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On-line Program towards Technology Diffusion

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Abstract: *This research study aims to develop a proposed On-Line Program for the College of Computer Studies which is a solution to the needs of students for them to be comfortable of what the propose On-Line Program can provide. Descriptive method was used in order to obtain an overall sense of the data being analyzed. The respondents of this study were the students enrolled in the College of computer Studies, Eastern Samar State University during the school year 2015-2016. There was a total population of 647 enrollees in the College of Computer Studies. Slovin's formula was used in extracting the population. Among the enrollees, a total of 247 respondents from its total population were included with the use of simple random sampling method. The evaluation was made to test if the system met the satisfaction of the users. After the evaluation of the respondents using the structured questionnaire the results were calculated. The formula used in determining the result of the questionnaire included the formula for getting the weighted mean. Based on the gathered data for the load/access time of the system, it obtained the overall average weighted mean of 4.36 and was rated* ***Agree****. For system assessment it obtained with the overall average weighted mean of 4.40 and was rated* ***Agree****. For the Acceptability of the system it also obtained with the overall average weighted mean of 4.42 of all variables was rated* ***Agree*** *in general. Based on the result, It is highly recommends the implementation and use of the Technology Management for On-Line Program for the College of Computer Studies.*

Keywords: *Technology Adoption, Technology Diffusion, Descriptive research, Borongan Eastern Samar, Philippines*

I. Introduction

Rationale of the Study

Nowadays technology is fast changing, and modern technology makes life simple and easy in many ways. It minimized work-related errors from paper works to computerized working system. 'The technology today plays a very important function in our society. Different fields of study must handle with the ever-changing technology around the globe. On-Line Program could have potentially major effects on the way higher education is designed, implemented and delivered. On-Line Program may provide with a means of beyond the newly formed competition, by taking full advantage of their traditional, already established reputations.

For students, On-Line Program can provide an educationally-superior alternative to traditional lectures, in which learning can take place outside the lecture hall and can also provide a model for students on how to become self-directed independent learners, which may assist them to become lifelong learners'. For lecturers, On-Line Program provides them with the opportunity to test students in real business situations and new methods to evaluate each student's learning. The role of the lecturer is predominant in the successful delivery of networked learning initiatives, as lecturers have the influence to eliminate student technical frustrations, make students feel empowered and encourage students to interact with one another¨. (Singh et al, 2005)

Every field including educators is keen on searching for creative, effective, and feasible approaches that would help students learn. They have made modifications on lessons and even consider the integration of technology in education in order to meet the needs of the students. Blended learning is the combination of technology in a way that enhances student learning. Technology integration is having the curriculum drive technology and not having the technology drive the curriculum Dockstader (1999). The instructional process of the conventional classroom teaching is being done through the written lesson and drawn figures on the blackboard, associated with verbal explanation of the instructors. In support, laboratories provide hands-on experience. With the edge of technology, computers are now used as one medium of instruction.

In order to become a learning economy, the Kenyan government introduced the e-learning policy. This aimed at bringing about a paradigm shift in formal education to promote lifelong learning (Sankale, 2006).

In particular, Eastern Samar State University is an educational institution. It has been performing its task with its primary goal of providing professional institution and training in all fields of study offered in this university and

relevant extension activities with the objectives of developing the Filipino towards national progress. Students taking up computer-related courses at the State Colleges and Universities in the province of Eastern Samar are using a middle-level computer language. It is a dominant, flexible language that provides quick program implementation and imposes few constraints on the programmer. It is widely used on many different software platforms.

Eastern Samar State University, the target respondents of this study has a separate lecture and laboratory session. It is provided in one and a half-hour lecture format that includes discussion of topics and procedures written in the blackboard by the instructor. In this situation, the interaction between the student and the instructor is limited to verbal discussion and feedback. Problem arises during some complicated topics, like dealing with strings and arrays and writing a function in a program, where the students cannot grasp immediately the lesson being taught which requires a thorough and even repetitive discussion. Sometimes students are shy or even afraid to ask the instructor to repeat the discussion. As a result, the topics at times are not fully understood affecting the performance of the student. In limited class participation, students get bored of the way the instructor delivers his or her lesson. Moreover, in a traditional classroom teaching, results on exercises are not given back immediately so student tends to learn the wrong concept until the corrected papers are returned by the instructor.

This current study focused on the development of an On-Line Program, a Web-based application using a content management system called MOODLE that will offer several computer subjects online. An online classroom system is an online management information system that can manage information such as topics to discuss, quizzes and grades of students online. Lots of Universities are opting for this process because of the combination and use of technology. Each of the students had their accounts, and only students enrolled in On-Line Program were able to access the said site. Administrators and Instructors that handle and maintain the On-Line Program had a full access to the system. Facilities included posting scores of quizzes with a certain timeframe, adding additional resources, and grades of students. The On-Line Program also contained a chat component which was used by the instructor to distantly interact with their students real-time. Several modules were also incorporated in the On-line Program for it to become more interactive. Modules such as polls, calendars, and visitor counter were some of the modules that were integrated with the online system. In the light of the aforementioned, the researcher evaluated the instructional delivery system of the College of Computer Studies in order to come up with the proposal of the Technology Management for On-Line Program mode of instructional delivery at the College of Computer Studies.

The purpose of this study was to develop a system that ensures the accuracy, precision, correctness of information, conciseness of reports and student-centered, academically interesting and technologically advanced learning environment that help students get excellence learning experience through comprehensive opportunities for active engagement in real activities and collaboration with peers and experts in the field. Hence, this study.

Significance of the Study

The development of the on-line program will enhance the teaching-learning process of instructors and students respectively, through the use of technology. The conducted Technology Management for On-line Program aimed to benefit the following:

Administration. For the State Colleges and Universities offering computer-related courses, technology-based instruction is a must. Implementing an On-line Program as one of the classroom tools in the discussion would mean an achievement of the school because of the application of technology that would give impact to the quality of students the university would produce.

Instructors. Using On-line Program as a lecture supplement improves the instructor's teaching style. Through the instructional multimedia software, students focus attentively to the lesson the instructors discuss, getting students actively involved during class discussion, helping the students to do more serious thinking and allowing students to work more by them self.

