**Chapter I**

**THE PROBLEM AND ITS BACKGROUND**

**Introduction**

For the past few years, several techniques in teaching has been developed that will helped both teachers and students. From the typical traditional teaching like teachers explaining a topic and students taking notes during classes, up to using of technology in the classroom in presenting reports or research. Just to compete with the evolution of the modern technologies that most of time caught the attention of the students. A new way of approaching students to value and give more focus on their studies.

One of the teaching techniques that arise now from the integration of technology in education is free online learning tools. It is web based site were teachers can use to encourage engagement, participation, and a sense of fun into the classroom. Teachers can create an interactive and dynamic classroom environment using online quizzes to test student’s knowledge.

New technologies especially internet provide teachers with many interesting tools that can be used to improve the teaching– learning process. The usefulness of these tools makes important for teachers to have more information about the advantages and possibilities of using technology in the classroom, as well as about the results derived from their application.

The CCC learning management system is a web-based learning ecosystem integrating with technology and processes. With the popularization and expansion of access to the World Wide Web and greater access to devices using the Internet, such as smartphones, laptops, tablets, and computers, learning using Learning Management System practices has expanded rapidly all around the world.

In the fast-paced world of e-learning the available technologies to make a course new and exciting are always changing, and course content can and should be updated quickly to give students the very latest information.

The importance of learning management system is now a given fact and it can offer an alternative that is much faster, cheaper and potentially better educational tools.

Therefore, the researchers from the Computer Science Department wants to develop a look alike system but with different variation that will contribute to the necessity of both secondary and tertiary students and teachers of Cainta Catholic College.

**Background of the study**

In traditional way of learning, normally teachers discussing his/her lesson by writing of lectures in the blackboard and the student taking notes which consumes time that must provide in discussion. Most teachers often deal with using books or modules usually required to have distinct connection between teachers and students for better understanding. When it comes to overall cost of learning materials, it’s expensive for the students and usually used it only for in a whole year or semester. The major problems faces by the students is sometimes being absent in a particular class for some reason and missed the important class discussion, quizzes, activities and exams that affects academic performance of the student.

One of the most challenge faces by the teachers is often deals with the enhancing of students’ academic performance.One of the teaching techniques that arise now from integration of technology in education is the availability of learning tools that suitable in different types of learners. Some of techniques engaged with the teaching is provides virtual learning environment. From the typical traditional teaching like teachers explaining a topic and students taking notes during classes, up to using of technology in the classroom in presenting reports or research. But the problem is, some of teachers did not send the learning materials for the student in order to have a copy for them to remind the whole lesson before taking exam or quiz.Some of students taking picture each by each of slide in PowerPoint presentation for each subject which increases the storage capacity of their smartphones and unordered list of information that is hard to understand. Some students asking for their teachers to get the copy of the learning materials through flash drive which is highly potentials to harm your computer or even the data from your flash drive through computer virus.

Therefore, the researchers from the Computer Science Department develop a system but with different variation that will contribute to the necessity of both secondary and tertiary students and teachers of Cainta Catholic College.

Just to compete with the evolution of the modern technologies that most of time caught the attention of the students. A new way of approaching students to value and give more focus on their studies. The collaboration of technology and education is essentials and an effective way to help improves both teaching and learning.

The researchers proposed CCC learning management system that will help to improve both teaching-learning processes in Cainta Catholic College with the use of modern technology. The learning management system is a web design system that offers large varieties of learning resources and tools use in the classroom. The expanded rapidly of electronic devices such as smartphones, tablets, pc and laptops all over the world is giving importance to develop a system for the accessibility for ease which is taken under the specification requirements to run the system.

In conclusion learning management system offers great promise for enhancing the quality of education beside traditional classroom.

However, not only separate learning but also face to face learning has advantages as well as downsides. In that case, many researchers believe that combining two pedagogical methods can be effective ways in improving educational future.

**Statement of the Problem**

The main purpose of this study is to develop a system to provide a better and innovative way to improve teaching and learning practices. The Purpose of this system is to enable teachers and students to get access the study materials at anytime and anywhere. It aims to answer the following concerns:

**Specific Problem:**

1. What is the demographic profile of the respondents in terms of age, gender and year level?
2. What is the level of performance of the proposed system in terms of accuracy, efficiency, accessibility, and security?

**Scope and Limitations of the Study**

This study is made for Cainta Catholic College. The researchers noticed that the teachers used technology to provide interactive learning tools in particular class. But the problem, it is not distributed to every student in class to have a copy of it. During quizzes or exam most of student can’t answer the questions accurately because they don’t have a copy of it as handouts to review before taking the quizzes or exam. The study is focused on improvement of learning and teaching process in Cainta Catholic College.

**Scope**

The system provides solutions that can overcome some problems with traditional education. It offers innovative way to update the latest news and updates in Cainta Catholic College and advertise the school. The system can give ease to accessand download the learning materials with security system. The system connects the teacher and student anytime and anywhere. The system provides resourceful learning materials from each subject and quiz and progress report features for the students.The proposed system is online base system.

**Limitations**

The proposed system is only limited to secondary and tertiary level of Cainta Catholic College.The following types of files are only accepted (.pdf, .rar, .zip, .pptx, .docx ,png, jpg, jpeg)**.** The system has no examination test and attendance monitoring features.The system is limited to Internet reliance.

**Significance of the study**

The purpose of the study is to adopt the “CCCLearning Management System” to improve both learning and teaching process.

The system will be a great benefit to the following:

**To the student,** this study will be a great help to the students toimprove academic growth. They can download learning materials for free such as lectures, modules, document and other learning materials that will help them during class hour and even as handouts and reviewer before taking quizzes, exam and other class activities. Online taking quiz even if the student is absent to school and lessen to buy the books use in each subject which cost is expensive. Also tracking the progress report for each subjects and communication between students and teachers in anytime and anywhere.

**To the Teachers,** this study will help the teachers to provide all the lessons that needed in their class. It helps to improve their teaching skills in innovative way. They can provide all the important materials to be uploaded to the systems that students and co-teachers can download it and used during their classes. To have a communication or connection between the teacher and student anytime and anywhere.And determine the academic progress of the student in every subject.

**To the school, Cainta Catholic College**, The researchers made this study possible for they believe that it would be a great help in the whole campus of Cainta Catholic College in a way that the school is emerged and attached with modern technology for the improvement of learning and teaching process.

