	a 1 da 10 al 20 anteira					L an and
		Showin	g 1 to 10 of 29 entries			Previous 1 2	3	Next

© 2019 St. Peter's College | Version 1.0 Developed by Mellanie 5. Gambe Fig 21 Notification Dashboard

For verification and activation purposes, the administrator will be notified of the new application for registration; see Fig 21 above.

> Pending Accounts

This menu contains the requests for the student's or instructor's pending account registration.

۲		Running Sessio	n : 2019-2	020 •		St.	Peter's Colle	ge			* 1 1	Rong
A Sulfard Spanishes Anticipal		Pending Attraction	g Studen	t Acco	unts							
O Perdighawana	•	See 18					-			Seath		
A souther		20.2007			Name		Address Fuenties, Sper City		Inditional antiphyselfged.com		0	
den Den	1	Saving 1 to 1 of	Torras	ue 18 Cr	urbouri ha Madania S. Gamba					P		
 Wmspill Semplik 	×.											
 Index Right System Uner Rights 												
Analyting Analyting												

Fig 22 Pending Accounts

The administrator must validate and activate the pending account registration, see Fig 22.

School Year Form

Once the system is used or published, the administrator must first set the school year and semester before adding any data into the system.

		St. Peter's C	ollege	
No.	Running Session : 2019-2020 •			G means T cigorap
7h Dashboard	School Year			
🔮 System Users				Add New Schol Year
Notification in				
O Pending Accounts	Show 10 • entries			Search.
75 School Year	# • B School Year	11 Samastar	11 Status	IT Options IT
A Cass	1 2019-2020	2nd Semester	Active	Atter
Netceboard	Showing 1 to 1 of 1 entries			Previous 1 Next
Message (D)				
O Setting	© 2015 St. Peter's College Version 1.8 Doveloped by Me	flanie 5. Gambe		
C antestan				
U manange				
O System User Rights				
Activity Log				
Account	$\Gamma_{i}^{i} \sim 0.2$	Cabaal Vaar farm		
	F1g 25	School Year form	1	
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	St. Peter's College			@ Wetcote 1 Log Out B
	Running Session		_	
(% Dashboard	Add New School Year School 1		_	
🔮 System ütters	School Year From: Year	Rom •		O MADING SECTION
B Setferin II			_	
	School Year To: Year	Te •		Such
Pending Accounts				
(A School Year	a a ja Semestar: Selec	t.Semester •		II Oytana II
A Cars	1	ine School Your		Astro

The school year form is shown in Fig 23 and contains the school year and semester list. Click the Add New School year button at the top of the form on the right side to add new data. After clicking the Add New School year button, the Add New School Year form will be displayed, as shown in Fig 24. The administrator must input three parameters when setting the New School Year: school year from school year to semester.

Fig 24 Add New School Year form

Class Form

8

After setting the school year, the administrator will need toset the classes offered in the current school year and semester.

	E.					St. F	eter's Col	lege		
		Running Sess	ion : 2019-20	• 02					& Webshe	L Leg Out B
7h Dashboard		Manag	e Class							
🖶 System Users		0 110.05								
Notices and		 Class List 	Add Class	l						
O Pending Accounts	×			Name						
7% School Year					-					
di Cen	5									
Manage Casses		O 2019 St. Peter's	College Version	1.0 Develo	operd by MeRanie S. Gan	nbe				
Netceboard										
📾 Message(0)										
O Settings	- 2									
Index Page										
O System User Rights	. *									
ActivityLog										
Account						. ~.	-			

Fig 25 Add Class Form

Fig 25 shows the Class Form. The administrator will add a particular class by clicking the drop-down Menu Class and Manage Class. In this form, the administrator will provideonly one parameter: the class name.

0		Running Session	2019-2020 •	St. Peter's College	G mature 1 LapourD
rik Dahbard		Manage C	lass		
O Perdighosers	4	The state	1		Seeb
A Shotner	1		Chin Natio	27 Numeric Name	il Sprine II
Watepr Corret		2	8973		(- 100)
 Messgelit Settings 	4	4	807.2	3	- the billion
D han high D Synam Liver Rights	- 4 - 4	Showing 1 to 4 of 4 o			feature 1 tool
Activity Log		0 2019 St. Peter's Col	age Warsion LB Developed by Mi	slame 1. Gambe	

Fig 26 Class Form Drop-down Menu

The administrator will then need to set the subject in the current class by clicking the action button and display a list of menus: Edit, Add subject and View subject, as shown in Fig 26.

<i>6</i>	100			St. Pete	er's College	
-		Running Session	n:2019-2020 •			& Hobse & Log Out D
(A Deshboard		⊙ Manage	Subject			
System Users						
B Notices 11		 Subject List. 	O Add Subject			
Pending Accounts			Offer No.7	000009		
75 School Year			Subject Code:			
📥 Cars			Subject Description:			
Notcoboard			Caus	8551		
· Messape(3)						
O Settings			Instructor:	Select Indiactor	•	
D Index Page				Anthenper		
O System Over Rights		0 2019 St. Peter's C	allege Version 1.0 Double	ped by Mellanie S. Gambe		
Activity Log						
State of Concession, Name						

Fig 27 Add Subject Form

Fig 27 shows the Subject form. The administrator will need information such as the subject code, subject description, and instructor.

۲	St. Peter's College Bunning Session : 2019-2020 • Bunning Session									
2h Dashboard										
Notical and	· Subject Lit	e Add Sub	pet							_
A School Tear	Show 10	• artites					Search			
di Can	Class = 24	Offer No	Subject Code	Subject Description	il testructor		School Year		Options	а
Notesboard	BR4.4	880501	CC 104	Data Sewiture & Algorithm	John Andy Bacadap Genos		2018-2019			2
Message [2]	097.1	1010	17 101	Fundamentals of Database	John Andy Bacastap General		2018-2019			-
C Settings	Showing 1 to 2	of 3 entries	11.117			-		Previo		Next
O System User Rights									aller aller	
Activity Log Account	0 2015 St. Peter	rs Callege Versie	n 1.0 Developed by Mellane	5. Gambe						

Fig 28 Subject List Form

After clicking on the Add Subject button, it will automatically appear on the subject list in that class. See sample Fig 28.

System Announcement/Noticeboard

The system announcement or noticeboard is shown in Fig 29 and 30.

0		Running Ses	St. Peter's College Running Session : 2019-2020 • Lag Out D										
77. Dashbourd		⊙ Manag	ge Noticeboard										
Notication :=		 Noticeboar 	d List O Add Noticeboard										
O Pending Accounts	3	A Running	Archived										
7% School Year													
di Casa		Show 10	entries				Search						
Noticeboard		• • B	Title	10	Date	11 Show On Website	11	Óptions	11				
Message (Q)		1	Palare		07 Dec.2019			Adles .					
O Settings	3	2	Ovisimas Party		20 Dec.2019	•		Action -					
Index Page		3	Departmental Examination		18 Feb.2020	•		Addet					
O System User Rights		Showing 1 to 3	of 3 entries					Previous	T Next				
Activity Log					_								
Account		C 2015 Sr. Pater	College Version 1.0 Developed by Mella	nie 5 Gambe									

9 St. Peter's College | Version 1.0 Developed by Mellanie S. Gambe



	9		Running Sessio	n : 2019-2020	•		St. Pete	r's Colle	ege	a we	taite 1 Lag Our (}
6 8 0	Dashboard System Users Notification	•	⊙ Admin	Dashboa	rd					1000	
•	Pending Accounts		May 20	20				taday		11 Student	0-0
~ *	School Year		Mon 27	Tue 28	Wed 29	30 S	Pri L	546	Sun	and the second sec	
	Notceboard									4	
-	Message (0)			2	2	7	-		10	Instructor Test Instructor	0.0
۰	Settings	()		12	3.5	5.8	15	14	67		
•	Index Page										
0	System User Rights	11 1 17	.18	10	29	25	- 22	22	124		
۰	Activity Log										
٠	Account		25	54	2	28	20	- 25			
				8		14	2	1.6	- ×.		