Students. On-line Program has a potential benefit to the learning process of the students. Through it, the teaching style would differ from the classroom discussion that they used to have. An interactive and yet effective On-line Program would provide a real working environment that could hold student's attention and focus to the subject and retention of instruction. It would also benefit the students by means of spending less time and effort in going to school.

Future Researcher. This study will serve as a guide to future researcher who desire to focus or conduct the same study. This will also serve as a tool that will provide necessary information needed by the researcher.

THE PROBLEM

Statement of the Problem

This research study developed an on-line program for the College of Computer Studies of Eastern Samar State University, Borongan, Eastern Samar during the Academic school year 2015-2016.

Specifically this answered the following:

1. What is the profile of the respondents?
2. What is the development of the on-line program in terms of data load access time along:
   2.1 course offered,
   2.2 enrolment process, and
   2.1 assessment and evaluation?
3. As perceived by respondents, what is the extent of acceptability of the on-line program along:
   3.1 security,
   3.2 accessibility,
   3.3 accuracy,
   3.4 efficiency, and
   3.5 user friendliness?
4. Based on findings what online program can be developed?

Definition of terms

The succeeding words were theoretically and operationally well-defined for better understanding of the person who reads.

Acceptability. This refers to the appropriateness and suitability of the software as to operations performed daily and is acceptable to the end user.

Accuracy. Means generating the exact data of the students from the proposed system

Assignments. Is an activity given to the student outside of the On-line Program.

Blocks. Displays information in a small area in one of the side columns of the On-line program. Example, Calendar, Chat, the latest news, and students enrolled in a course. Think of a block as a small applet, or widget.

College of Computer Science (CCS). Site of the Proposed On-line Program for the college of computer studies Borongan Eastern Samar.

Chat. The Chat module creates a chat room where students can have real-time, online Chats. Online chat has some unique advantages over an in-person classroom discussion. Students do not need to deal with a fear of public speaking, transcripts can be edited and used as course material, and conversation can proceed at a leisurely pace that gives participants time to think.

Database. The database stores most of the information in an On-line program.

Directory. It holds material that is uploaded to the courses. You will need to have this directory created before you run the install script.

Efficiency. Is the effectiveness and performing the process productively in less time and exerting less effort.

E-learning. Is learning through an electronic interface that is using software which enables the use of different learning tools over the Internet.

Forum. Forums are one of the most powerful features. A well-run class forum can stimulate thoughtful discussion, motivate students to become involved, and result in unexpected insights.

Grades. Refers to the ratings given to students for their performance and achievement in class.

Link to File or Website. Can show content from anywhere on the Web by using a link. You can also link to files that you've uploaded into your course.

Multimedia. Is referred to the use of texts, graphics, pictures, animation, sound and video on presentations ,and instructional situations.

Online Course. Is a learning which will be done through a network it could be the Internet or just a school's internal or local area network.

Security. The performance of the system that prevents the system and all information from the access of unauthorized users.

Technology Diffusion. Adoptions of On-line program for education to alleviate a particular problem or to make a job easier or more efficient.

Technology Management. The application of technology in planning, organizing, development and overall management of the Online Program.

Topic. Topics are lesson or discussion given to the student in an On-line Program. On-line program also allows you to organize a topic by Week or depending on the time frame setting to a particular topic.

User Friendly. Is the design quality of the On-line Program is simple, elegant to view and easy to us and learn by the end user.

On line Program Towards Technology Diffusion. Is a technological innovation, the instructional learning process of conventional classroom teaching is being done with the edge of technology.

Theoretical Background

In order to develop an On-line Program that will improve the current traditional classroom lecture for the computer subjects of ESSU, the researcher selected the following theoretical backgrounds.

According to Roca et al. (2006), information quality refers to quality of the output, such as timeliness, scope, relevance, ease to understand, appropriate format, reliability of output information, clearness, completeness, and accuracy of information generated by an information system.

Hence, wide-ranging theoretical frameworks were used to analyze the individual's acceptance of technologies. There were several theories concerning the effectiveness of e-learning. Johnson et al. (2000) and Russell (2001).

Unified Theory of Acceptance and Use of Technology (UTAUT) in (Figure 1.1). A model, which unlike the original TAM does not include attitude towards behavior, was developed by Wang, Y. and Shih, Y. Although Wortman, C., Loftus, E., and Weaver, C., stresses the importance of attitude stating that it affects how well one responds to something, it was found not to be a statistically significant determinant of behavior intention Baron, S. and Patterson, A.

UTAUT which was validated by Wang, Y. and Shih, Y. has been applied in a number of studies. It has been extended to study learners' continuance intentions in web-based learning, though contrary to their hypotheses, social influence and facilitating conditions were not significant predictors of continuance intention Chiu, C., and Wang, E. The model does not take into consideration social influence, demographic factors, experience and gender as factors affecting behavioral intention in acceptance of e-Learning Chen, J., Yang, K., Tang, F., Huang, C. and Yu, S. (2008). The model is thus limited as it stands.

According to Gupta, B., Dasgupta, S., and Gupta, A.UTAUT was applied in exploring the adoption of ICT in a government organization in India, a developing country, in which findings were that performance and effort expectancy, and social influence all positively impact the use of ICT.

In this study the researcher performance expectancy is defined as the level to which a person believes that utilizing of the On-Line program will assist him or her to achieve benefits in the following; Security, Accessibility, Accuracy, Efficiency, and User friendliness. Effort expectancy is defined as the level of effortlessness in accessing the data associated with the use of On-Line program. Based on the UTAUT, it is consider that the individual recognition of On-line program Portal will depend on whether or not the ease of access on On-line program Portal is easy and unproblematic. Social influence is defined as the level of significance a student attaches to others believes that he or she should accept On-Line program. Students' social abilities and their motivation levels can predict students' satisfaction with online learning. Given that the study was experienced by the student respondents, consequently facilitating circumstances variable was dropped as the variable was more suitable in the organizational framework. This study also focused on registered users of On-Line program in Eastern Samar State University Portal, consequently voluntariness of use variable has been dropped.

On other way around, the revised UTAUT Model was adopted by the researcher in this study to evaluate the users' acceptance of the On-Line Program in ESSU Borongan City in terms of performance expectancy, and effort expectancy. It has a concrete theoretical basis built up on numerous renowned theories and principles on online learning from which numerous threads were integrated to draw up the theoretical framework.