**Definition of Terms**

**develop**

**grow or cause to grow and become more mature, advanced and elaborate.**

**technologies**

**is science or knowledge put into practical use to solve problems or invent useful tools.**

**modern**

**based on or using th newest information, methods, or technology.**

**tools**

**a device or implement, especially one held in the hand,**

**used to carry out a particular function.**

**management**

**the process of dealing with or controlling things or people.**

**process**

**a series of actions or steps taken in order to achieve**

**a particular end.**

**access**

**a means or approaching or entering a place.**

**devices**

**a thing made or adapted for a particular purpose,**

**especially a piece of mechanical or electronic equipment.**

**Chapter 2**

**REVIEW RELATED LITERATURE**

**FOREIGN**

**The use of Moodle e-learning platform: a study in a Portuguese University1**

According to Carolina Costa, Helena Alvelos & Leonor Teixeira (2012), The study carried out at the University of Aveiro (UA), Portugal that analyses the functionalities and tools of the Moodle platform and their use by the students. The data was collected based on content analysis, one non structured interview with the responsible of the Moodle from UA and a questionnaire applied to 278 students. The results show that despite Moodle has a great potential, it is mainly used as a repository of materials. However, students recognize the importance of the use of other functionalities of this platform in order to promote the success of the teaching/learning process.

# “Adaptive User Interface for Moodle based E-learning System using Learning Styles”.2

# According to Sucheta V. Kolekar, Radhika M. Pai & Manohara Pai M.M. (2018), Education is the process of facilitating learning, or the acquisition of skills, knowledge, values, beliefs, and habits. With the development of technology, educators and learners are moving towards E-Learning applications. These E-Learning applications are open source applications that have their own advantages and disadvantages. By modifying these applications as per their needs, educational institutions can adopt them such that the students are guided constantly even outside their classrooms. The paper presents the approach to identify the learning styles for adaptation as pe Felder-Silverman Learning Style Model (FSLSM). An e-learning application developed using Moodle framework with the functionality to capture the usage data of learners. The usage data is used to cluster the learners as per learning categories of FSLSM. The customization is provided on the portal by generating the adaptive user interface for each learner based on learning style of FSLSM.

**“An Analysis of e-Learning System Features in Supporting the True e-Learning 2.0”3**

According to Mohd Shahizan Othman, Nadirah Mohamad, Lizawati Mi Yusuf , Norazah Yusof & Shaffika Mohd Suhaimi (2012), Knowledge sharing process involve in the existence of social element is supported by technology web 2.0. Realizing the benefits, most e-learning systems are competing to transform from the e-learning 1.0 and content centric to e-learning 2.0 but to be claimed as one of the true e-learning 2.0 system, a research must be done. This paper discuss further on the features of e-learning 2.0. The version being compared is Moodle version 1.9 and 2.1 to see the revolution of the system. There are about 21 features of Moodle brought up as the finding of this paper. It shows how the features in e-learning 2.0 systems cover the lack in earlier version of e-learning system and bring the solid reasons for the full utilization of e-learning 2.0. So, more existing elearning system will make a move towards the transformation and fully utilize the technology of web 2.0.

**“Barriers to e-teaching and e-learning”4**

According to A. Assareh & M. Hosseini Bidokht (2011), Considering rapid growth of Technology and Population seems inevitable that e-education is going to be main agent for education. There has been much research into method of enhancing the quality of learning outcomes of e –education and it has been considered from different perspectives. In general there are four kinds of barriers 1. The Learners ; which has subdivision like financial problem, motivation , assessment of their progress, isolation from peers , inadequate skills and experience in distance learning , affection and social domain 2. Teacher; which has subdivision barriers like lack of adequate knowledge about e-teaching environment, difficulty for assessment of different domain progress 3.Curriculum; ambiguity, quality, resource, teaching process, evaluation 4.The school; organizational and structural factors. Overcoming these groups of barriers needs more cooperation of related factors like curriculum developers, teachers, parent’s students, social authorities, technological specialist, and also preparing virtual and actual interaction among children and teachers and society

**“Comparative Analysis for Cloud Based e-learning”5**

According to Fekry Fouad Ahmed (2015), Cloud computing is the delivery of computing as a service rather than a product, whereby shared resources, software, and information are provided to computers and other devices and utilities. IT projects in any learning organization at a strategic board level and not –as before - just. e Learning systems usually require hardware and software resources. Many educational institutions cannot afford such investments. These articles highlight the contribution of E-Learning standards with the Cloud standards and the impact on using cloud computing for e-learning solutions. An analysis for the prominent issues in current e-Learning systems through a comprehensive comparison between e-Learning systems before and after moving to Cloud Computing environment, using a generic framework for “Cloud-based e Learning systems.

**“WILF MALCOLM INSTITUTE OF EDUCATIONAL RESEARCH”6**

The Faculty of Education, University of Waikato established the Wilf Malcolm Institute of Educational Research (WMIER) in 2002 to undertake research in the broad field of education, with a focus on curriculum, teaching and learning. The Institute's name recognizes former University of Waikato Vice-Chancellor Professor Wilf Malcolm, and the significant contribution he made to education.

They strive to produce research that makes a difference and benefits the wider education sector. Their research covers a range of areas related to curriculum, learning, teaching and assessment, education for Māori, e-learning and policy implementation spanning the early years, compulsory schooling and tertiary sectors.

Much of their research involves teams whose members are drawn from across the Faculty and their external partners. Collaborative links with other University of Waikato research institutes and national and international research centers in education are actively maintained. They encourage researchers to undertake studies from local, national and international perspectives. The Institute organizes conferences and symposia, and publishes and disseminates research findings to inform policy as well as academic and professional communities.

**E-LEARNING IN THE AUSTRIAN SCHOOL SYSTEM7**

The Austrian educational system integrated eLearning into the official curricula in 1998 and supported the establishment of laptop classes and computer aided teaching since then in numerous initiatives and activities. Together with the concept of eLearning, the idea of the laptop classes came into being. Soon it was clear, that laptop classes means much more than just the fact that every pupil owns his / her own laptop (notebook) and uses it I school. New forms of teaching materials had to be developed and optimized for the application in eLearning. The structure of digital teaching and learning materials can vary due to the heterogeneous characteristics of the "new media". Hence, they have to be defined by the amount of information they communicate. Subsequently they use further combinations of assets and learning objects like lessons or courses, which can help to organize a longer teaching time.