2019 St. Peter's College | Version 3.0 Developed by Mellanie S. Gambe -

Fig 30 Board or System Announcement Output

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The figures above are part of the administrator account where the administrator will create an announcement throughout the system and be shown to every user on the system homepage and system calendar page.

System Message

The system can send messages from the administrator via the instructor or the student or vice versa from different users.

0		St. Peter's Col Running Session : 2019-2020 •	@ Website 1 Log Curd-
7h Dashboard System Users	,	Private Messaging	Sour Vinter
Notification (6)		Messages	Search for mail.
O Pending Accounts	×	•	
A School tear		John Andy Bacadap Genova	
di Cus	1	_	R.
B Notoboard			
Message (3			Select a musiage to read
O Settings	8 5		
Index Page			
O System über Rights	20	© 2019 St. Peter's College Version 1.8 Developed by Mellanie S. Gambe	
Althing Log			
Account			

Fig 31 Message Dashboard

Fig 31 shows the message page interface in the system wherein the administrator can create a message by group or by an individual for the instructor or the student.

System Settings

۲	Running Session :	2019-2020 •	St. Peter	's College	G Webster 1 Log Out 5
7h Dashboard	O System Set	tings			
🔮 System Users				-	
Notification (1)	System Settings			Upload Logo	
O Pending Accounts	System Name	St. Peter's College		Photo Station	
7h School Year	System Title	SPCLMS		E(12)5	
A Cans	Address	Sabayle St., Rigan City		Select image	
Notceboard	Phone	+8012654159		(CTT)	
Message (3	System Email	melanieganbe@gnal.com			
O Setting	Running Session	2018-2019			
General Settings		(
Index Page					
O System User Rights					
C Activity Log					
Account					
	© 2013 St. Pater's College	Version 1.8 Developed by Mellanie 5. Gambe			

Fig 32 System Setting's Form

The general system settings contain six (6) parameters: System Name, System Title, Address, Phone, System Email, and the Running Session, see Fig 32. Also, the administrator can modify the system logo on the right side of the page.

Index Page

The menu index page includes the section where the user must revise the system's front-page display.

0	Running Session : 2019-2020 •		St. Peter's College	& Webster & Lag Out (ł.
1/h Dashboard	⊖ Pages				
Nutration (1)	Nettobard	School Title	St. Peter's College		
O Ponding Accounts	Rear Courts	School Email	admindspr.eduph		
A School Year	Callwy	Phone	228 - 1436		
di Cas	ADIGUE LUB	Address	Salsayle SL, Hgan City		
Noticeboard	Terms & Candillon	Social Links	https://acebook.com	*	
B Message (0)	Sheers Manual		Respondences	×	
O Settings	* Harmanaga Shdar		https://initedia.com	in .	
Index Page	· Conserptionings		http://paogie.com	G-	
- Pages			Milge Pyroduke com		
O System User Rights			Regulturology and com		
Account		Header Logo	Contraction of the second seco		
		Footor Laga	Contraction of the second seco		
	© 2015 St. Pater's College Version 1.0 Dev	vioped by Mellarse 5. Gambe	•		

Fig 33 Index Page Form

- > The following is shown in Fig 33.
- Noticeboard is the system announcement part where the administrator will create an announcement and show it on each page's homepage (inside the system).
- The menu events page is also an announcement page and will appear on the website's front-end page.
- A Gallery menu page allows the administrator to dynamically add or remove images from the system and view them in the gallery menu at the front-end of the website.
- About Us contains the information or the details of the system or website.
- Home Page Slider page is where the administrator can change or update the photo slider on the website index page.
- The General Setting contains some details of thewebsite and the application logo.

System User Rights

An administrator privileged is where the manager can apply the level of entry in the system of the student and instructor according to the menu.

				St. Peter's College		G Website 1 Log Out B
(b) Dathbard		Running ses	sion: 2019-2020 •			
🔮 System Users	8		nt User Rights			Add New Student System Eights
Notification (1)		-				
O Pending Accounts	*	Show 10	• entries			Search
/A School Year		• • 8	User II	Punctions	Action	H Options H
🛦 Cus	*	10	Student	Notification	Tes	Attac
Notoboard		2	Student	Messages	Yes	Ator .
Message (3)		2	Student	Learners Class	Yes	Attant
O Setting	×	4	Student	Email/Mysuging Notification	Tes	Actual -
index Page		8.	Student	Data Back Op	Yes	Acces +
O System User Rights	¥.	6	Student	Discussion, Forum	Yes	Ature
		7	Student	Whiteboard/Video Conferencing	Yes	Atom
Account		Showing 1 to 7	of 7 entries			Previous 1 Next

© 2019 St. Peter's College | Version 1.8 Developed by Melanie S. Ganthe

Fig 34 Student User Rights

0	Running Sess	ion : 2019-2020 •	St. Peter's Colleg	e	& Website L Log Our D
 California System Users 	⊙ Instru	ctor User Rights			• Add have instructor System Equity
NetStation (1) Panding Accounts	Stor 18	• erenes			Section (
1 200 -	* * B	New I	System Functions	Action	Options
E Hermann	×	Instruction	Notification	No.	(Allow P
/h School Tear	2	Instructor	Data Back Op	Yes.	Canada
de Cara	2	Instructor	imageated Media Tools	Ves.	
B Notesboard	4	instructor	Course Assessment	Yes	
Message (2)	5	Brotructor	Uploaded Material	Tes	Attace
O better		manufactor	Discussion_Forum	Tes	Attact
	7	Instructor	Grade Book	West-	
O Jamen Ver Rights		Instructor	Message	Yes	
· · · · · ·	Showing 1 to 8	of it entries			Prevenue 1 News
- Student					
Anter Log	C 2015 SL Peter	a Copelle 1 Annous 25 Consults	olig Melane I. Gande		
Account					

Fig 35 Instructor User Rights

Fig 34 shows the system user rights of the student, while the instructor's system user rights are set out in Fig 35.

Activity Log

0	Running	Sess	ion : 2019-2020 ·		St. Peter's College			a we	tote 1 La	ng Out
h Dashboard System Users	⊙ Ac	tivit	y Log							
Pending Accounts	Show	10	entries				Searc	*		
School Tear		- 11	User	11	Process	110	Date/Time	11	Designation	
Cam	1 2		Mellane Sentrano Gambe Mellane Sentrano Gambe		Adding New Student - Archie Genovia Calupe Adding New Instructor - Jeneil Kant Claro Calumag		2020-02-11 09:26:29 2020-02-10 21:35:05		Administrator Administrator	
Notceboard	3		Mellanse Sembrano Gambe		Adding New Student - Zechariah Claro Calumsag		2020-02-10 20-48/07		Administrator	
Message (2)	4		Mellanie Sembrano Gambe		Adding New Student - Jechanah Jester Claro Calumag		2020-02-10 12:20:39		Administrator	
Settings	5		Melanie Sembrano Gambe		Adding New Student - Zechartah Jester Luaysin Calumag		2020-02-10 12:29:50		Administrator	
Index Fage	7		Mellanie Sembrano Gambe		Adding New Student - Zecharuh Segmon Celumag Adding New Student - Honey Genova Bermayan		2020-02-10 12:00:51 2020-02-07 10:27:26		Administrator	
System User Rights	8		Mellanie Sembrano Gambe		Adding New Student - Honey Genovia Calupe		2020-02-07 10:24:43		Administrator	
ActivityLog	9 10		Mellanie Sembrano Gambe Mellanie Sembrano Gambe		Adding New Instructor - Nethon Taladro Bacang Adding New Student - Donna Jan Taladro Bacang		2020-02-07 10:05:08		Administrator	
	10000					1.000				

Fig 36 System's Activity Log

Fig 36 contains all the system logs, such as the list ofactivities created by the administrator, instructor, and student.