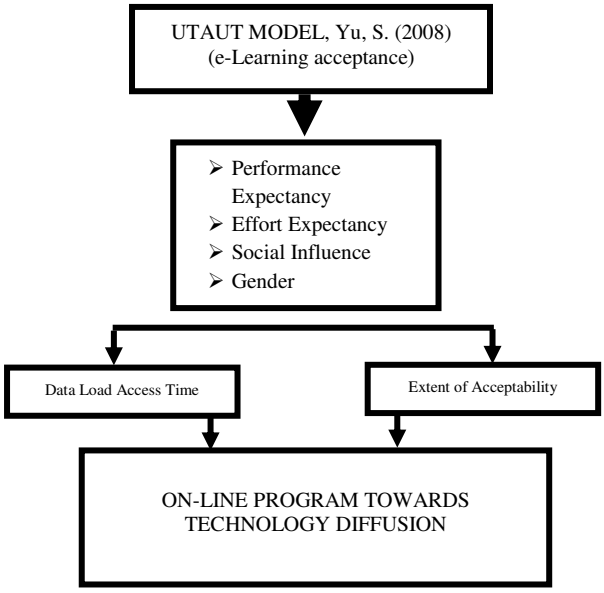

Figure 1: Theoretical Framework

II. Review of Related Literature and Studies

This chapter contains relevant information in the form of conceptual literature obtained from related readings from books, periodicals, journals and research literature taken from the internet and other research papers. These available pieces of literature and studies are in used in this research for it had a significant bearing to this study.

Related Literature

In the field of teaching, basic techniques and tools are used to relay information to students but these techniques are becoming more and more ineffective making educators find better and more effective ways of teaching. The result of a study entitled "*Comparing the Effectiveness of Classroom and Online Learning: Teaching Research Methods*" conducted in California State University indicated that although student

participation may be less intimidating, and the quality and quantity of interaction may be increased in online classes. Online interaction can be used to enhance learning, especially for students who tend to be reserved in the classroom setting. (Ya Ni, 2012)

Another research that focused on the comparison of traditional vs. online learning classrooms was conducted in Petra University; the main researcher concluded that in E-Learning courses, learners may have more diverse backgrounds than those in traditional courses. It is admitted that online learners may be more sophisticated than traditional classroom learners. (Al-Hassan, 2011)

It has also been proven in a study conducted, in the Lyceum of the Philippines University, were College of Computer Studies Students were subjected to take math exams Thru Online E-learning mode and the result of the said study showed that that there is a positive effect on the use of E-learning since there is an improved score of the experimental class on the topics considered thus reducing math anxiety. (Alday et al. 2013)

Another research that focused on the comparison of traditional vs. online learning classrooms was conducted by Englert et al. (2007). This study examined the effectiveness of a Web-based writing support program with 35 elementary-age students from six special education classrooms across five urban schools. Students in the treatment group used a Web-based program and Control students used similar writing tools provided in traditional paper-and-pencil formats. Pre- and posttests of student writing, scored on a researcher-developed rubric, were used as outcome measures. An effect size of +0.74 favoring the online condition was obtained from an analysis of covariance controlling for writing pretest scores.

Another set of studies explored features usually associated with computer-based instruction, including the incorporation of quizzes, simulations, and techniques for individualizing instruction. The providing of simple multiple-choice quizzes did not appear to enhance online learning. The incorporation of simulations produced positive effects in two out of three studies (Castaneda 2008; Hibelink 2007). Individualizing online learning by dynamically generating learning content based on the student's responses was found to be effective in the two studies investigating this topic (Grant and Courtoreille 2007; Nguyen 2007).

Bayrak & Bayram (2010) explain that the characteristics of computer-aided teaching material, different approaches embraced in applications, and duration of application can be effective in a student's achievement in computer-aided teaching.

Related Studies

A software development and IT service firm implemented its catalyst integrated web platform to provide content management, transaction processing, marketing, and interactive community function to the two schools. Catalyst delivers on the Jones school's two primary criteria for selecting a web-based platform: simplifying content management; and enabling user response to information such as event RSVP and course registration. The content management tools let the Jones school staffs edit, update or add to the volume of the curriculum and event information without calling for technical assistance. They simply cut and paste the document into the content management system Audit for consistency and publish to the web. The school's diverse audiences, which include MBA' executive Mb As, executive education participants, and alumni, now receives prompt notification of news and events, and can RSVP for event or register online for Executive Education courses *(Jones school's Course Registration http://www.scribd.com).*

Ajman University Online Student Registration System. A system that allows students, through Internet, to register, drop, or add courses within the registration period and the Advisor to do advising for the students by approving/rejecting requested course by the student or recommending some others. It provides students the opinion to register courses, without the advisor's prior approval, offered by their colleges during the scheduled registration periods. The students can modify their courses selection by adding/ or dropping courses. However, when the registration period is over, all previously registered courses by the students will be viewable in the system.

In the study of Dharaksar (2005), the innovative e-learning techniques have drastically reduced the teaching time of computer graphics. The experience shows that these e-learning techniques make the teaching-learning process four times faster than classrooms teaching. The new method is more effective than traditional methods of teaching. It also helps a lot for the memory retention process of students for this subject and thus 60% classroom teaching can be replaced using the technique.

In a study comparing the academic achievement levels of college students who were exposed to traditional methodology, with those of college students who received traditional methodology supplemented with Computer-Assisted Instruction (CAI), showed that from the 26 conclusions, an overall mean effect size of 0.127 was calculated, indicating that, on the average, college level students receiving the traditional instruction supplemented with CAI attained higher academic achievement than did

55% of those receiving only traditional method *(Retrieved from www.springerlink.com/index/H56222W248475G02 .pdf 2009)*

In recent experimental and quasi-experimental studies contrasting blends of online and face-to-face instruction with conventional face-to-face classes, blended instruction has been more effective, providing a rationale for the effort required to design and implement blended approaches. Even when used by itself, online learning appears to offer a modest advantage over conventional classroom instruction (US Department of Education, 2009).

According to Chris Dede (2005) "Rapid advances in information technology are reshaping the learning styles of many students in higher education." As a result, advances in technology create new opportunities for higher education; emerging technologies can be used to deliver instruction matched to the learning styles of the new genre of students.