**CENTRAL EUROPEAN UNIVERSITY8**

Central European University (CEU) is a graduate-level, English-language university promoting a distinctively [Central European](http://en.wikipedia.org/wiki/Central_European) perspective. The university offers degrees in the [social sciences](http://en.wikipedia.org/wiki/Social_sciences), [humanities](http://en.wikipedia.org/wiki/Humanities), law, [public policy](http://en.wikipedia.org/wiki/Public_policy), [business management](http://en.wikipedia.org/wiki/Business_management), [environmental science](http://en.wikipedia.org/wiki/Environmental_science), and [mathematics](http://en.wikipedia.org/wiki/Mathematics). The university is located in [Budapest](http://en.wikipedia.org/wiki/Budapest), and is accredited in the United States and in [Hungary](http://en.wikipedia.org/wiki/Hungary).

Faculty and students can introduce themselves through uploading their profiles, share course descriptions, syllabi, reading lists, upload and download reading materials, pre-course assignments, and establish contact with one another. With the use of E Learning Site it clearly defines the purpose and the flow of the system. The system provides access to course materials, without cost, does not require registration or log in and does not grant credits, degrees or certificates.

**“User Satisfaction Model for e-Learning Using Smartphone”9**

According to Ramadiani, Azainil, Usfandi Haryaka, Fahrul Agus & Awang Harsa Kridalaksana (2017), Level of smartphone usage can be used as an indicator of technological progress of a region. This study aims to explore and make user satisfaction model for e-learning using smartphone applications in Mulawarman University. The purpose of the research is to make user satisfaction model for e-learning using smartphone, and to produce and to recommend e-learning content for research and e-learning. The components that would be evaluated in this research are focused on the following matters: User satisfaction for e-Learning using Smartphone; Service quality, Information quality, User participation, and Benefit. Where service quality consists of demeanor, responsiveness, competence and tangible. Information quality consist of completeness, relevancy, accuracy, and currency. User participation consist of training provider, user understanding and participation. Benefit consist of easier to the job and increase productivity.

**“University Level Learning and Teaching via E-Learning Platforms”10**

According to D. Benta, G. Bologa, S. Dzitac & I. Dzitac (2015), Web-based adaptive collaborative learning environments are more often used to support face to face teaching activities. This paper describes how the educational process may be improved and students may be motivated to do homework tasks and to attend classes in higher education. We describe the implementation and use of e-learning platforms and present our experience in using such platforms in our faculty. The performance of two groups of students is analyzed. The analysis focuses on two aspects: attendance on classes and homework tasks submission. Therefore, the first group had no contact with e-learning environment and they had to attend classes in a traditional way (face-to-face interaction) and to submit their homework via e-mail. The second group had to attend classes and also to use an e-learning platform where they could access course resources and homework tasks. They had also to submit their homework via the platform, while respecting a strict deadline and using the professors’ feedback to improve their homework quality. This paper highlights the importance and the benefits of using collaborative e-learning platforms in higher education to support face to face teaching.

# “E-learning Systems Based on Cloud Computing: A Review”11

# According to [Ghazal Riahi](https://www.sciencedirect.com/science/article/pii/S1877050915025508" \l "!) (2015), Today and during the recent years, the Internet is a place to read web pages that allow users to environmental education and implementation of software applications that is changing. As with rapid growth of the cloud computing architecture usage, more and more industries move their focus from investing into processing power to renting processing power from a specialized vendor but education field is no different. E-learning systems usually require many hardware and software resources. Cloud computing technologies have changed the way applications are developed and accessed. They are aimed at running applications as services over the Internet on a scalable infrastructure. Now, Cloud computing that introduces efficient scale mechanism can let construction of E-learning system be entrusted to suppliers and provide a new mode for E-learning. Therefore, an E-learning system based on Cloud computing infrastructure is feasible and it can greatly improve the efficiency of investment and the power of management, which can make E-learning system development into a virtuous circle and achieve a win-win situation for suppliers and customers.

# “Evaluating a Learning Management System for BINUS International School Serpong”12

According to [K.Iskandar,](https://www.sciencedirect.com/science/article/pii/S1877050915020852#!) [D.Thedy](https://www.sciencedirect.com/science/article/pii/S1877050915020852#!), [J.Alfred](https://www.sciencedirect.com/science/article/pii/S1877050915020852#!) & [Yonathan](https://www.sciencedirect.com/science/article/pii/S1877050915020852#!) (2015), The purpose of this study is evaluate a Learning Management System for Bina Nusantara International School Serpong, to make the Students, Parents, and Teachers cooperate with each other in education, with hope that the school can create more quality graduates. Methodology that will be used in the study is discussion with the school executives on features that will be implemented in Learning Management System and survey to the users to know their satisfaction about the application after being implemented. Result of this study is to implement the Learning Management System that will help the Students, Parents, and Teachers in teaching and learning activities. Conclusion of this study is by using this Learning Management System, Students, Parents, and Teachers will become more active in the teaching and learning activities inside and outside the school.

**“Evaluation of e-learning systems based on fuzzy clustering models and statistical tools”13**

According to Mofreh A. Hogo (2010), This paper introduces a hybridization approach of AI techniques and statistical tools to evaluate and adapt the e-learning systems including e-learners. Learner’s profile plays a crucial role in the evaluation process and the recommendations to improve the e-learning process. This work classifies the learners into specific categories based on the learner’s profiles; the learners’ classes named as regular, workers, casual, bad, and absent. The work extracted the statistical usage patterns that give a clear map describing the data and helping in constructing the e-learning system. The work tries to find the answers of the question how to return the bad students who are away back to be regular ones and find a method to evaluate the e-learners as well as to adapt the content and structure of the e-learning system. The work introduces the application of different fuzzy clustering techniques (FCM and KFCM) to find the learners profiles. Different phases of the work are presented. Analysis of the results and comparison: There is a match with a 78% with the real world behavior and the fuzzy clustering reflects the learners’ behavior perfectly. Comparison between FCM and KFCM proved that the KFCM is much better than FCM.