➤ Account

•	Running Sessio	m: 2019-2020 ·	St. Peter's C	College	di matalan 🛓 Lag Gar B
7h Darldsord	⊖ Manage	Profile			
Australian Int	A Manage Prof	• 1 1			
O Pending Accounts	1 (C)	First Name:	Malante		
A Shere		Middle Nome	Sentrare		
B Noteboard		Last Name:	Gante		
Menage (3		Email/Viscourse	melanisperiodynation		
Settings Index Fage		Photo	2		
C System Uner Rights	1.1		Carlot Image		
Access			(1111)		
	Change Passe				
		Current Patoward			
		New Password			
		Confirm New Password			
			Candida a Devalue		

Fig 37 Account Form

In Fig 37, the manager can revise their data and change theusername and password.

Instructor's Account

0	Running Sessi	on : 2019-202	•		St. Pete	r's Colle	ege	a.,	whether 1 Lapour®
(7) Dehourd	⊙ Instru	ctor Dash	board						
Cg Cans								-	
U Course Materials	Event Sch	edule						44	
B Course Assessment	May 2	020				today		Student	
 Integrated Media Tools 	Mon	Tue	Wed	The	Tei	Sat	Sun	Trial Doctory	ROA
Notification (1)	27	28	29	30	1	2	3		
Discussion/forum									
Message (0)	4	5		7		,	10		
Account		12	u	54	15	16	17		
	14	**	29		22	23	24		
	25	26	27	28	29	30	31		
		2	3	4	5	•			
	© 2013 St. Peter	's College Vers	iun 1.0 Develop	ed by Metlanie S	Gante		_		

Fig 38 Instructor's Dashboard

Fig 38 shows the dashboard of the instructor's account containing the list of menus such as Class, Course Material, Course Assessment, Integrated Media Tools, Notification, Discussion or Forum, Message, and Account Menu.

➢ Instructor's Class

0		Running Ses	sion : 2019-202	o •	St. Peter's Co	ollege	& Websbe J	L Log Out B
17A Dashboard Qg Class		⊙ Man	age Class					
ClassiBS/7-1 ClassiBS/7-2 ClassiBS/7-3		Show 10	List				Search	
ClassIIST-4		Class ~ Il	Offer No 11	Subject Code	Subject Description	Instructor	School Year	Action II
Course Assessment	- 34	897-1		IT 101	Fundamentals of Database	John Andy Bacaslap Genovia	2019-2020	
Integrated Media Tools Notification (III)	3	BSIT-1 Showing 1 b	080009	NET 001	Networking 1	John Andy Bacaslap Genovia	2019-2020 Previous	Adont 1 Next
 Discussion/Forum Message (3) 		0.2019 St. Per	er's College I Ver	ian 1.6 Developed by M	efanie S. Gambe			
Account				20 I				

Fig 39 Instructor' Class Form

Fig 39 contains the list of classes, subjects, and astudent assigned to the instructor.

➢ Course Material

This page is where the instructor will add or create different course materials that will be used for the whole or a particular class. Also, the instructor can download all of the course or specific materials created.

	Autoring Secure	St. Peter's College		· Matters · L · · segments
On Decision	@ Course	Add Soudy Material		
Qr. Oast		Bete Thu, 08 Februa	wy 2000	
Course Materials		Title Foul Tops		
· maganat Mada Tana		Description Hannut lost +	Buck- Bold Auto Lookadae P (b) (#) (b) (co.	Annual Annua
 Second state Memory II 	1 2100-1	Shaty in advance	6#	
Account 1	·			
		Maturial Type (actors holes	1	
		Own BSE 1	[44]	
		Subject Data Services	A Aposton . *	
		-	in mp proma des	
		Rile Type One	(.•)	
	A STATE PARTY			

Fig 40 Adding Course Material

Fig 40 shows the form in which the instructor can add or create course material.

0		an Carrien -			St. Pete	er's Coll	ege		Webster 1 LogOuth
Gr. Castourd Qr. Cast	© 0	ourse Ma	terial					ANI Caurie M	darra) (Crowniand & Chier)
Course Materials	200		tries					Search	
 Integrated Media Tools 	2.4	Date 2	-	Description 11	Material Tops	Cen /	Indust 1	Designed in the	Outlans
B Notices	1	06140,2020	Real Topic	Study in advance	Lacture Notes	892.1	Data Structure & Algorithm	A Downland	
E Decesion/Source	2	66 Feb. 2020	Final Topic	Study in advance	Lasture Notes	85/1.1	Data Structure & Algorithm	A Downland	
· Wessage (1)	3	06740,2020	Final Topic	Shuly and advance	Lecture Notes	897.4	Oxfa Structure & Algorithm	A Deverticed	
Autors	. 4	06 jan. 2020	Multiverer Toppe	Kndy duck the format	Latture Notes	957.1	Data Structure & Algorithm	A Disettant	
	5	23 Owi, 2218	SPC SPC	sec sec	Sylidout	8571	Data Structure & Algorithm	-	
	6	29 Dec, 2019	605	ecs	Syllibus	857.1	Data Structure & Algorithm	A Countral	
	х.	23 Dec, 2019	SPC OFS	SPC CCI.	Splicture	8911	Oxfa Structure & Algorithm	A Developed	
	200	ing 1 to 7 of 7 or	eres.						President I Tand

Fig 41 List of Course Materials Created

Fig 41 shows the list of course materials created.

➢ Course Assessment

There are two (2) submenus in this menu: Create Course Assessment and Manage Course Assessment. Furthermore, in this menu, the instructor can edit and delete details of the course assessment. This page also contains the action button where the instructor can cancel the course assessment publication after it has been published. It is important to note that the instructor must publish the course assessment before the student can take it.

۲		Running Session :	2019-2020 •	St. Peter	s College				Webste 1	LegOutB
/A Celificard		⊙ Add Cours	e Assessment							
Qy Case	1996	O Course Assess	nent		O Course Assess	wine-				
Course Materials		Title	Rulture		Outer	62/57/2020	2			
Course Assessment Onste Course Assessme		Type of Assessment:	Cun	•	Time	13:00:00	0	Te	15:15:00	0
Manage Course Assessm	ent	Gess	897.1	1.41	Minimum Percentage	50				*
Integrated Media Tools	- 36	Subject	080501 Data Structure & Algorithm	1.0	Instruction	Arsanr dred	ly			
Notification (see										
Decusion/forum										
Message (3										1
Account				AMCourse	Americani-100					

Fig 42 Adding Course Assessment Menu

© 2019 St. Pater's College | Version 1.4 Developed by Melanse 5. Gambe

Fig 42 shows the create course assessment menu where the instructor will create a different course assessment (assignment, exam, and quiz) for the student. The instructor may also assign which date and time to publish.

	Running	; Session : 2019-2	020 •	St.	Peter's College		& Website ;	L LIEONB
rik Einstelnund Og Clans - 1	© M	anage Course	Assessmer	nt				
😝 Course Materials Bis: Course Assessment 💷	-	10 • animies					Stands	
Onete Course Assessment	10× 11	Tale 11	Class 11	Subject I	Data	Status 11	Options	
Manage Course Assessment	1	Final Exam	Class: 85/7-3	Data Structure & Algorithm	Date: Feb 07, 2020 Wirea: 15:00:00 - 15:05:00	_	(Alline) (Construe)	in a firm of
 Integrated Mode Tools 	8	Real Exam	Cess: 85/7-1	Data Structure & Algorithm	Date: Feb 67, 2030 Time: 15:00:00 - 15:15:00		Allow Constitute	tere Benard
	1	Final Assessment 1 Final Assessment 1	Class: RNT.1 Class: SNT.1	Data Sevenue & Alexenberi Data Sevenue & Algorithm	Date: Feb Ib, 2020 Date: Feb 06, 2020 Time: 2:00:00 - 2:05:08	-	888 3	
Discussion for unit	à.	Absc	Gene.25/1-1	Bata Structure & Algorithm	Date: Jun 04, 3030 Time: 11,00:00 - 11,30:00	-		weed Research
en Message (3	5	Q1	Own: 257-1	Data Structure & Algorithm	Bete: pri 62, 2525 Time: 11:0000 - 11:3000			ten fesult
Account	*	Q2	Class: 057-1	Data Structure & Algorithm	Date: Dec 31, 2019 Time: 11.00.00 - 11.30.00			tion Result
	2	Apr. 1	Chess: 05/1-1	Data Structure & Algorithm	Date: Doi: 30, 2019 Time: 11.00:00 - 11.00:00		Annes Canal Non (1	New York
	*	midlern exam	Care 357.1	Data Structure & Agorithm	Date: Dec 17, 2019 Time: 5:00:00 - 5:30:00			ten ferat
	*	Ans 2	Classic US/T-1	Outs Structure & Algorithm	Date: Nov 28, 2019 Taxe: 11:00:00 - 11:30:00	-		and former
	Showing	1 to 9 of 9 writing					Provinces	A And

Fig 43 Manage Course Assessment Menu

Fig 43 shows the managed course assessment in which the instructor can see the list of course assessments created on this page.