According to Garrison and Vaughan (2008) blended learning redesign is a proven approach that can enhance and expand, and ultimately transform, both the effectiveness and efficiency of the teaching and learning experience in higher education.

The study had a comprehensive grasp on how computer systems work by the use of technological knowledge based on the analysis of the existing system and literature on the study. The research came up with the idea of proposing On-Line program for the College of Computer Studies Borongan City is better than that of the traditional class room instruction, in terms of performance, Reliability and security. Since accuracy is the matter in the Online Learning Application Software, it is must be the focused in the implementation of the system, where the study is giving due importance to it.

Survey Questionnaire

The principle of this survey was to review the awareness and skills of the Students who took part in the research study regarding the use of computer and the internet facilities. The study adopted the questionnaire designed by Al-Zahrani, A (2002) and the ISO 9126 Model was originally developed in 1991 to provide a framework for evaluating software quality and then refined over a further ten year period (Abran et al. 2003).

III. Methodology

This portion covers the research methods on how the facts and relevant data were gathered, the instruments used in the study and the procedure of gathering information. This also discusses the evaluation that covered the research design, respondents of the study, data gathering procedure and statistical instrument used.

Research Design

The research used a descriptive method in this study. Descriptive statistics is concern with the gathering classification, and presentation of data and the collection of summarizing values to describe group characteristics of data. The descriptive research design is a valid method for researching specific subjects and as a precursor to more quantitative studies (Shuttleworth, 2008).The research used the descriptive method in order to obtain an overall sense of the data being analyzed in the On-line Program for the College of Computer Studies in terms of accuracy-the accurateness and error- free processing data; accessibility-the study assures the beneficiaries that the said On-Line Program has accessibility because it can be accessed easily by the users; user friendliness-which provided a good graphical user interface to achieve a satisfying performance of the application software; data security, and efficiency - which assured that the application software gave consistency and preciseness in data processing throughout the activity and to protect the application software from the access against unauthorized person and will secure all the important information of the software. The data gathered in each criterion were described for the development of the system.

The Research Environment

The location of the study was Eastern Samar State University, College of Computer Studies, Borongan City, offering two baccalaureate degrees, the Bachelor of Science in Computer Science (BSCS) and Computer Science in Information Technology (BSIT). It caters to the learning requirements of the students residing in the province of Eastern Samar.

The Eastern Samar State University was known before as Eastern Samar State College. It became a university by virtue of Batas Pambansa Blg. 349 on May 1883.

Recently, the Republic Act 8292 mandated the integration of CHED supervised instructions (CSIs) of a province to be integrated into state colleges and universities. This immensely broadened the services of the College.

9312 converting ESSC into Eastern Samar State University (ESSU), is integrating therein the external campusesof ESSC Guiuan Campus, ESSC Saceldo Campus, ESSC Maydolong Campus, ESSC Can-Avid Campus and ESSC Borongan Main Campus into University.

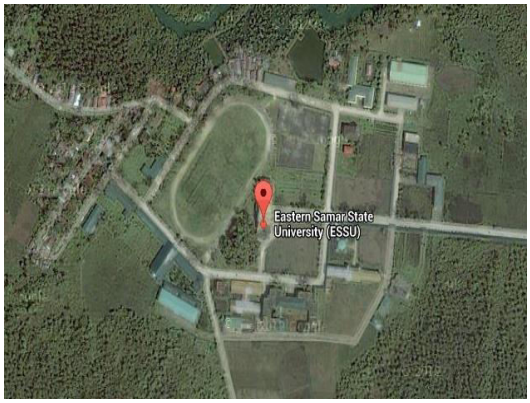

Figure 2: The Location of the Study

Respondents of the Study

The research used Sampling Technique to get samples for the collection of information needed by the researcher. The sections and year level of the programs used for the study were chosen randomly from list of course offering obtained from the college. The sampling techniques included the students' population which has a change of being selected.

The respondents of this study were the students enrolled in the College of computer Studies, Eastern Samar State University during the school year 2015-2016.Based on the actual data gathered, there was a total population of 647 enrollees in the College of Computer Studies. The research used Slovin's formula (Sevilla et al, 1992) in extracting the population. The five percent marginal of error was used to get the total number of respondents for the study. Among the enrollees, a total of 247respondentsfrom its total population were included with the use of simple random sampling method.

Percentage was used in computing the total respondent of the College of Computer Studies. Population of the respondents was determined according to the total percentage of the College.

Table 1
Population and Sample Distribution of Respondents According to program
(N=247)

Respondents / College Students	Population (N)	Sample (n)	Percentage
BSCS	217	84	34
BSIT	430	163	66
Total	647	247	100

Data Gathering Instrument

The instruments used in gathering the data were the structured questionnaire, interview, and research. The structured questionnaire was composed of three parts: The first part was to assess the data load/access time consumed in accessing the Technology Management for On-Line Program where the respondent rated every statement. The second part assessed the performance of the On-Line Program in terms of contents and usefulness. The last part was done by typing of ratings of the respondent in every statement in five areas namely Security, Accessibility, Accuracy, Efficiency, and User friendliness. The study conducted interviews using the structured questionnaire to understand the respondents' observation on the current computer trends that they know. This was used in gathering data which is necessary to make the On-line Program more reliable, efficient and effective to the users.

The data and information gathered were analyzed to understand fully the performance of the On-Line Program and to know the drawbacks of the traditional teaching method in order to provide possible solutions that will help in making the proposed On-line Program a better one.

Data Gathering Procedure

The following measures were used so that the data can obtain accessibility, efficiently and accurately. A permit was secured from the Dean of the College of Computer Studies so that the study could be conducted, and the research instruments be administered to the target respondents.

The respondents were briefed about the purpose of the study before the tests were administered to ensure that the data being sought won't be compromised in where the respondent will be convinced of the intent and confidentiality of the information.

Data Processing Technique

The evaluation was made to test if the system met the satisfaction and expectations of the users. After the evaluation of the respondents using the structured questionnaire the results was calculated of the assessment of the load/access time consumed in accessing the On-Line program in terms of Programs Offered, Enrolment Process, Assessment and Evaluation. Likewise calculated the result of the system assessment in the area of content and usefulness and lastly calculated the result in every criterion namely Security, Accessibility, Accuracy, Efficiency and User-Friendliness through the rating system given. The formula used in determining the result of the questionnaire included the formula for getting the weighted mean.