**“Evaluation of Moodle Features at Kajaani University of Applied Sciences – Case Study”14**

According to Deepak Kc (2017), The aim of this study is to examine the Moodle features that are implemented in the Moodle version used at Kajaani University of Applied Sciences. Using the qualitative weight and sum (QWS) approach, a sample of 30 university lecturers were surveyed on their responses to Moodle usage. The paper intended to discover what features are mostly adapted and used by the lecturers. The Moodle learning management system implemented at KAMK includes 12 features for creating activities and six features for adding resources that are investigated in the paper. The measurement criteria of the Moodle features in the paper are considered subjective and qualitative. The author used 6 symbols for 6 qualitative levels of importance for the weights of features: E = essential, \* = extremely valuable, # = very valuable, + = valuable, | = marginally valuable and 0 = not valuable. The result of the evaluation shows that Moodle is generally used for delivering course content, course progression plan, grading, creating activities, collecting course feedback and communicating with course participants. Among several features, only a few of them such as assignment, feedback, quiz and workshop modules are considered very essential and are heavily used.

**“Learning management systems use in science education”15**

According to Nadire Cavus & Muhammed Sharif Alhih (2014), Learning management systems have become increasingly attractive in recent times. Modern education is highly technical dependent and this has redefined teaching learning process. Learning management systems have positive implications in education. Learning management systems are considered to be largely applicable for natural sciences as they enable representation of phenomena, foster experimental study and enable the creation of models and problem solving applications.

“**Mobile Learning Management System as a Course Supplementary”16**

According to [KaanSeyitoğulları](https://www.sciencedirect.com/science/article/pii/S1877042813011543#!) & [SevanKatrancıoğlu](https://www.sciencedirect.com/science/article/pii/S1877042813011543#!) (2013), Education is one of the most effected sector by technology. After Communication based technologies started to get into our lives it also accelerated educational processes and their efficiency. One of the most important improvement is being observed in mobile technologies. Mobile technologies improved distance learning which provide us to access learning materials without any time and location problems. Aim in this research is to develop another channel for communication between students and instructor. Mobile technology are used as a substructure. With the mobile learning management system many opportunities are supplied to improve course efficiency. After courses, instructors can send messages, reminders, homework and some other supporting materials to students in mobile platforms. Also feedbacks of homework and quizzes makes the evaluation easier. The continues connection between lecturers and students prevents loss of learning.

**” OnRamp: A web-portal for teaching parallel and distributed computing”17**

According to Samantha S. Foley, Daniel Koepke, Justin Ragatz, Christa Brehm, Jason Regina and Joshua Hursey (2017), Computer Science students must understand parallel and distributed computing (PDC) concepts to be effective computer scientists in the workforce, as reflected in the 2013 ACM Curriculum guidelines. Significant work has been done by CS educators to develop curriculum materials and increase access to parallel compute environments (PCEs) by leveraging and clustering a plethora of small multicore systems. Even with these resources there is a barrier to entry for students to use PCEs, namely the unfamiliar and complex system software ecosystem of modern PCEs. The OnRamp project lowers that barrier to entry for exploring PDC concepts on a variety of PCEs by abstracting away the details of interacting with the system and focuses the students’ attention on the PDC concepts. This top-down approach is in contrast to existing approaches involving all aspects of PDC necessarily being taught before the key concepts can be explored. In this paper we discuss the motivation, design and implementation of OnRamp, a general purpose web portal for supporting the exploration of PDC concepts that harnesses the existing educational resources created by the CS education community. It coaches students through interactive modules that teach them about PDC concepts and PCEs while allowing them to launch parallel applications from day one.

**“SCORMAdaptiveQuiz: Implementation of Adaptive e-Learning for Moodle”18**

According to Hiroshi Ueda, Masako Furukawa, Kazutsuna Yamaji and Motonori Nakamura (2018), One of the advantages of online learning, which is evolving at a rapid rate, is that it can be standardized. However, it also has a disadvantage in that online content lacks adaptivity. In this study, we aim to improve online content adaptivity, and develop an extension plugin for Sharable Content Object Reference Model (SCORM) for Moodle: SCORMAdaptiveQuiz (<https://github.com/uedahiro4/SCORMAdaptiveQuiz>), which can provide the adaptive presentation feature in accordance with the pre-knowledge of the learner as reflected from a pre-test created by the Moodle quiz module. Data were collected from the productive operation of the module for a year in the security awareness education online course “Learn with Princess Rin Rin: Cyberethics” provided in Japanese, English, Chinese, and Korean and hosted on GakuNinMoodle ([https://security-learning.nii.ac. jp/](https://security-learning.nii.ac.jp/)), which is widely used in universities in Japan. The result of the data analysis revealed the effect of the SCORMAdaptiveQuiz module: An improved access rate was obtained in the 2016 academic year than in 2015 for all four languages. In addition, a significant improvement was seen in the results of the final test of the Korean and Chinese course in comparison with that of the 2015 academic year. On the other hand, a slight decrease in the score of the final test was observed for the English and Japanese courses. We argue that the SCORMAdaptiveQuiz plugin is useful in providing an adaptive online course in accordance with the knowledge of the learner.

**“Sharing instructors experience of learning management system: A technology perspective of user satisfaction in distance learning course”19**

According to Ibrahim Almarashdeh (2016), The use of educational technology increased rapidly in higher education. Learning Management System (LMS) is the most popular educational technology system used in distance learning. There are only a few studies have been carried out to measure instructors satisfaction in distance learning courses, although instructors satisfaction is considered as very important for the course involvement and increasing the students interactions with the course content. Hence, this study proposed a detailed framework to measure instructors’ satisfaction of using LMS. The findings prove that perceived usefulness and service quality are taking the highest share on affecting the instructor satisfactions. This study limited to higher education’s instructors and used a questionnaire survey to collect the data. Hence, the LMS should be designed based on the needs of the instructors as well as the students, by adopting the latest technologies. In the contrary, building LMS without taking the instructors’ satisfaction into account will affect negatively the distance learning course outcomes.

**“Student and Faculty Transition to a New Online Learning Management System”20**

According to Deborah S. Judge, DNP, RN & Bethany Murray, PhD, RN, PMHCNS-BC (2017), Background: Online learning is rapidly emerging within nursing education. The purpose of this project was to provide a unified and consistent user interface in the new Canvas™ learning management system (LMS) for students and faculty and to promote super users who would assist faculty in a seamless transition from Oncourse™ to Canvas™. Implementation Plan: Curriculum templates were provided within the LMS for nursing courses and numerous training opportunities with designated super users. Results: Faculty reported feeling either competent (57%) or very competent (36%) in their ability to use Canvas™ LMS after implementation of the project; survey comments reflected an overall positive response to the transition to Canvas™. Conclusion: This project resulted in a framework of standardized templates that are student centered and effective for quality online learning.