0	Running	Session : 2019-2020 •		St. Peter	's College		G Webs	na 1 LogOur⊕
7) Dashboard Qy Class →	Finit Quest Quest Contemporation Contemporatio	al Assessment 1						e Prot
Course Assessment	= Que	stion List		_	Course Asses	sment Details		
Create Course Assessment	8 7)	pe Question	Mark	Options	Tieler	Final Assessment 1	Date	Feb 06, 2020
Manage Course Assessment.	1 Nu Chi	tiple Which of the following are the level of implementation of data structure	2	8	Class	857-3	Time	2:00:00 - 2:05:00
Integrated Media Tools	2 fill The	A binary search tree whose left subtree and right differ in high by at must is called	2	8	Passing Percentage	50%		
Nucliuson Decussion/Forum	3 Tru Fel	e Network is a graph that has weight or costs a associated with it.	2	8	Subject	Data Structure & Algorithm	Total Merks	4
🖴 Message (0)								
Account					Question Type	Select Question Type		•

Fig 44 Adding Questions in the Course Assessment

of by Matania S. Gamba

Moreover, the instructor can add questions in that particular course assessment created by clicking the action menu button and clicking manage question, see Fig 44.

> Integrated Media Tools (Record Audio, Record Videoand Whiteboard or Video conferencing

© 2019 St. Pater's College | Version 1.0 Devel

This menu has three (3) separate submenus: the recorded audio, the recorded video, and the whiteboard or video conferencing.

<i>6</i> 88		St. Peter's College		
	-	Running Session : 2019-2020 •	& Webste	 -Brook
On Dashboard		Record Sound Dashboard		
Qy Case		· Record Sound		
Course Materials		Time Interval (milliseconds) (2000 ms		
Course Assessment		Recent Tate MediaRecorder API		
Integrated Modia Tools		Record Mane Autor if WebAudie API is selected (abree)		
- Record Audio		Dist Disp Pase Arume Son		
- Record Video		H 0.06 40		
- WhiteBoard/Video Cor	derencing	Cours Recorded Justice No. 1 (Gore 13.2 KB) Time Length: O house 8 minutes and 5 secondition		
Notication Manual				
DecisionForum		© 2015 St. Peter's College Version 1.8 Developed by Wellants 5. Gambe		
Macage (2)				

Fig 45 Record Audio Dashboard

	-	St. Peter's College	
1997 (A)	-	Running Session : 2019-2020 •	& Website 1 Log Dut &
7h Dashboard		Record Video Dashboard	
Qy Class		Media Incode	
Course Materials			
Course Assessment			
 Integrated Media Tools 			
Notication			
Discussion/Forum			
Message (0)		Start camera Stop Reserving Play Download	
Account		Media Stream Constraints options toto canoituron IB	
		A 2010 F. Bando Adhan I. Sandan I. Kandon I. Kabata F. Anaka	

Fig 46 Record Video Dashboard

Fig 45 and 46 show the screenshots to record audio and video. Once the instructor has finished recording the audio or video for the student's assessment, it'll be found in downloads on your computer.

۰	Running Session	St. Peter's Colleg	ţe	· · · · · · · · ·			@ Wetsite	L logost
176 Destocand Q1 Class *	Manage	Room Name/10: Room Password Details:	40 40 tee you at 11 am today					
ClassRST-2	Sastr	Shaderet List Select	Imat	Name	M Check All			
Classifist 3	Son (B)	8	jeneikent942213digmal.com taladisslammen,1digmal.com	Balucan E. Jeriche Dorma Jan Taladro Basang			Starts	
Course Materials	Class - 35 (0)	*	honeybolle 20190 gmail.com	Honey Generala Bostoyan		Corneas (School Year	
Sh. Course Assessment ,	and the state		Con	3		c	203-203	0
respared Media Tools	Showing T to J of						Protect	t Dari
Discussion forum	C 2013 L Peloco I							
Menser(2) Account		_	_	_	Coper			

Fig 47 Form for Selecting Students for Whiteboard or Videoconferencing

In whiteboard or video conferencing, as shown in Fig 47, the instructor must first choose which class the instructor will assign for a whiteboard or video conference. The instructor will then need to select what subject and the list of students to be included in the process. The instructor may choose a specific student or the whole class in that particular subject.

			Create A New Room ×		
	Room ID	Owner ID	Enter Room ID:	Participants	Join
act	ive room found for this demo.		40		
			Enter Your Name:		
			Mellanie		
			Show More Options		
			Close Create		

Fig 48 Creating a Room Name for Whiteboard or Videoconferencing

Fig 48 shows the form for whiteboard or video conference room name creation. The student will then receive the details of this process via SMS, Email, and internal notifications.

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Fig 49 shows the actual whiteboard or video conferencing screenshots.

> Notification

0	۲	Running	s Session : 2019-2020 •	St. Peter's College	L Log Out B
7h Dashboard		Θм	anage Notification		
Qy Class		# Not	ofication List		
Course Materials					
Course Assessment		Show	10 • entries	Searche	
 Integrated Media Tools 		î n	Event Name II	Event Datails	Date 11
Notification (#		1	Course Assessment Result	Balacan E. Jerisho Just firish taking the 23 Course Assessment	2020-02-10
Discussion/Forum		2	Course Assessment Result	Balucan E. Jericho just finish taking the Exam 106123 Course Assessment	2020-02-08
		3	File Downloaded	Nindly study in advance this lesson - ten step process.doc File has been downloaded by Donna Jan Taladro Bacang	2020-02-07
Message (0)		4	För Downloaded	Kindly study in advance this lesson - ten step process.doc File has been downloaded by Balucan E. jerkho	2020-02-07
Account		s	File Downloaded	Study is advance - ten step process.doc File has been downloaded by Balusan E, Jericho	2020-02-06
		4	File Downloaded	Kindly check the format	2020-01-06
		2	File Downloaded	SPC SPC - admin.prg File has been downloaded by Balacan E. Jericho	2020-01-04
			File Downloaded	SPC SPC - admin.prg File has been downloaded by Balucan E. Jericho	2019-12-23
		Showin	g 1 to 8 of 8 entries	Previous	1 Nest



Fig 50 Notification Algorithm Dashboard

Fig 50 contains the instructor's notification once the student has downloaded the instructor's uploaded course materials and the student has already taken the course assessment.

Discussion or Forum

This is a message board or internet forum. It is also an online discussion site where students and instructors can hold conversations by posting messages. It is distinct from chat rooms in that messages are often longer than one line of text and are stored at least temporarily. There are two (2) ways to access it: first, it can access via the homepage where Discussion or Forum is located; second, it can access inside users' account; there is a separate menu for that.