Scale	Interpretation	Parameters
5	Strongly Agree	The respondents believed that On-Line Program is effective. The level of judgment was Strongly Agree or 100% favorable
4	Agree	The respondents believed that On-Line Program is effective. The level of judgment was Agree or 80% favorable
3	Neither Agree or Disagree	The respondents believed that On-Line Program is effective. The level of judgment was Neither Agree or Disagree or 50% favorable
2	Disagree	The respondents believed that On-Line Program is effective. The level of judgment was Disagree or 40% favorable
1	Strongly Disagree	The respondents believed that On-Line Program is effective. The level of judgment was Strongly Disagree or 20% favorable

Scale	Interpretation	Parameters
5	Strongly Agree	The respondents believed that On-Line Program is useful. The level of judgment was Strongly Agree or 100% favorable
4	Agree	The respondents believed that On-Line Program is useful. The level of judgment was Agree or 80% favorable
3	Neither Agree or Disagree	The respondents believed that On-Line Program is useful. The level of judgment was Neither Agree or Disagree or 50% favorable
2	Disagree	The respondents believed that On-Line Program is useful. The level of judgment was Disagree or 40% favorable
1	Strongly Disagree	The respondents believed that On-Line Program is useful. The level of judgment was Strongly Disagree or 20% favorable

Data Treatment

The sum of the values of each item distribution was used to determine the mean. The mean is for the examination and analysis of a large collection taken from the evaluation of the On-line Program. It is helpful to be able to present a number that provides the summary for the data collection and determine the data load/access time, usefulness and effectiveness of the Proposed On-line Program.

Descriptive rating for the computed mean is as follows:

Scale	Interpretation	Parameters
4.50 - 5.00	Strongly Agree	The respondents believed that On-Line Program is accessible. The level of judgment was Strongly Agree or 100% favorable
3.50 – 4.49	Agree	The respondents believed that On-Line Program is accessible. The level of judgment was Agree or 80% favorable
2.50 – 3.49	Neither Agree or Disagree	The respondents believed that On-Line Program is accessible. The level of judgment was Neither Agree or Disagree or 50% favorable.
1.50 – 2.49	Disagree	The respondents believed that On-Line Program is accessible. The level of judgment was Disagree or 40% favorable
1.00 – 1.49	Strongly Disagree	The respondents believed that On-Line Program is accessible. The level of judgment was Strongly Disagree or 20% favorable

To answer the question on the assessment of the load/access time of the proposed On-Line Program, range of values was assigned to Descriptive rating indicated by each item.

Descriptive rating for the computed mean is as follows:

Scale	Interpretation	Parameters
4.50 - 5.00	Strongly Agree	The respondents believed that On-Line Program is useful. The level of judgment was Strongly Agree or 100% favorable
3.50 – 4.49	Agree	The respondents believed that On-Line Program is useful. The level of judgment was Agree or 80% favorable
2.50 – 3.49	Neither Agree or Disagree	The respondents believed that On-Line Program is useful. The level of judgment was Neither Agree or Disagree or 50% favorable
1.50 – 2.49	Disagree	The respondents believed that On-Line Program is useful. The level of judgment was Disagree or 40% favorable
1.00 – 1.49	Strongly Disagree	The respondents believed that On-Line Program is useful. The level of judgment was Strongly Disagree or 20% favorable

To answer the question on the usefulness of the proposed On-Line Program, range of values was assigned to Descriptive rating indicated by each item.

Descriptive rating for the computed mean is as follows:

Scale	Interpretation	Parameters
4.50 - 5.00	Strongly Agree	The respondents believed that On-Line Program is effective. The level of judgment was Strongly Agree or 100% favorable
3.50 – 4.49	Agree	The respondents believed that On-Line Program is effective. The level of judgment was Agree or 80% favorable
2.50 – 3.49	Neither Agree or Disagree	The respondents believed that On-Line Program is effective. The level of judgment was Neither Agree or Disagree or 50% favorable
1.50 – 2.49	Disagree	The respondents believed that On-Line Program is effective. The level of judgment was Disagree or 40% favorable
1.00 – 1.49	Strongly Disagree	The respondents believed that On-Line Program is effective. The level of judgment was Strongly Disagree or 20% favorable

To answer the question on the effectiveness of the proposed On-Line Program, range of values was assigned to Descriptive rating indicated by each item.

IV. Results and Discussion

This chapter presents the overall analysis of the results of evaluation, and includes discussions of the results.

Profile of the Respondents

This portion presents the personal profile of the respondents.

Age

The data on age of the students were gathered and are presented in table 2

Table 2
Age of the respondents
N=247

		Age Group				Total
		20 or Younger	21 - 30	31 - 40	41 or Older	
Gender	Male	92	23			115
	Percentage	(80%)	(20%)			(100%)
	Female	107	25			132
	Percentage	(81%)	(19%)			(100%)
Total		199	48			247
Percentage		(81%)	(19%)			(100%)

Table 2 reveals that out of 247 student respondents in the College of Computer Studies, ESSU main campus forty eight (48) or 19 percent belonged to age bracket of 21-30 years old; 119 or 81 percent were at the age bracket of 20 or younger years old. The data imply that the students in the College are within the younger group who are in technology program.

Gender

The data on gender of respondents are presented in table 3

Table 3
Gender of the respondents
N=247

Gender	Respondents	Percentage
Male	115	47%
Female	132	53%
Total	247	100%

As can be seen from Table 3, out of the 247 students in the College 115 or 47 percent were male while 132 or 53 percent were female. The data reveals that the gender of respondents of the College of Computer Studies in ESSU Borongan was dominantly female.

Load/Access Time

Data assessment on the Load/Access time of the respondents group were gathered to determine the capability of the proposed On-Line program to load or access any information needed during run time by the end- user in a short period of time.

Course Offered

Data assessment on the Load/Access time of the Proposed Technology Management for On-Line Program in terms of Courses Offered.

Table 4
Load/Access time in terms of Courses Offered.