**“Survey of quality models of e-learning systems”21**

According to Vlastimir Nikolić, Jelena Kaljevic, Srđan Jović, Dalibor Petković, Miloš Milovančević, Ljubomir Dimitrov and Pancho Dachkinov (2018), The main aim of the survey was to present current state of quality models of e-learning systems. Development of the quality models of e-learning systems was explored where some future directions were suggested. The quality models of e-learning systems were analyzed based on their different perspectives and dimensions according to the survey. Based on the survey the quality models applications were proposed according the context of the e-learning systems. Based on the investigated studies the quality characteristics of the e-learning systems were extracted. Different pedagogical characteristic were addressed for some studies. Learner satisfaction was addressed only in several studies. Only one study addresses software usability. As the main results of the survey one can conclude that there is large numbers of quality models of the e-learning systems. Finally, future research direction was suggested based on the results. In the future research the quality models should address different technical aspect of the e-learning systems which could assure sustain development of the systems due to rapid changing in information and communication technologies.

**“Teachers’ Readiness in Utilizing Educational Portal Resources in Teaching and Learning”22**

According to Rosnaini Mahmud, Mohd Arif Hj Ismail, Fadzilah Abdul Rahman, Nurzatulshima Kamarudin & Aisyatul Radhiah Ruslan (2012), The purpose of this study was to identify teachers’ readiness in utilizing the educational resources from the Eduwebtv online portal. Teachers’ readiness was measured in terms of knowledge, skills and attitude. Research samples consisted of 387 secondary school teachers from five different states selected using the cluster simple random sampling technique. The design of the study was quantitative in nature employing the survey method. Data were gathered through the use of the Eduwebtv ReadinessQuestionnaire developed by the researchers. The questionnaire was divided into four sections a) background information, b) knowledge of Eduwebtv, c) skills in using Eduwebtv, and d) attitude towards using Eduwebtv. Data were analyzed using descriptive statistics of mean, frequency, percentage and standard deviation. Findings revealed that majority of the teachers had moderate (n=201, 51.9%) to high (n=186, 48.1%) levels of knowledge of Eduwebtv as an educational resource portal. Also found majority of the teachers had moderate skills in using Eduwebtv portal. Apart from this, majority of the teachers were found to foster positive attitudes towards the use of Eduwebtv online resources for teaching and learning. In terms of readiness in utilizing the Eduwebtv portal, these findings suggest that although teachers have knowledge of Eduwebtv and its benefits to both teachers and students, they seem lacking in the skills to fully capitalize on the advantages afforded by this online technology.

**“The acceptance of Moodle technology by business administration students”23**

According to Tomas Escobar-Rodriguez & Pedro Monge-Lozano (2012), The advent of information technologies to Universities has improved the teaching–learning process. Students can increase their learning skills using information technology. Those using the Moodle platform regularly seem to get better grades than those who rarely or never use it. This paper analyzes students’ intention to use Moodle platforms to improve the teaching–learning process. Its main focus is to analyze the use of the Moodle platform by University students, identifying factors which might influence the intention to use it. Understanding the factors influencing the intention to use Moodle will allow us to determine which actions might be carried out to boost its use by University students, to therefore, improve both their skills and grades. The theoretical grounding for this research is the Technology Acceptance Model (TAM). TAM specifies the causal relationships between perceived usefulness, perceived ease of use and actual usage behavior. The proposed model has six constructs and nine hypotheses have been generated from the connections between these six constructs. These constructs include perceived compatibility with student tasks, perceived usefulness for professors, and training. Our results provide support for a number of relationships in the hypothesized model. In light of these findings, implications for theory and practice are discussed.

**“The personalization of e-learning systems with the contrast of strategic knowledge and learner’s learning preferences: An investigatory analysis”24**

According to Alan Mustafa (2018), In this study, reasons for proving the relevancy of personalisation of e-learning systems to act as a knowledge management system in which tacit to tacit type of knowledge (socialisation) can be delivered, are being provided. Nonaka’s knowledge conversion model is being used as the basis of the investigation. The relationship between ‘the strategic knowledge conversion model’ drawn from the ‘identifying list of strategies’ and ‘an individual’s decision-making method’ has been investigated in relation to knowledge transferring systems and individual’s learning styles. The outcome of the qualitative as well as quantitative investigation defines a set of frameworks in which different types of e-learning systems utilizing different learning philosophies and learners learning preferences to support the learner’s learning curve.

**“The role of new technologies in the learning process: Moodle as a teaching tool in Physics”25**

According to Teresa Martín-Blas & Ana Serrano-Fernández (2009), In this work we present an overview of the undergraduate online Physics course that we have implemented in the Moodle platform. This course has been developed as an enhancement of the face-to-face courses. The aim of this course is to create an online learning community which helps both teachers and students to have a virtual space where we can share knowledge through different kinds of supervised activities, chats and forums. As we will show in this paper, the students’ response to this initiative has been very good: the online Physics course helps them to reinforce their abilities and knowledge.

**“The use of a mobile learning management system and academic achievement of online students”26**

According to Insook Han & Won Sug Shin (2016), Mobile learning has become widespread, and higher education institutions have started adopting mobile technology to cope with the needs of students. Despite its adoption in higher education settings, little research has been done to examine factors influencing the adoption of mobile learning management systems (LMSs) and the learning effects on students' academic achievement. To explore the relationships among factors and the educational effectiveness of mobile LMSs, students' demographic backgrounds (age and employment status), self-reported psychological data (self-efficacy, innovativeness, perceived ease of use, and perceived usefulness of mobile LMSs), and external factors (subjective norms) were collected from 1604 students from 10 repetitions of the same course in an online university in Korea, in addition to their test scores. The logistic regression results showed that age and employment status were significant factors in predicting students' adoption of mobile LMSs and that there were potential connections between mobile LMS use and students' gender, age, and psychological characteristics. In addition, the study demonstrated that the use of a mobile LMS positively influenced online students' academic achievement. The findings from this empirical study present a better understanding of students' usage of mobile devices in higher education.