SPC LMS	Home	About	Big	Categories						Login
						Sign Ir	۱			
					Ener Useran					
					Enter Password	1				
						Login				

Fig 51 Discussion or Forum Login Page

Lavest Posts	
SEO In depth Course Fr	the second se
-	Protection 2016-01 16:32 2016 - Brogging
SEO	This pool is valued to BBD. Largest is simply during lead of the priving and specifing industry (unwe (south has have the industry's standard during test mor almar the 150%, when an unknown price took a galley of specard scientified is to make a type specimac took. It has summad red only the contaries, but also the large into utuations
	Pead More
Laravel Crash Course Fi	ree
a 17	Ported on 2015/07 16:32 (2) of a Teaching
iaravel	This poor is valued to Largevel Crashil Course. Largent (plant is simply sharing and of the pointing and typesetting industry. Lower (pour from beam the industry's standard durings but ever stress the 1600s, when an unterease protoctast is gardey of type and accessibilit it to mate a type spectrum basis. It has sourced not only find containes, but also the long inte
	Paul More
Mogno DB post in detail	5
	Partial on 2016/11/12/11/14/a Submitting
mongoDB	This post is soluted to MangaDB Lanem laware laware has draph durate has of the printing and baseding industry. Lower lawar has been for industry's standard durateg and over other the 100%, when an unbinner printer took a galley of type and solutified it to make a type spectrum treak. It has summer or yong the continues, the asia the lawar into observate.

Fig 52 Discussion or Forum Actual Page

aravel Crash Course Free	
control spectrating encoding executivity, underapped in the prophetised of the publicity of which is low-kine. Publicities in toking any encoding on its arrange is the second spectra term and second any encoding publicity encoding. But any the size is the default publicity and the second publicity of the size is the default publicity of the second spectra publicity and any the size is the default publicity and second spectra publicity of the size is the default publicity of the second spectra publicity of the second spectra publicity of the size of the second publicity of the second spectra publicity of the second spectra publicity of the second spectra publicity of the second spectra publicity desaures are at the parents and spectra publicity of the second from the second spectra publicity of the parents and spectra publicity of the second from the second spectra publicity of the parents and spectra publicity of the second from the second spectra publicity of the parents and spectra publicity of the second from the second spectra publicity of the parents and spectra publicity of the second from the second spectra publicity of the parents and spectra publicity of the second from the second spectra publicity of the second spect	concerned to the second
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neutron generating, remaining executing schedungs first application of the population of the population of the scheduler of t	nome tobal up the total space of space space is the total memory (in the depart space), for any other head with the total space of the space of the space space space (in the depart space space). The space space space is the non-space total space of the space space space space space space space (in the depart space
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nonine paratelysis, mensioning executioning variable and the site population of the variable of the Marco Test State and the State S	never took op meter a light or strates strates in the neveral too day too provide strates, four another head ends on the four head of the strates strates in the neveral too day too strates, four another head ends on an alter tooks a gainly of gas and sourced and it is in table to gas appointed tooks. It has an alter of an any of exchanges of the gas and sourced and it is in table to gas appointed tooks. It has an alter of an any of exchanges of the gas and sourced and it is in table to gas appointed took it. It has an alter of an any of exchanges of the gas and sourced and the gas and sourced and the strate of the strate too sourced and the strates of the strates of the strates are special too is for the strates of the strates of exchanges of the strates of the strates of the strates of the strate of the strates of the distribution of the strates of the strates of the strates of the strates of the strate of the distribution of the strates of distribution of the strates of distribution of the strates of distribution of the strates of distribution of the strates of the st
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Fig 53 Dashboard for Adding & Submitting a Comment

Fig 51 shows the login page for this feature, while Fig 52 is the actual page, and Fig 53 is a sample screenshot where the instructor wants to comment on something posted on a particular topic or blog.

Message and Account Menu

On the previous page of this paper, this menu is the same s the menu found in the administrator account: the same function and process.

Student's Account

Contractor of Co							
	 Studer 	it Dashbo	sard			_	
	Elvert labe	duk				1	(AL
Automation (1)	May 20	20			today	+ +	(hagen)
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Minister Webs Conferences	17	- 28	19	10	1.1	8	-
Sales Del 1							
Manage 10						-	
Carrier.							
	- E)	10	0		 16		
	-		. 24		 ю	1.94	
		.0	æ	38	 		
		1.1					

Fig 54 Student's Account Dashboard

Fig 54 shows the Student Account Dashboard with menus such as Subject, Notification, Discussion or Forum, Whiteboard or Video Conferencing, Student Class, Message, and Account.

Student's Subject

This menu contains the list of subjects of the student as well as the designated instructor.

6				St. Peter's College	
No.	Running Session	: 2019-2020 •			9 work T ritorb
On Delibert	⊙ Manage	Subject			
Q Salper	· Subject Line				
Netforier Inc.					
Decementarian	200 10 -	- arities			Sect
whodowrd Wales Conferencing	Class = 15	Offer No	Subject Carlos	E Subject Description	If between the
a second	851-8	00501	éc 104	Data Desisture & Algorithm	John Andy Bacadap General
	895.9	THUE,	17301	Fundamentals of Database	John Andy Bacadag Genosia
 Mesupe(3) 	855.9	1111	CC 188	Intermediate Programming	Woneybell Generals Dontagen
Access	Showing The 3 of 3	eren .			Penna 1 Not

Fig 55 List of Student Subjects

The sample screenshot of the students' subject list is shown in Fig 55.

Student Notification

This menu is where the student will be notified if their instructor has uploaded course material or an assessment. There are three (3) ways to notify the student: Email, SMS, and Internal Notification.

	SPC LMS Index ×	0 8	Ø				
+	tophehit@premium76.web-hosting.com Your Instructor uploaded a new course material	1:53 PM (11 minutes ago					
+	tophehit@premium76.web-hosting.com to me * Your Instructor just created a Course Assessment	1:57 PM (6 minutes ago) 📩 🔦	:				
	K Reply						

Fig 56 Student's Email Notification

III SMART	ę.	2:18 PM	€ 62% ■ ↓
<		INFOSMS	(i)
	To	day 1:53 PM	
Sent fr accour upload materia	om your Tw 1t - Your Ins ed a new c al	vilio trial structor ourse	
Sent fr accou create	rom your Tw nt - Your In ed a Course	wilio trial structor just Assessment	
0		a message	
) (J) D	()
	Fig 57 Stud	ent's SMS Notification	(
	Fig 57 Stud	ent's SMS Notification	ener 1 1970
	Fig 57 Stud	ent's SMS Notification St. Peter's College	• Maire & 1 (grad
	Fig 57 Stud	ent's SMS Notification St. Peter's College	anne 1 ughe
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Contact Contact Step Refuest R	Fig 57 Stud	ent's SMS Notification St. Peter's College	A new & type Seek
Landing Landowski (Landowski)	Fig 57 Stud	ent's SMS Notification St. Peter's College	best 1 tight
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Landing of the second s	Fig 57 Stud	ent's SMS Notification St. Peter's College	A many 1 upto
Exercises 1	Fig 57 Stud	ent's SMS Notification St. Peter's College	A man 1 upto

Fig 58 Student's Internal Notification

Fig 56 shows a student has received an email notification. Likewise, an SMS notification is shown in Fig 57. Fig 58 also shows an internal notification

Discussion or Forum

This menu is also available on the student's menu, where the student and the instructor can hold online discussions or conversations. This menu's function is the same as in the instructor account on the previous page.

> Whiteboard or Video Conferencing

This menu's function and process are similar to the function found in the instructor's account. Before the student can access this feature, the student will receive a notification from the instructor when the whiteboard or video conferencingoccurs. A room ID is also stated in that notification for them to join a particular room; see Fig 58 for this notification on the previous page.

St. Po	eter's College	e Whiteboard/Vid	Juin A Rosen	Active source 1		
	Room ID	Owner ID	Session	Extra	Participants	Join
1	12356	679w929kd	audžei true vädeo: true data: true	("scerfulblane"."	679w929848	Join

St. Peter's College - Dashboard + Video Conferencing + Chat + File Sharing

Fig 59 Student's Notification Link for Joining a Room

			Join A Room	×		
¥	Room ID	Owner ID	Enter Room ID:		Participants	Join
	12356	b79w929ik4l	12356		b79w929ik4l	Join
			Enter Your Name:			
			donna			
		5	C Batari Callana - Durbhoard a Vidao Conferencion	lose Join		
		St	Peter's College - Dashboard + Video Conferencing +	+ Chat + File Sharin	g	

Fig 59 and 60 show the menu for joining a particular roomprovided with a room name.

