

UTILIZATION OF IT RESOURCES IN THE DELIVERY OF ACADEMIC RELATED SERVICES OF LAGUNA UNIVERSITY

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Abstract

Utilization refers to the extent and status of use. It is very important to examine the information resources and services of different institutions. This study evaluated the extent of use of Information Technology resources in Laguna University (LU) in terms of hardware, software, network, database, and peopleware, focusing on the areas of admission and enrollment, classroom management, and research. LU is located at Laguna Sports Complex Village, Brgy. Bubukal, Sta. Cruz, Laguna. LU is utilizing the Laguna University Information System (iLUIIS) for admission and enrollment. They also use the e-Rizal tablet which is very appropriate for class discussions in their classroom management. And, the Record Management System is a plan for strengthening research and exposed faculty members and students in creating a research.

The IT resources were assessed through Conner's Conceptual Model for Research-Utilization Evaluation, and the National Institute of Standards and Technology (NIST) Enterprise Architecture Model for the views of stakeholders, namely, the administrator, faculty member, administrative staff, and students. The researcher distributed survey questionnaires and conducted initial interviews among stakeholders, which became the bases of information.

The results on the areas of admission and enrollment, classroom management and research proved that majority of the respondents agreed that LU maximizes the extent of utilization of IT resources together with response of stakeholders according to their range. Still, the researcher proposed an IT infrastructure model to LU for the dissemination of all the information to the different areas and stakeholders. Through this study, Hardware LU maximizes on the different resources they have but there are certain situations that they are available but no supplies to maximize the use of resources. In Software the three computer laboratories has an installed operating system and can be used for class purposes. Software availability was still depending on the budget of the Provincial Capitol as well as the Network, Database.

The Internet was available in conducting research in LU. There was lack of network facility in conducting a research. There were Network resources available but there were less communications among stakeholders in-charge. There was a minimal database for LU in conducting a research. The list of researches can be found in the Research Development Center. The database for admission and enrollment provide and handle records of students that was facilitated by the administrative in-charge. Some of the faculty members can access the system. The researcher determined the extent of utilization sufficient to the development and implementation of IT infrastructure model.

The respondents asked assistance from the provincial personnel to use them maximally. Internet is the very important on IT resources available in LU. But some respondents could not or rarely use IT resources because they did not know how to use them among other reasons.

Keywords: IT Resources, Data Base, Software, Hardware, Laguna University

1. Introduction

With the fast developments in the field of Information Technology (IT) nowadays, the education sector should not be spared in striving to cope with the latest trends and improvements. Discovery and application of new trends in IT are unstoppable. These continue to expose people to the world where anything and everything could happen so fast with the use of technology. With the introduction of IT in managing academic programs offered by different educational institutions, it somehow introduces a shift in the application of teaching strategies where the teacher becomes a facilitator or coach compared to the traditional "spoon feeder" of ideas.

Considering the responsibility of every educational institution to help students level up to meet the demands of the society and become competitive, the school plays a significant role in exposing them to the real world, along with its demands in terms of skills development and use of modern information technologies. With this, the education sector is placed into a quite inspiring yet very challenging role, in as far as developing the total being of students. However, in spite of the many technological advances being introduced in our society, most educational institutions, especially in the Philippines, are still tied to traditional methods of teaching. Even support services involved in offering academic programs in many schools remain to be very conventional. No matter what, this situation now becomes unacceptable as the world continues to adapt to the fast changing trends in utilizing IT to acquire knowledge, exchange information, learn and perform tasks in the most effective and efficient way (Holycross, 2005).

LU is considered as one of those higher education institutions that recognizes the challenge in terms of the requirement to integrate utilization of IT in managing their academic programs as well as in the delivery of support services.

The researcher conducted a study in this university to evaluate its utilization of IT resources in managing their academic programs. The evaluation focused on the extent of use of hardware, software, network, database and people. Through this study, the researcher also proposed an IT infrastructure model to LU in terms of utilization of IT resources in the areas of admission and enrolment, classroom management and marketing initiatives of the university.

This study also helped LU in improving their systems and complying with the requirements in terms of facilities and delivery of instructions. These are part of the standards that need to be complied by LU as the university now applies for accreditation through the Association of Local Colleges and Universities Commission in Accreditation (ALCU COA).