Variable	Respondents (n=247)	
Courses Offered	**Weighted mean**	**Interpretation**
BSCS	4.32	Agree
BSIT	4.35	Agree
Average Weighted mean	4.34	Agree

Table 4 shows the speed and capability of loading/accessing the data easily with the average weighted mean of 4.34 and rated **Agree**. The average areas of Courses Offered should be seen in the proposed On-Line Program which are as follows; BSCS course rated it as 4.32 **Agree**, and BSIT course rated it as4.35 **Agree**. The result has shown that Courses Offered can be an effective tool in the On-line Program.

Enrolment Process

Data assessment on the Load/Access time of the Proposed Technology Management for On-Line Program in terms of Enrolment Process.

Table 5
Load/Access time in terms of Enrolment Process.

Variable	Respondents (n=247)	
Enrolment Process	**Weighted mean**	**Interpretation**
Creating an Account	4.40	Agree
System Registration	4.39	Agree
Course Enrollment	4.36	Agree
Average Weighted mean	4.38	Agree

Table 5 shows the speed and capability of loading/accessing the data easily with the average weighted mean of 4.38 and rated **Agree**. The average areas of Enrolment Process should be seen in the proposed On-Line Program which are as follows; Creating an Account rated it as 4.40**Agree**, System Registration 4.39and rated **Agree**, and Course Enrolment rated it as 4.36 **Agree**. The result has shown that Enrolment Process can be an effective tool in the On-line Program.

Assessment and Evaluation

Data assessment on the Load/Access time of the Proposed Technology Management for On-Line Program in terms of Assessment and Evaluation.

Table 6

Load/Access time in terms of Assessment and Evaluation.

Variable	Respondents (n=247)	
Assessment and Evaluation	**Weighted mean**	**Interpretation**
Lessons	4.46	Agree
Assignments and quizzes	4.34	Agree
Scores and Grades	4.32	Agree
Average Weighted mean	4.37	Agree

Table 6 implies the speed and capability of loading/accessing the data easily with the average weighted mean of 4.37 and rated **Agree**. The average areas of Assessment and Evaluation should be seen in the proposed On-Line Program which are as follows; Lessons rated it as 4.46 **Agree**, Assignments and Quizzes rated it as 4.34 **Agree**, and Scores and Grades rated it as 4.32 **Agree**. The result has shown that Assessment and Evaluation can be an effective tool in the On-line Program.

Table 7

Summary Table

Summary of data assessment on the Load/Access time of the Proposed Technology Management for On-Line Program.

Variable	Respondents (n=247)	
	Weighted mean	**Interpretation**
Courses Offered	4.34	Agree
Enrolment Process	4.38	Agree
Assessment and Evaluation	4.37	Agree
Average Weighted mean	4.36	Agree

The table 7 reveals the summary of the overall weighted mean of the load/Access time of the proposed On-Line Program which rated as 4.36**Agree**. The variables namely; Courses Offered obtained a result of a weighted mean of 4.34 and rated **Agree**, for Enrolment Process, 4.38 and rated as **Agree** for Assessment and Evaluation, 4.37 rated as **Agree**. The variables were rated **Agree** in general. In this study, the result has shown the positive response of the respondents in all areas along; Courses offered Enrolment Process, Assessment and Evaluation and can be an effective tool in the On-line Program. Load/access time concerns with the time consumed in accessing the On-Line Program.

System Assessment and Evaluation

This portion presents the table which describes the usefulness of the proposed On-Line Program during run time. The respondents of the study are the ESSU students from who they are direct beneficiaries of the system.

Table 8

Data Assessment of the Proposed Technology Management for On-Line Program in terms of the content.

Variable	Respondents (n=247)	
Content	**Weighted mean**	**Interpretation**
The information presented is relevant to what the learner is supposed to know and learn.	4.43	Agree
The necessary information in every page is well- organized and structured.	4.34	Agree
The system offers a complete package from discussions, up to evaluation of grades for students and teachers.	4.32	Agree
Average Weighted mean	4.36	Agree

Table 8 reveals the content of the proposed On-Line program with the average weighted mean of 4.36and rated **Agree**. The result has shown that System Content and can be an efficient in the On-line Program.

Table 9

Data Assessment of the Proposed Technology Management for On-Line Program in terms of the usefulness.

Variable	Respondents (n=247)	
Usefulness	**Weighted mean**	**Interpretation**
The system will reduce the burden of the teachers in the computation of grades.	4.48	Agree
The system will increase digital literacy skills of the students.	4.43	Agree
The system promotes interaction with the students thru the system features embedded such as forums and chat.	4.38	Agree
Average Weighted mean	4.43	Agree

Table 9 reveals the usefulness of the proposed On-Line program with the average weighted mean of4.43 and rated **Agree**. The result has shown that Usefulness of the System and can be an efficient in the On-line Program.

Table 10

Summary Table

Summary of the system assessment on the content and usefulness of the On-Line program.

Variable	Respondents (n=247)	
	Weighted mean	Interpretation
Content	4.36	Agree
Usefulness	4.43	Agree
Average Weighted mean	4.40	Agree

The table 10 reveals the summary of the overall weighted mean of the system assessment of the proposed On-Line Program which rated as 4.40 and rated **Agree**. The variables namely; Content obtained a result of a weighted mean of 4.36 and rated **Agree**, for Usefulness, 4.43 and rated **Agree**. The variables were rated **Agree** in general. In this study, the result has shown the positive response of the respondents in all areas along; Content, and Usefulness in terms of system assessment and it was concerns with the efficiency and Usefulness of the On-Line Program.

Extent of Acceptability

This portion presents the table which describes the acceptance testing of the proposed On-Line program of the respondents.

Security

The data on the performance of the Proposed Technology Management for On-Line Program in terms of security.

Table 11

Data on the performance in terms of security.

Variable	Respondents (n=247)	
Security	Weighted mean	Interpretation
Provide accounts to the user	4.46	Agree
Provide account to Admin user	4.40	Agree
Provide account to users privileges	4.41	Agree
Average Weighted mean	4.42	Agree

Table 11 shows the capability of securing the data to unauthorized user with the average weighted mean of 4.42 and rated **Agree**. The variables namely; Provide account to the user obtained a result of a weighted mean of 4.46 and rated **Agree**, for Provide account to Admin user, 4.40 and rated **Agree**, for Provide account to users privileges, 4.41 and rated **Agree**. The variables were rated **Agree** in general. The result has shown that System Security can be an effective in the On-line Program.

Accessibility

The data on the Performance of the Proposed Technology Management for On-Line Program in terms of Accessibility.