Student Class

This menu consists of two (2) submenus, mainly CourseMaterial and Course Assessment.

	Running	g Session : 201	9-2020 •	St. Pe	ter's College		di me	tsite 🛓 Log Out
Cashboard	⊙ St	udy Materi	al					
Notification (min)	Show	10 • entries	•				Search	
Decesionforum	en là	Dete 11	Tide 11	Description	17 Material Type 17	Class	Subject	17 Described
and the second s	3	07 Feb; 2020	Final Topic?	Kindly study in advance this lesson	Lecture Notes	85/T-1	Data Structure & Algorithm	0
History and Constrainty	2	06 Feb, 2020	Final Topic	Study in advance	Lecture Notes	85/5-1	Data Structure & Algorithm	0
Student Class	2	06 Feb. 2020	Final Topic	Study in advance	Letture Notes	85/5.1	Data Structure & Algorithm	0
Message (3)	-	05 Feb. 2020	Final Topic	Study and advance	Lecture Notes	857.1	Gata Structure & Abrothen	0
Accourt	5	06 Feb. 2020	sd	st	Sullabore	85/7-1	Fundamentals of Outsbase	0
	6	06 Feb, 2523	M	st	Syllabus	85/7-1	Fundamentals of Database	0
	7	06 jan, 2020	Midterm Topic	Kindly check the format	Lecture Notes	85/7-1	Data Structure & Algorithm	0
		23 Dec, 2019	SPC SPC	SPC SPC	Sylabus	850.1	Data Structure & Algorithm	0
	+	23 Dec, 2019	ccs	ccs	Syllabus	BISIT-1	Data Structure & Algorithm	0
	10	23 Dec, 2019	SPC CCS	5PC CC5	Syllabus	85/7-1	Data Structure & Algorithm	0
	Showing	g 1 so 10 of 10 entr	es.					weiser 1. Nest

Fig 61 Course Material Menu

Fig 61 shows the course material page where the studentcan download all the files that the instructor has uploaded.

	Pupping Service + 20	110.2020 -	St. Peter's College	G Website 1 Log Out G
Dashboard	Course Ass	assmant		
🕼 Subject	O COUISE ASS	essment		
Notification (Nmi)	Active Course Assessm	ent View Results		
Discussion/Forum	_			
Whiteboard/Video Conferencing	Show 10 • ent	ries		Search:
👣 Student Class 🔸	Course Title ^ 11	Subject	17 Course Assessment Date	Options If
🛎 Message (0)	Exam 103	Data Structure & Algorithm	Date: Feb 07, 2020 Time: 11:00:00 - 19:30:00	Already Submitted
Account				
	Final Exam	Data Structure & Algorithm	Date: Feb 07, 2020 Time: 14:50:00 - 15:00:00	You Can Only Take The Exam During The Scheduled Time
	Showing 1 to 2 of 2 ent	ries		Previous 1 Next

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Fig 62 Course Assessment Menu

Fig 62 contains the page where the student can see the list and takes the course assessment created or uploaded by their subject instructor. These are categorized into three (3) course assessments: the student's exam, quiz, and assignment per subject. Additionally, the student may take the courseassessment during the scheduled time the instructor set.

	St. Peter's College		
82 C	Running Session : 2019-2020 •	& Webuits 1	Log Our B
Cerbboard	Online Exam		
Subject	C CHARLES IN CONTRACTOR		
Notification	Final Exam		
Discussion/Forum	Subject: Data Structure & Algorithm Total Marks: 6		
Whiteboard/Video Conferencing	Time: 15 Minutes		
· · · · · · · · · · · · · · · · · · ·	Exam Has To Be Submitted Within: : Fri 07-Feb-2020 03:15:00 Instructions: Answer Greatly		
Management Calence	0 Hour : 6 Minute : 3 Second		
Account	1. Which of the following is/are the levels of implementation of data structure?		2
	abstract level		
	implementation level		
	application level		
	all of the above		
	2. A binary search tree whose left subtree and right subtree differ in height by atmost 1 unit is called		2
	Armite		
	3. Nertwork is a graph that weights or costs associated with it.		2
	True True		
	E False		
	Private Danies		

Fig 63 Dashboard for Actual Answering Sheet

Fig 63 shows the actual answer page for the course assessment. This includes the subject, instruction from the instructor's, allotted time, and total marks.

Message and Account Menu

This page contains the same function as the account of the instructors shown on the previous page.

B. Evaluation of the acceptance level and its efficacy of the Learning Management System using the Technology Acceptance Model by the instructors and students.

	Table 7 Profile of the Instructor	Drs	
	Frequency	Percentage (%)	
Age			
21 - 25 years old	8	8.0	
26 – 30 years old	26	26.0	
31 – 35 years old	21	21.0	
36 - 40 years old	19	19.0	
41 - 45 years old	16	16.0	
Above 45 years old	10	10.0	
Sex			
Male	42	42.0	
Female	58	58.0	
Years of Service			
0-2 years	17	17.0	
3-5 years	38	38.0	
6-8 years	21	21.0	
9 – 11 years	14	14.0	
Above 11 years	10	10.0	

Table 7 presents the instructors' profile that evaluated the learning management system's acceptance level and efficacy using the Technology Acceptance Model. Results have shown that 26% of the respondents were 26 - 30 years old, 58% were female, and 38% were in service for 3 - 5 years. This indicates that most of the instructors in St. Peter's College were young adults and were mostly females working in the institution for 3 - 5 years.

Year Level	Frequency	Percentage (%)
1 st year	41	41.0
2 nd year	19	19.0
3 rd year	23	23.0
4 th year	17	17.0

Table 8 Year Level of the Students

Table 8 presents the students' profiles that evaluated the learning management system's acceptance level and efficacy using the Technology Acceptance Model. Results have shown that 41% of the respondents were 1^{st} year, 23% were 3^{rd} year, 19% were 2^{nd} year, and 17% were 4^{th} year. This suggests that the majority of the respondents were from the first (1^{st}) year level.

F -1.1. O	A	T	T		T 1 1 /	N N / 1 . 1
Lanie 9	Accentance	Level of the	Instructors	lising the	Technology	Acceptance Model
ruore /	riccoptunee	Level of the	monuctors	using the	reennonogyr	iccoptunce model

·	Mean	Standard Deviation	Verbal Description
Perceived Ease of Use			
1. I feel that using the SPC			
Learning Management Systemwould be easy for me.	4.71	0.46	Strongly Agree
2. I feel that my interaction with SPC Learning			
ManagementSystem would be clear and understandable.	4.65	0.48	Strongly Agree
3. I find the SPC LearningManagement System to be			
flexible to interact with.	4.78	0.42	Strongly Agree
4. Interacting with SPC Learning			
Management System does not require a lot of mental effort.	4.28	0.83	Agree
5. It would be easy for me to get			
SPC Learning ManagementSystem to do what I want to do.	4.39	0.80	Agree
6. In general, SPC Learning Management System is			
easy to use.	4.58	0.64	Strongly Agree
Perceived Usefulness			
1. Using SPC LMS in my job would enable me to			
accomplish tasks more quickly.	4.95	0.22	Strongly Agree
2. Using SPC LMS would improve my job	4.15	0.36	Agree
performance.			
3. Using SPC LMS in my job would increase my			
productivity.	4.90	0.30	Strongly Agree
4. Using SPC LMS would enhance my effectiveness in			
my job.	4.73	0.45	Strongly Agree
5. Using SPC LMS would make it easier to do my job.	4.78	0.42	Strongly Agree
SPC Learning Management System provides related			
information that I need	4.72	0.45	Strongly Agree
7. In general, I find the SPCLearning Management System			
to be helpful in my job.	4.54	0.50	Strongly Agree
Attitude Toward Usage			
1. I believe it is a good idea to use the SPC Learning			
Management System.	4.60	0.49	Strongly Agree
2. I like the idea of using the SPC LMS.	4.60	0.49	Strongly Agree
3. Using the SPC Learning Management System is a			
positive idea.	4.51	0.50	Strongly Agree
Overall Mean	4.62	0.49	Strongly Agree

Table 9 presents the acceptance level of the Instructors of Learning Management using the Technology Acceptance Model. Mean and Standard Deviation were used to determine the level of acceptance of the LMS. Results have shown an overall mean of 4.62, with a standard deviation of 0.49. This implies that the instructors highly take the Learning Management System. So, the respondents discover the system's use to be beneficial, especially in terms of efficiency and producing better results. Also, users can save time and effort and are open to the idea of using the system.