**“Theorising about barriers to open e-learning systems in public administrations”27**

According to Insook Han & Won Sug Shin (2016), Mobile learning has become widespread, and higher education institutions have started adopting mobile technology to cope with the needs of students. Despite its adoption in higher education settings, little research has been done to examine factors influencing the adoption of mobile learning management systems (LMSs) and the learning effects on students' academic achievement. To explore the relationships among factors and the educational effectiveness of mobile LMSs, students' demographic backgrounds (age and employment status), self-reported psychological data (self-efficacy, innovativeness, perceived ease of use, and perceived usefulness of mobile LMSs), and external factors (subjective norms) were collected from 1604 students from 10 repetitions of the same course in an online university in Korea, in addition to their test scores. The logistic regression results showed that age and employment status were significant factors in predicting students' adoption of mobile LMSs and that there were potential connections between mobile LMS use and students' gender, age, and psychological characteristics. In addition, the study demonstrated that the use of a mobile LMS positively influenced online students' academic achievement. The findings from this empirical study present a better understanding of students' usage of mobile devices in higher education.

**Local**

**“Provision of teaching and learning resources: a challenge to public school administrators and teachers”1**

According to Lil G. Sanchez (2017), That an effective school must focus on providing the needs of its learners which positively influence the learning outcomes. Lots of factors are to be considered like the school environmentibeth for safety of the teachers and learners. The teachers are being trained so that they will be ready to understand the teaching-learning process in their respective classrooms. Another factor to be considered is our teaching and learning resources. Do we have enough Librarian II, DepEd RO VI teaching and learning resources in our schools that can be used by our teachers and learners? This is one of the big challenges being faced by our public school administrators and teachers. I n addition, DepED Learning Resources Portal, an online system that can be accessed through www. lrmds. deped. gov. ph was established by the Department of Education for easy access of the available DepED developed teaching and l earning resources of the K to 12 curriculum. These resources can be downloaded by the school to be used in the teaching and learning process. The Department of Education never stops finding ways to address these issues and concerns of our schools and therefore challenges the school administrators to strengthen and make use of these learning facilities.

**“E-Learning in the Philippines: Trends, Directions, and Challenges”2**

According to M. Dela Pena-Bandalaria, M. (2009), In the Philippines, the term e-learning is used synonymously with online learning and concerns the online delivery of instructional content as well as associated support services to students. This article is primarily based on experiences at the University of the Philippines Open University (UPOU). It showcases the development of e-learning in the country from just a supplement within once-a-month face-to-face (FTF) sessions in a university learning center to more extensive use of a learning management system (LMS) as a venue for academic discussions as well as learning assessments, sharing learning resources and content, and students submissions of course requirements. Also discussed is how the mobile phone is being used to bridge the digital divide and make the digitally excluded sectors of the Filipino society become part of the online learning program of the university. The mechanisms being used to ensure quality education in e-learning as well as the challenges faced by e-learning institutions are extensively detailed.

**“Teaching and Learning With E-Learning in the Philippines”3**

According to Christina Gómez (2016), eLearning is not only about sophisticated platforms where teachers and students can meet up in a digital space and interact. eLearning has to do with any learning that uses technology to enhance the learner experience. This is what the President for the [**Philippine eLearning Society**](http://www.elearning.ph/), Ms. Anthea Mariano (or Thennie to her friends and colleagues), says. PeLS is a Society that promotes substantive content, good pedagogy, and proper use of technology for eLearning. The Society was started in 2003 by pioneers in the academic, industry and government sector. Today it has more than 400 individual members and 20 institutional members, and PeLS’ mission is to ensure that its members acquire the knowledge and tools they need in order to implement the most suitable eLearning system for their institutions.

**“Learning Management System for LPU-Laguna”4**

According to Rhowel M. Dellosa, **[Mirafe R. Prospero](https://ejournals.ph/function/author.php?id=7310" \t "top)** & [**Joseph L. Rodriguez**](https://ejournals.ph/function/author.php?id=7311) (2012), The term Modular Object-Oriented Dynamic Learning Environment (MOODLE) or simply Moodle is a growing system in the information technology education field. It is a learning management system that uses the web. It is also now a verb that describes the process of doing an online course. Anyone who uses Moodle is a Moodler. This study was initiated to determine the potential of using an institutional learning management system that will serve as the standard tool for use in the virtual classroom. The learning management system contains features on enrolment, roles, course management, course report, and modules on assignment, chat, forum, glossary, lesson, quiz, survey, and workshop. A series of initial tests was conducted to advance the knowledge of the researchers about Moodle and propagate the learning to the end users (the institution). The establishment of a learning management system is composed of the Moodle software, a server, and a webhosting site. The LMS was evaluated by the student respondents in four areas: the system, the technical support, functions and capabilities, and the tools and were found to generally good and acceptable.

### “E-Learning Management System with Screen Share Technology”5

According to [**Jopal Matthew M. Dumanig**](https://ejournals.ph/function/author.php?id=6603), [**Berlin Jade L. Fabio**](https://ejournals.ph/function/author.php?id=6605), **Mavis Joy C. Ibañez** & [**Hyzel May V. Rendon**](https://ejournals.ph/function/author.php?id=6608) (2013), The study intended to provide an E-Learning Management System with Screen Share Technology for Thompson Christian School to cater the needs of the students by providing the course materials, taking of examination/quizzes online and by providing screen share during discussions. The proponents used the Web Engineering process model throughout the study. The proponents did some interviews and observation on the company to evaluate the current system and to be able to propose an alternative for the betterment of the company. The E-Learning will be working with the Screen Share during class hours. The E-Learning Management System with Screen Share Technology ensures quality education for the students and for quality teaching of the teachers. Modules are given and are very useful for the students and of the teachers. The computation of the cost and benefit analysis are also provided for the school to implement the system. The development of this system had gone to different processes and circumstances. This system ensures that the benefits for the school observe quality standards and quality assurance. In lieu with this, the proponents recommended that the company will have a faster internet connection and a person who will maintain or observe the system for the errors as time goes by for quality satisfaction.