Table 12

Data on the Performance in terms of Accessibility.

Variable	Respondents (n=247)	
Accessibility	Weighted mean	Interpretation
2.1 The technology part of the course was well organized, easy to navigate, and logical.	4.44	Agree
2.2 Assignments and exams were related to the material taught in class and easy to access.	4.43	Agree
2.3 The technology in this course easy to navigate and worked well.	4.37	Agree
Average Weighted mean	4.42	Agree

Table 12 shows the capability of accessing the data easily with the average weighted mean of 4.42 and rated **Agree**. The researcher agreed that the average areas of Accessibility should be seen in the proposed On-Line Program. The result has shown that System Accessibility can be an effective in the On-line Program.

Accuracy

The data on the Performance of the Proposed Technology Management for On-Line Program in terms of Accuracy.

Table 13

Data on the Performance in terms of Accuracy.

Variable	Respondents (n=247)	
Accuracy	Weighted mean	Interpretation
3.1 Generation of grades is accurate	4.38	Agree
3.2 Data is correct, clear and valid to the intended audience	4.30	Agree
3.3 Updated information is distributed promptly	4.32	Agree
Average Weighted mean	4.33	Agree

Table 13 shows the correctness and exactness of data free from error or mistakes gained the average weighted mean of 4.33and rated **Agree**. Most of the respondents agreed that the system showed the correct and exact information needed. The average areas of Accuracy should be seen in the proposed On-Line Program. The result has shown that System Accuracy can be an effective in the On-line Program.

Efficiency

The data on the Performance of the Proposed Technology Management for On-Line Program in terms of Efficiency.

Table 14

Data on the Performance in terms of Efficiency.

Variable	Respondents (n=247)	
Efficiency	**Weighted mean**	**Interpretation**
4.1 It efficiently responds to the users request in terms of information they need.	4.43	Agree
4.2 It provides clarity or wording of information.	4.43	Agree
4.3 Course requirements were stated clearly in the syllabus.	4.41	Agree
Average Weighted mean	4.42	Agree

Table above shows the effectiveness and performing the process productively in less time and exerting effort with the average weighted mean of 4.42and rated **Agree.** The system efficiently display the precise data needed. The areas of Efficiency should be seen in the proposed On-Line Program. The result has shown that System Efficiency can be an effective in the On-line Program.

User Friendliness

The data on the Performance of the Proposed Technology Management for On-Line Program in terms of User Friendliness.

Table 15

Data on the Performance in terms of User Friendliness.

Variable	Respondents (n=247)	
User Friendliness	**Weighted mean**	**Interpretation**
Balance screen color	4.47	Agree
Readable text	4.49	Agree
Organized GUI	4.47	Agree
Average Weighted mean	4.48	Agree

The proposed On-Line Program is easily to learn or understand (user friendly) with the average weighted mean of 4.48 and rated **Agree**, and the respondents agreed that the proposed On-Line Program has a balance Screen Color which they rated as 4.47**Agree**, contains readability text 4.49 and rated **Agree,** and Organize GUI with the average weighted mean of 4.47 and rated **Agree**. The result has shown that System User Friendliness can be an effective in the On-line Program.

Table 16

Summary Table

Summary of data on the Performance of the Proposed Technology Management for On-Line Program.

Variable	Respondents (n=247)	
	Weighted mean	**Interpretation**
Security	4.42	Agree
Accessibility	4.42	Agree
Accuracy	4.37	Agree
Efficiency	4.42	Agree
User Friendliness	4.48	Agree
Average Weighted mean	4.42	Agree

The table shows the summary of the overall weighted mean of the performance of the proposed On-Line Program which rated as 4.42**Agree**. The variables namely; Security obtained a result of a weighted mean of 4.42 and rated **Agree**, 4.42and rated **Agree** for Accessibility, 4.37 and rated **Agree** for Accuracy, 4.42 and rated **Agree** for Efficiency and 4.48and rated **Agree** for User Friendliness. The variables were rated **Agree** in general. In this study, the result has shown the positive response of the respondents in all areas along; Security, Accessibility, Accuracy, Efficiency, and User Friendliness in terms of Acceptance Evaluation of the On-Line Program.

V. Summary, Findings, Conclusion and recommendation

This chapter includes the brief synopsis of the main purpose of the study undertaken. The conclusions are also presented in this chapter based on the significance of the findings and recommendation.

Summary

This study was conducted at Eastern Samar State University, Borongan City. It aimed to develop a Technology Management for On-Line Program that would disseminate information about the institution to become competitive in the trend and technology in the cyber world.

This study used a descriptive method of research wherein unstructured questionnaire was the instrument used in data gathering.

The proposed Technology Management for On-Line Program has the following elements that were used in developing the On-Line Program, which are: 1. Peopleware, is the person involved in the development of the system 2. Dataware, which contains the information about the institution, Programs Offered, Enrolment Process, Assessment and Evaluation 3. Software, which was used in the development of the On-Line Program. The software that was used in developing the On-Line

Program was MOODLE for the front-end and MySql for the back-end.

Based on the statistical analyses and computations made, the following were the findings:

Findings

The profile of respondents along Age are as follows: out of 247 students in the College of Computer Studies in ESSU main campus forty eight (48) or 19 percent belong to age bracket of 21-30 years old; 199 or eighty one percent were at the age bracket of 20 year old or younger.

The profile of respondents along Gender are as follows: out of the 247 students in the College 115 or 46.6 percent were male while 132 or 53.4 percent were female.

Regarding the structured questionnaire, it was answered by the 247 respondents and the data obtained were scored using the five-point scale. The gathered data from the questionnaire were analyzed and some mathematical formulas were applied. Based on the gathered data from the respondents for the load/access time of the system, it obtained the weighted mean of 4.34 for Programs Offered; 4.38 for enrolment process; 4.37 for assessment and evaluation; and with the overall average weighted mean of 4.36 in terms of load/access time and was rated **Agree**. For system assessment it obtained the weighted mean of 4.36 for the content; 4.43 for the usefulness; and with the overall average weighted mean of 4.40 in terms of system assessment and was rated **Agree**. For the Acceptability of the system it also obtained the weighted mean of 4.42 for Security;4.42 weighted mean for Accessibility;4.37for Accuracy; 4.42for Efficiency, and 4.48for user Friendliness, with the overall average weighted mean of 4.42 of all variables in terms of Acceptability and was rated **Agree** in general.