	Mean	Standard Deviation	Verbal Description
Perceived Ease of Use			
1. I find the SPC Learning			
Management System easy touse.	4.72	0.45	Strongly Agree
2. Learning how to use the SPC			
Learning Management Systemis easy for me.	4.69	0.51	Strongly Agree
3. It is easy to be skillful at using			
the SPC Learning Management System.	4.61	0.57	Strongly Agree
4.In general, SPC LearningManagement System is easy to			
use.	4.79	0.41	Strongly Agree
Perceived Usefulness			
1. The SPC LearningManagement System			

Table 10 Acceptance Level of the Students using the Technology Acceptance Model

ISSN	No	-245	6-21	65
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would improve my learningperformance.	4.52	0.67	Strongly Agree
2. The SPC LearningManagement System would increase			
my academic productivity.	4.46	0.69	Agree
3. The SPC Learning Management System could make it			
easier to study the course content.	4.61	0.63	Strongly Agree
4. In general, I find the SPC Learning Management System to			
be helpful in my academic performance.	4.59	0.68	Strongly Agree
Attitude Toward Usage			
1.Studying through SPCLearning Management System is a			
good idea.	4.74	0.44	Strongly Agree
2. Studying through SPC Learning Management Systemis a			
wise idea.	4.67	0.47	Strongly Agree
3.I am confident in SPCLearning Management System.	4.70	0.48	Strongly Agree
Overall Mean	4.65	0.55	Strongly Agree

Table 10 presents the acceptance level of the Students of the Learning Management System using the Technology Acceptance Model. Mean and Standard Deviation were used to determine the level of acceptance of the LMS. Results have shown an overall mean of 4.65, with a standard deviation of 0.55. This implies that the students highly take the Learning Management System. Thus, the respondents discover the system's use to be beneficial, especially in terms of efficiency and producing better results. Also, users do not need much time and energy commitment, and they are open to using the system.

Table 11 Relationship between perceived usefulness, perceived ease of use, and attitudes towards using the Learning Management Systemaccording to the Instructors

	Attitude towards Usage			
	Correlation Coefficient	p-value	Interpretation	
Perceived Usefulness	0.247	0.002	Significant	
Perceived Ease of Use	0.149	0.016	Significant	

p<0.05, significant p>0.05, not significant

Table 11 shows the connection among perceived usefulness, perceived ease of use, and attitudes towards using the Learning Management System according to the Instructors. Pearson Correlation was used to determine therelationship. Results show that there is a substantial connection among the perceived usefulness, ease of use, and attitudes towards using the Learning Management System, according to the instructors, since the p-values are less thanthe 0.05 level of significance. This suggests that the instructor's attitude towards using Learning Management System is affected by their perception of its simplicity and helpfulness.

Table 12 Impact of perceived usefulness and perceived ease of Useon Users' attitudes towards using the Learning Management SystemAccording to the Instructors

~) ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~						
	Unstandardized Coefficients		Standardized Coefficients			
	В	Std. Error	Beta	t	Sig.	
Constant	5.516	0.946		5.832	0.000	
Perceived usefulness	0.297	0.119	0.282	2.491	0.014	
Perceived ease of use	0.098	0.114	0.098	0.863	0.391	

- > Model Summary
- R = 0.344
- $R^2 = 0.118$
- F = 6.513
- p = 0.002

Table 12 describes the effect of perceived usefulness and perceived ease of use on the instructor's attitudes toward using Learning Management. Multiple linear regression was calculated to predict the impact of perceived usefulness and perceived ease of use on the instructor's attitudes toward using the Learning Management System. A significant regression equation was found $(F(2,97) = 6.513, p \parallel 0.002)$, with an R^2 of 0.118. The predicted attitude towards using the LMS isequal to 5.516 + 0.098 (perceived ease of use) + 0.297(perceived usefulness). The instructor's attitude towards using the LMS increased by 0.098 and 0.297 for each perceived ease of use and perceived usefulness, respectively. Consequently, both perceived ease of use and perceived usefulness have apositive effect on the attitude of the instructor when using the Learning Management System. Thus, the regression model in $\hat{y} = 5.516 + 0.098 \text{ x}_1 + 0.297 \text{ x}_2$

Where $\hat{y} = user's$ attitude towards using LMSx1 = user's perceived ease of use x2 = user's perceived usefulness

Table 13 Relationship between perceived usefulness, perceived ease of use, and attitudes towards using the Learning Management System according to the Students

	Attitude towards Usage				
	Correlation Coefficient p-value Interpretation				
Perceived Usefulness	0.694	0.000	Significant		
Perceived Ease of Use	0.623	0.000	Significant		
p<0.05, significant p>0.05, not significant					

Table 13 illustrates the connection among perceived usefulness, perceived ease of use, and attitude towards using the Learning Management System according to the Students.

Pearson Correlation was used to determine the relationship. Results revealed that there is a strong connection between the perceived usefulness, perceived ease of use, and the student's attitude toward using the Learning Management System since the p-values are less than the 0.05 level of significance. It indicates that the attitude of the student toward using the Learning Management System is influenced by their understanding of its ease of usage and usefulness.

Table 14 Impact of perceived usefulness and perceived ease of Useon Users' attitudes towards using the Learning Management System According to the Students

	Unstandardized Coefficients		Standardized Coefficients		
	В	Std. Error	Beta	t	Sig.
Constant	1.517	0.295		5.138	0.000
Perceived usefulness	0.323	0.046	0.516	7.086	0.000
Perceived ease of use	0.365	0.069	0.383	5.268	0.000

> Model Summary

- R = 0.772
- $R^2 = 0.596$
- F = 71.689
- p = 0.000

Table XIV discusses the effect of perceived usefulness and perceived ease of use on the attitudes of the student about their use of the Learning Management System. Multiple linear regression was calculated to predict the impact of perceived usefulness and perceived ease of use on the student's attitudes toward using the Learning Management System. A significant regression equation was found (F(2,97) = 71.689, $p \square 0.000$), with an R^2 of 0.596. The predicted attitude towards using the LMS is equal to 1.517 + 0.365 (perceived ease of use) + 0.323 (perceived usefulness). The student's attitudes toward using the LMS increased by 0.365 and 0.323 for each perceived ease of use and perceived usefulness, respectively. Consequently, both perceived ease of use and perceived usefulness, the student when using the Learning Management System. Thus, the regression model in $\hat{y} = 1.517 + 0.365 \times 1 + 0.323 \times 2$

Where \hat{y} = user's attitude towards using LMSx1 = user's perceived ease of use x2 = user's perceived usefulness

C. Evaluation of the Software Quality Standard of theLearning Management System as perceived by the experts.

Table 15 Profile of the Experts				
	Frequency	Percentage (%)		
Age				
21-25 years old	0	0.0		
26 - 30 years old	1	14.3		
31 - 35 years old	2	28.6		
36-40 years old	2	28.6		
41 - 45 years old	0	0.0		
Above 45 years old	2	28.6		
Sex				
Male	6	85.7		
Female	1	14.3		
Field of Expertise				
Database Administrator	1	14.3		

Full Stack Web Developer	2	28.6
Web Application Developer	1	14.3
Front End Web Developer	1	14.3
Programmer	2	28.6
System Administrator	1	14.3
System/Software Engineer	1	14.3
Senior Developer	1	14.3
System Analyst	1	14.3
Years of Service		
3-5 years	0	0.0
6-8 years	0	0.0
9 – 11 years	3	42.9
12 – 14 years	2	28.6
15 – 17 years	1	14.3
Above 17 years	1	14.3

Table 15 presents the experts' profiles that evaluated the Learning Management System Software Quality Standard. Results have shown that 28.6% of the respondents were 31 - 40 years old and above 45 years old, 85.7% were male, 28.6% were experts in full-stack web development and programming, and 42.9% had been in service for 9 - 11 years. This indicates that the experts that evaluated Learning Management in the field for a long time and their evaluation of the system will be highly reliable.