**“Use of Learning Management System: A University of the Philippines Los Baños (UPLB) Classroom Experience”6**

According to Lynie B. Dimasuay & Beverly R. Pabro (2009), Modular Object Oriented Dynamic Learning Environment (MOODLE) is a learning management system or a content management system that is starting to be popularized nowadays. In the Philippines, majority of higher education institutions including University of the Philippines Los Baños use MOODLE in their teaching. To determine the popularity of MOODLE and to determine if it can help a student’s performance, a survey was conducted in two mathematics courses in UPLB: Seventy seven (77) respondents from College Algebra (Math 11) and twenty three (23) respondents from Introduction to Probability Theory (Math 181). Questions in the survey form were rated from one to five, with five being the highest. Results showed that MOODLE is used only by limited faculty and majority of them are under the College of Arts and Sciences (CAS). In addition, students from both courses perceived that MOODLE can help them in their learning progress with a weighted mean average of 3.75 and 3.82 for Math 11 and Math 181, respectively. Survey also showed that MOODLE can augment face- to-face learning between teacher and student with a weighted mean average of 3.60 for Math 11 and 3.52 for Math 181. Clearly, the use of learning management system should be recommended to all educators to help students improve their performance in classes.

# “Effectiveness of Learning Management System Application in the Learnability of Tertiary Students in an Undergraduate Engineering Program in the Philippines”7

# According to [Yoshiki Kurata](https://www.researchgate.net/profile/Yoshiki_Kurata), [Rose Marie Lou P. Bano](https://www.researchgate.net/profile/Rose_Marie_Lou_Bano) & [Ma. Carole T. Marcelo](https://www.researchgate.net/scientific-contributions/2130090876_Ma_Carole_T_Marcelo) (2018), Learning management systems (LMS) is an integrated platform used in colleges and universities for distribution of educational materials and facilitate learning servicing various end users i.e. students, teachers and administration. The approach to learning significantly differs from one program to another especially in Engineering. In assessing the effectiveness of LMS, variables considered in the model primarily tap elements critical to system design of a Learning Management System, which investigate the pedagogical approach, usability and user-interface satisfaction aspect. The result showed that LMS was an effective tool to facilitate learning in an undergraduate engineering program in the Philippines because of its interactive environment and availability though it can be made more efficient by adding collaborative learning tools for students, which is deemed vital since engineering is a multidisciplinary and highly collaborative discipline.

# “Perceptions and Prioritization of a Portable Learning Management System”8

# According to Dave E. Marcial & Alfie Q. Arcelo (2016), This paper presents two substantial findings before the development of the portable learning management system. Specifically, this paper describes the perception level of the respondents towards the development of the proposed portable system. It discusses also the prioritization level of the features of the said teaching tool. The result shows that the proposed portable learning management system is useful and somewhat easy to use. The features presented in the study are rated with a remarkable prioritization degree. The study concludes that the perception of the teacher educators towards the development of a portable learning management system is positive and encouraging. The study recommends developing portable learning management system using a feature-driven development method.

# “The Effect of Web-Based Learning Management System on Knowledge Acquisition of Information Technology Students at Jose Rizal University”9

# According to Ryan A. Ebardo & Arlene Mae C. Valderama (2009), One of the primary challenges faced by higher education institutions has been to discern the effect of the application of Learning Management Systems (LMS) on student learning outcomes. This paper maps the performance of Information Technology students enrolled in two sections at Jose Rizal University where the first section studied in the traditional learning environment while the second section studied in a blended or E-Learning environment. After applying qualitative analysis methods on assessment results from both sections, this paper concludes that the knowledge acquisition skills of the students improved through the intervention of LMS.

**“American firm wants to change PH classrooms”10**

According to **Roderick T. dela Cruz (2016),** A software company headquartered in Salt Lake City, Utah aims to change Philippine classrooms by introducing a cloud-based learning management system that reduces the use of blackboards and paperbacks. Instructure Inc., a software-as-a-service technology company established by two graduate students of Brigham Young University in Utah in 2008, is now in talks with public and private schools in the Philippines to try out Canvas LMS, used by some of the best schools in the world.“Local market conditions in the Philippines are a big reason for Canvas being here and Canvas being able to help.  We care deeply about education.  We care deeply about the impact that Canvas makes to students, teachers and institutions.  We believe that it is something important and powerful not just for Harvard University in the United States, but to all universities and schools, of all sizes, throughout Asia-Pacific including the Philippines,” Instructure sales director in Asia-Pacific Troy Martin tells journalists over dinner at Manila Peninsula Hotel in Makati City.

# “Philippine eLearning Opens Its Doors To The World”11

According to [Christopher Pappas](https://elearningindustry.com/elearning-authors/christopher-pappas) (2013), the Philippine eLearning Society will hosts the International Congress on eLearning 2013 at the Heritage Hotel Manila, Pasay City, Philippines. The Philippine eLearning Society (PeLS) has been the country’s leading organization in promoting the development of eLearning competencies through education, training and collaboration among various stakeholders in government, industry and academe. The congress will be forum for an international exchange of research, innovation, experiences and best practices in eLearning. The theme of the congress is “The eLearning Q.U.E.S.T: Harmonizing the Elements of a Global Knowledged Society." In the last decade, countries have focused on evolving into knowledge societies and developments in information and communication technology (ICT) have opened more opportunities for borderless collaboration and co-creation. In this stage of growing interdependence and multidisciplinary perspectives, there is a need to synergize the requisite components to nurture a global knowledge society. This congress aims to provide a collaborative model of teaching and learning online by determining the many elements that must be managed to create e-learning programs and to stimulate participation across diversity.

# “Issues and Challenges in Open and Distance e-Learning: Perspectives from the Philippines”12

# According to ****Patricia Arinto (2016),**** Rapid advances in information and communications technology in the digital age have brought about significant changes in the practice of distance education (DE) worldwide. DE practitioners in the Philippines’ open university have coined the term ‘open and distance e-learning’ (ODeL) to refer to the new forms of DE, which are characterised by the convergence of an open learning philosophy, DE pedagogies, and e-learning technologies. This paper discusses the issues and challenges that ODeL poses for the Philippines’ open university from the point of view of the institution’s leading ODeL practitioners. The paper concludes with a discussion of the policy development and administrative changes required to support innovative teaching practice across the institution. The findings and conclusions are relevant for other institutions in the same stage of ODeL development.