Conclusion

Based on the result, the following were advanced: The Technology Management for On-Line Program had been developed along with the following components such as enrolment for new and old students, assessment, and evaluation of grades.

The Technology Management for On-Line Program was evaluated and rated **Agree** with a weighted mean of 4.36 in general in terms of its load/access time.

The Technology Management for On-Line Program was evaluated and rate **Agree** with a weighted mean of 4.40 in general in terms of system assessment.

The Technology Management for On-Line Program was evaluated and rated **Agree** with a weighted mean of 4.42 in general in terms of Acceptability.

Recommendation

The result showed that the On-Line Program can provide quality, accurate, efficient, reliable and faster information to the user. This study is highly recommends the implementation and use of the Technology Management for On-Line Program for the College of Computer Studies. The personnel in charge should be computer literate and must be knowledgeable enough to maintain the system or otherwise, hire an administrator. The user must have a fast internet connection so that the students can enroll easily. It is strongly recommend that a Mozilla Firefox browser must be used in order to obtain best result because it provides startup, fast loading of web content and it has less design features which make it fast and safe.

The System Description

The On-Line Program was used to make it easier to send contents by any students taking up the computer subjects. Moodle offers a unique package for educators that want to create their own websites and offer courses that are internet- based. This web application using Moodle is useful to educators and programmers, as they can use it extensively for developing an online course that is suitable for students that wish to take an online course.

Screen Shoots

This section contains the screen shoots of the Technology Management for On-Line Program with the subpages and some details regarding on the page shown.

Home page

The home page shows the menus and some information of the institution. The application software can also add courses, chat, post, upload video and files depending on the administrator and Teacher.

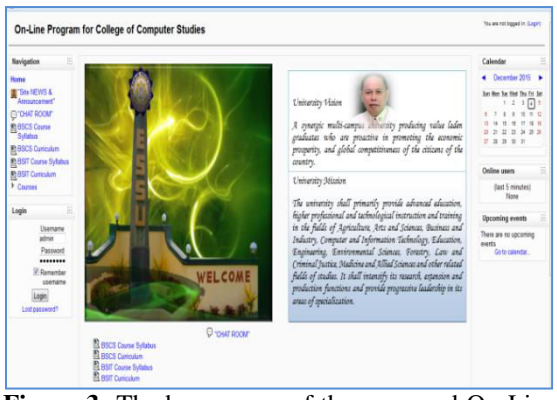

Figure 3: The home page of the proposed On-Line Program

Log-in page

This is where the user logs in to the main On-Line application. The security of the system is implemented under different user roles. It is a fixed authority depending on the rights defined in the user account form. Failure to grant the correct user level authority would not allow access to some features of the application.

Figure 4: The Log-in page of the proposed On-Line Program

Quiz page

On-Line Program quiz component is one of the most composite pieces of the On-line program. It has a supplementary great number of alternative and tools to the question engine. You can generate quizzes with dissimilar question types; allow students to re-take quizzes several times, and have the computer score the whole thing.

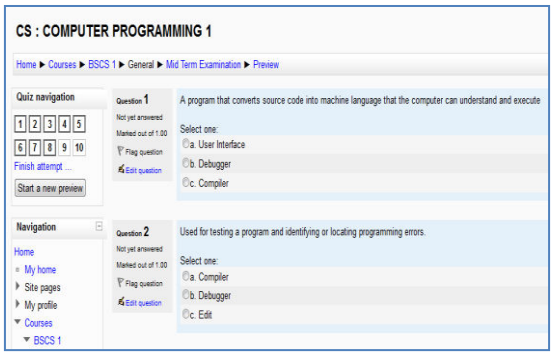

Figure 5: The proposed On-Line program Quiz page.

Lesson page

The On-Line Program application lesson page can have an assessment at the underneath of the page. The resulting page depends on the answer the student gives.

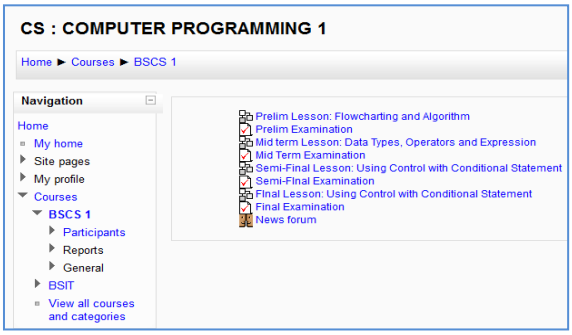

Figure 6: The proposed On-Line program Lesson page.

Navigation Block

The Navigation Block shows you where you are in the On-line Program and where you can go in the system. In the figure, you can distinguish that the learner has access to numerous courses: For now, learner is in the **Computer Programming 1**course, in the topic labeled **Prelim Lesson**. Under that topic, you can notice a selection of actions.

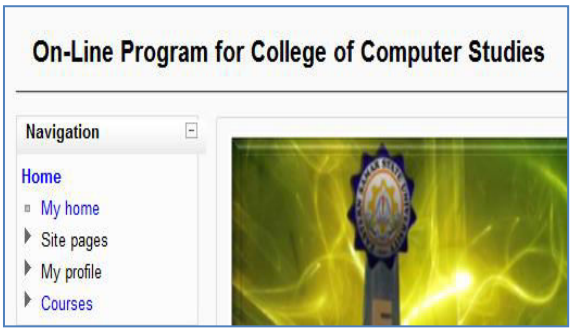

Figure 7: The proposed On-Line program Navigational Block.

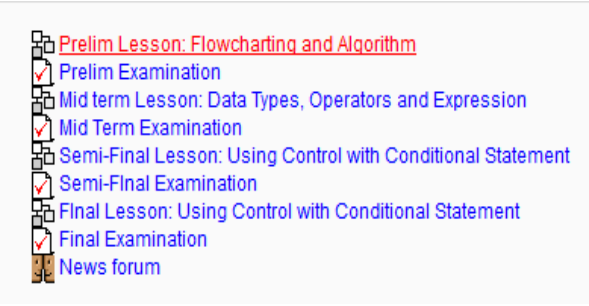

Figure 8: Available courses

Figure 9: The Proposed On-line Topics

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