Table 16 Software Quality Standard of the LMS as Perceived by Experts

Table 10 Software Quality Standard of the EMS	Moon	Standard Deviation	Varbal Decorintian
Eurotionality	Mean	Standard Deviation	verbai Description
	4.57	0.52	TT' 11
1. The system can perform the tasks	4.57	0.53	Highly
required.		0.70	Acceptable
2. The system can produce expected	4.43	0.53	Acceptable
results.		0.70	
3. The system can interact with	4.57	0.53	Highly
another system.			Acceptable
4. The system can prevent	4.29	0.49	Acceptable
unauthorized access.			
Reliability			
1. Most of the faults can be liminated over time.	4.43	0.53	Acceptable
2. The system is capable of	4.43	0.53	Acceptable
handling errors.			
3. The system can resume working and restore lost data after	4.14	0.38	Acceptable
failure.			-
Usability			
1. The system can be understood	4.43	0.53	Acceptable
easily.			-
2. The user can learn to use the	4.29	0.49	Acceptable
system easily.			1
3. The system can be operated with	4.43	0.53	Acceptable
minimal effort.			· · · I · · · ·
4. The interface of the system is	4.29	0.49	Acceptable
attractive.			· · · I · · · ·
5. The system can meet existing	4.57	0.53	Highly
usability standards.			Acceptable
Efficiency			I
1 The system can behave in a	4 29	0.49	Accentable
timely manner	1.29	0.19	receptuole
2 The system can meet existing	4 29	0.49	Accentable
efficiency standards	7.27	0.49	receptuble
3 The system can be adapted easily	4 71	0.49	Highly
5. The system can be adapted easily.	4.71	0.49	Accentable
Maintainability			песерион
1 System faults can be assily	1.86	0.38	Highly
1. System fauns can be easily	4.00	0.30	
ulagnosed.			Acceptable

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2. The system can be easily	4.57	0.53	Highly
modified.			Acceptable
3. The system can continue	4.57	0.53	Highly
functioning if changes are made.			Acceptable
4. The system can be tested easily.	4.57	0.53	Highly
			Acceptable
Portability			
1. The system can be installed easily.	4.43	0.53	Acceptable
2. The system can work with	4.57	0.53	Highly
existing system/software.			Acceptable
3. The system can be replaced	4.57	0.53	Highly
with a similar product.			Acceptable
4. The system can meet existing	4.57	0.53	Highly
portability standards.			Acceptable
Overall Mean	4.47	0.51	Acceptable

Table 16 presents expert assessments of the Learning Management System Software Quality Standard. The mean and standard deviation were used to assess the quality of the LMS. Results have shown an overall mean of 4.47, with a standard deviation of 0.51. This means that experts widely acknowledge the learning management system. Thus, this suggests that the institution's students and instructors can use the designed and developed Learning Management System.

V. SUMMARY, CONCLUSIONS, AND RECOMMENDATION

This chapter presents the outline of data and the corresponding conclusion derived in the conduct of the study. It also provides recommendations that could be pursued by future researchers.

A. Summary of Findings

The results of this study had a favorable implication in the Learning Management System implementation. Results have shown that:

- 26% of the respondents were 26 30 years old, 58% were female, and 38% were in service for 3 5 years.
- 41% were 1st year, 23% were 3rd year, 19% were 2nd year, and 17% were 4th year.
- The Learning Management System instructors' approval level using the Technology Acceptance Model has an average of 4.62, with a standard deviation of 0.49.
- The Learning Management System students' approval level using the Technology Acceptance Model has a mean of 4.65 with a standard deviation of 0.55.
- There is a strong relationship between the instructor's perceived usefulness and perceived ease of use towards their attitude toward using the Learning Management System since the p-values, 0.002 and 0.016, are less than the 0.05 level of significance.
- A significant regression equation was found (F(2,97) = 6.513, p 0.002), with an R2 of 0.118. Predicted the instructor's attitude toward using the LMS is equal to 5.516 + 0.098 (perceived ease of use) + 0.297 (perceived usefulness).

- There is a strong relationship between perceived usefulness and perceived ease of use towards the attitude of the students when using the Learning Management System, as the p-values, 0.000 and 0.000, are less than the significance level of 0.05.
- A significant regression equation was found (F(2,97) = 71.689, p 0.000), with an R2 of 0.596. Predicted students' attitude toward using the LMS is equal to
- 1.517 + 0.365 (perceived ease of use) + 0.323 (perceived usefulness.
- 28.6% of the respondents were 31 40 years old and above 45 years old, 85.7% were male, 28.6% were experts in full-stack web development and programming, and 42.9% had been in service for 9 11 years.
- The Learning Management System software quality standard, assessed by the experts, has an average of 4.47, with a standard deviation of 0.51.

B. Conclusions

Based on the findings of the study, the following conclusions are drawn.

The majority of the instructors and students strongly accept the Learning Management System after their evaluation. It demonstrates that the attitudes of instructors and students toward using the Learning Management System are influenced by their understanding of its ease of usage and usefulness. Also, instructors and students' attitudes towards the use of the LMS increased for each perceived ease of use and perceived usefulness. Thus, both perceived ease of use and perceived usefulness have a positive impact on the attitudes of the instructors and students about using the learning management system.

Also, most of the experts who have been in the field for more than nine years accept the Learning Management System software quality standard. Therefore, it can be concluded that for the benefit of all its constituents, the Learning Management System is strongly recommended for implementation at St. Peter's College.

C. Recommendations

- Based on the findings, the recommendations for the School'sAdministrators are summarized as follows:
- Speedy internet access is strongly suggested upon the implementation of the system.
- The system is more beneficial if it is responsive to all platforms, from mobile phones to tablets and other devices.
- URL encryption strengthens the system's security mechanism. The system's URL upgrade from HTTP to HTTPS and captcha security will help it be supported.
- The following needs to be addressed in the Front-End side of the system:
- ✓ Font family of 1 or 2 fonts and uniform font size for the paragraph and headings.
- \checkmark Use at least 2 or 3 colors that are reflected in the logo.
- ✓ Maintain uniformity of paddings and margins and no strokes, shadows, gradient colors, and borders.
- ✓ For the Events, add an image thumbnail and incorporate all in the default settings.
- ✓ Top navigation, banner, main navigator, and a slider that would fit in the normal screen and the first to show up without scrolling will look more reader- friendly.
- ✓ The view Gallery button is not necessary. All the photos will be directly shown.
- ✓ Make four columns in the footer widgets. Each column will have Events, Gallery, About, and Calendar. Also, change images to icons and incorporate them all in the default settings.
- ✓ On the Login page, on the image on the right, take a picture of the whole front gate.
- The following also needs to be considered in the Back-Endside of the system:
- During registration, the student ID number is no longer needed because if there are two or more students who would register at the same time, the system will generate the same student ID number for all the students.
- A database linkage of the existing system of theschool's data on student registration, class management, instructor, and course management is highly beneficial.
- Enhanced discussion and forum with features like forums, subforums, and threads. If necessary, incorporate this page into one dashboard.
- Provide a convenient way for students to join or access the conference. For example, by connecting directly from their dashboard and removing unnecessary data from the conference table as it is confusing for non-IT or related purposes. Further, to avoid confusion, the expired video conferencing session is better to be disabled. To address both of these issues, the school needs to subscribe to this feature to a server exclusively for the institution.
- Add parent account for monitoring purposes to his/her son/daughter.

- Refactor the code to psr-2 and encourage comments and documentation blocks for future development cycles.
- Most importantly, the researchers would propose to the Board of Trustees to implement and utilize this system, which could supplement the learning process by providing a different avenue for the students.

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