# “Learning with the help of technology”13

**According to** [JOHN PAUL M. ESPINOSA](https://www.manilatimes.net/author/john_paul-espinosa/) (2016), The convenience and effectiveness of e-learning had long been recognized by educational institutions and education officials. A number of schools in the country have embraced with enthusiasm emerging education technology in that lectures are boosted by computer-based, or gadget-based, learning. Today, in some schools, netbooks have replaced notebooks and some lessons are delivered electronically. A survey conducted by Pearson Foundation in the United States found that more than six in 10 college students and high school seniors agree that they study more efficiently by using tablets. A study conducted by Houghton Mifflin Harcourt in California also showed that students using iPads performed better in math compared to students using traditional textbooks. Another study at Oklahoma State University found that 75 percent of students said the use of gadgets enhanced their learning experience.

**“E-Learning in the Philippines: Trends, Directions, and Challenges”14**

According to [**Melinda dela Pena Bandalaria**](https://www.researchgate.net/profile/Melinda_Dela_Pena_Bandalaria) (2009), In the Philippines, the term e-learning is used synonymously with online learning and concerns the online delivery of instructional content as well as associated support services to students. This article is primarily based on experiences at the University of the Philippines Open University (UPOU). It showcases the development of e-learning in the country from just a supplement within once-a-month face-to-face (FTF) sessions in a university learning center to more extensive use of a learning management system (LMS) as a venue for academic discussions as well as learning assessments, sharing learning resources and content, and students submissions of course requirements. Also discussed is how the mobile phone is being used to bridge the digital divide and make the digitally excluded sectors of the Filipino society become part of the online learning program of the university. The mechanisms being used to ensure quality education in e-learning as well as the challenges faced by e-learning institutions are extensively detailed.   
**“Investing in e-learning, future”15**

**According to** [**Tish Martinez-Castillo**](https://opinion.inquirer.net/byline/tish-martinez-castillo) (2011), Technology has made almost every experience virtual—from making friends and talking with them to doing business with other people. Education has followed suit with e-learning.

Today’s learners are tech-savvy digital natives—mobile phone toting, Internet surfing and RPG-game playing youngsters. Technology has made almost every experience virtual—from making friends and talking with them to doing business with other people. Education has followed suit with e-learning.

Today’s learners are tech-savvy digital natives—mobile phone toting, Internet surfing and RPG-game playing youngsters. “The global outpouring of grief reflects Jobs’ impact on modern life. He blazed trails in education and understood that today’s learners grasp new technologies intuitively,” says Jose Maria T. Policarpio, executive director of education publisher Diwa Learning Systems Inc.

Policarpio adds that tapping this intuition is key to helping students perform better academically. “We have to remember, they learn differently and we need to adapt our modes of teaching.” The Department of Education (DepEd) put emphasis on the need to develop e-learning via its five-year Information and Communication Technology for Education (ICT4E) Strategy Plan. ICT4E aims to integrate ICT into every school’s curricula, develop programs, establish infrastructure and come up with a system for evaluating the program’s effectiveness. DepEd has also strove to strengthen its Educational Technology Unit and conduct literacy training among teachers.

Two years ago, more than 6,600 schools participated in DepEd’s Internet Connectivity Project. During that time, only 1,936 schools had Internet access. Today, more than 3,127 schools are connected.

Low student-computer and teacher-computer ratios pose the biggest challenge to the program, according to an education department report on ICT4E.

Infrastructure and teacher competencies are also areas of concern as computer literacy is not a requirement for teacher certification and licensure. But despite all this, the department remains optimistic about the ICT4E program, saying that “meeting challenges by using the tools available creatively is key to effectively integrating ICT.”

“**ITITSER”16**

The i-Titser is a blog or online journal that contains articles, tips and techniques about the use of technology in basic education. While concentrating on the use of computer software and internet to aid in education, some of the posts here also dwell in

ther technologies that are frequently used in education such as projectors and speakers.

As of the moment, the articles in i-Titser are divided into six categories such as the instructional gadgets and technologies that are useful in education but are neither computer nor internet-related; may or may not be connected to a computer or network; the instructional desktop applications that are useful in several aspects of education such as preparing visual aids for teachers or preparing term papers for students; the games and assessment that covers the network and web based assessments, either in traditional format (multiple choice, matching type, etc) or in the form of games. This category also covers what I would call ["banana pill exercises"](http://ititser.hub.ph/kinds-of-educational-computer-games/) i.e., those games that are meant to practice the students by repeatedly applying a process rather than measuring how much they have learned so far; the internet research which is useful in searching for information and media from the internet.

**“GENYO”17**

Genyo is the first and only fully-integrated online learning management system for Basic Education in the Philippines. It provides students and teachers with an exclusive online subscription 24/7 to a wide array of multimedia, curriculum-based teaching and learning resources. Genyo allows your school to adapt seamlessly to 21st Century teaching and learning through Genyo 4Cs e-Learning solution: The content, connectivity, community and change management.

Genyo is a Curriculum-based, multimedia resources in the five (5) key learning areas - Science, English, Math, Filipino, AralingPanlipunan (HS) and HEKASI (GS). Over thousands of teaching resources like online lesson plans, test banks, quizzes, video and audio files, images, interactive games, and so much more!An Online Learning Management System that can be customized to suit the needs of a school.

Genyo comes with a dedicated Genyo Computer Lab composed of PCs, LCD projector, screen and internet connection. GENYO provides an avenue for schools, students, teachers, and parents to create a global online learning community. GENYO provides the necessary teacher training on basic ICT skills and e-Learning and e-Teaching strategies. We have full-time Learning Integration Specialists or LIS to act as an on-site consultant for teachers and students.

**THE PHILIPPINE E-LEARNING SOCIETY18**

The National eLearning Conference is a premiere academic forum which aims to gather Learning practitioners, educators, trainers, researchers, media specialists, instructional designers, university school administrators, policy makers, industry partners and students across the country to present and exchange new advances and research results in various aspects ofeLearning as well as discuss the encountered challenges and practical adopted solutions for a successful eLearning program implementation.

The conference aims to strengthen the convergence of technology and learning theories to form meaningful settings for learners with different academic, industry and support needs; to reinforce the technical, pedagogical, management and social dimensions associated with eLearning implementation to ensure quality in eLearning practice and delivery; organize educators, researchers, educational technologists, instructional designers and students in discussing the issues related to the development of quality online education and the challenges of ensuring pedagogically sound eLearning practices; andestablish linkages and strengthen solidarity among eLearning practitioners, industry partners and institutions.