Moreover, the researcher aimed to provide LU a clear idea on what to consider in developing their IT infrastructure. This would help them in planning and organizing their IT Strategic Plan to meet the demands of the fast changing technology which is considered necessary in the effective management of their academic programs and other support services. Lastly, this study is intended to provide assistance in identifying suitable hardware and software for the laboratories as well as in establishing their network system.

1.1 Statement of the Problem

The study evaluated the utilization of IT resources in the management of academic programs of LU. Specifically, it answered the following questions:

1. What is the extent of utilization of IT resources in the delivery of academic related services in LU in terms of:
 - 1.1 hardware;
 - 1.2 software;
 - 1.3 network;
 - 1.4 database; and
 - 1.5 people?
2. How do the administrators, faculty, staff, and students assess the utilization of IT resources of the institution in managing the academic programs of the institution?
3. How do the current IT resources and extent of utilization suffice the development and implementation of a proposed IT infrastructure model of Laguna University in terms of:
 - 1.1 admission and enrollment;
 - 1.2 classroom management; and
 - 1.3 research?
4. How do the LU administrators support the implementation of IT utilization in terms of the use of the proposed IT Infrastructure Model in planning the management of IT resources in the university?

2. Methodology

2.1 Research Design

The study adopted a descriptive research design. The researcher collected data through interviews and questionnaire to see the extent of use of IT resources in LU. Descriptive research simply describes what is prevalent with respect to the issue or problem under study. It simply does not fit neatly into the definition of either quantitative or qualitative research methodologies. Instead, it can utilize elements of both, often within the same study. The term descriptive research refers to the type of research question, design, and data analysis that will be applied to a given topic. Descriptive statistics tell what is, while inferential statistics try to determine cause and effect.

2.2 Respondents of the Study

The respondents involved in this study were administrators, faculty members, administrative staff and students of LU. The researcher made use of interviews and questionnaires to evaluate the utilization of the delivery of IT resources in academic delivery services identified the gaps between the current status of utilization and what was actually required.

There was participation from all the stakeholders of LU and they were asked to evaluate the study. These came from a total of 10 administrators, 143 faculty members, 22 administrative staff and 2,738 students.

All the stakeholders were given questionnaires. Stratified sampling was applied after using Slovin's formula to get the sampling size of population. The Slovin's formula was used only for faculty members and students. For the administrators and administrative staff, total enumeration was used. The researcher conducted a test enumeration of sampling on the different stakeholders who were not in the focus of the study.

Table 2 presents the classification of the respondents involved in the study. For the samples among stakeholders a total of 100% population of Administrators including the Vice President for Academic Affairs, Vice President for Administration and Program Chairs on different Departments. For the faculty member and students, the researcher made use of Slovin's formula to compute the total number that will represent the study. Through Slovin's formula, the researcher used 10% margin of error and the total number.

Table 2. Number of respondents by organizational position

RESPONDENTS	POPULATION	SAMPLE
Administrator	10	10
Faculty Member	60	38
Administrative Staff	22	22
Students	2,738	97

2.3 Research Instrument

Triangulation is a powerful technique that facilitates validation of data through cross verification from two or more sources. In particular, it refers to the application and combination of several research methodologies in the study of the same phenomenon (Jackson 2013).

The researcher employed this method for data gathering and following the pattern of research objectives (Jackson, 2013).

Along with the triangulation method, the researcher applied make use of the historical research wherein checking was done on the history of IT resources on how LU managed their course offerings before and how they attained their current status. It was also important to know the background of IT resources on how they facilitated their delivery in academic related services. Through interviews with the selected faculty members insights on the utilization of IT resources before and now were highlighted. The ratio of computers for students in year 2011 was 3 to 1 computer. But in 2013 new computers were acquired and the ratio became 1 is to 1 computer. And still, some of the facilities such as the set up in the laboratories have not changed. In terms of academic related services, some of the software were available like the enrollment system. There had been a proposal made for grade management, however, it has not been implemented up to this time. Surveys through questionnaires was conducted to validate all the information gathered from selected faculty members.

These are the detailed procedures on how the data were gathered for the study:

1. **Interview** –There were several sets of interviews for students, faculty, administrators and personnel. The researcher asked the extent of use of IT resources in academic delivery services in LU. There were series of partial interviews conducted with LU's stakeholders. The interviews were used only for the initial data and the focus was be on the survey questionnaires.

2. **Questionnaires** – The researcher conducted a survey through questionnaires among all the teaching personnel of LU. The said questionnaires were utilized as a tool to evaluate the level of satisfaction respondents experienced on the utilization of IT resources in academic delivery services of the university.

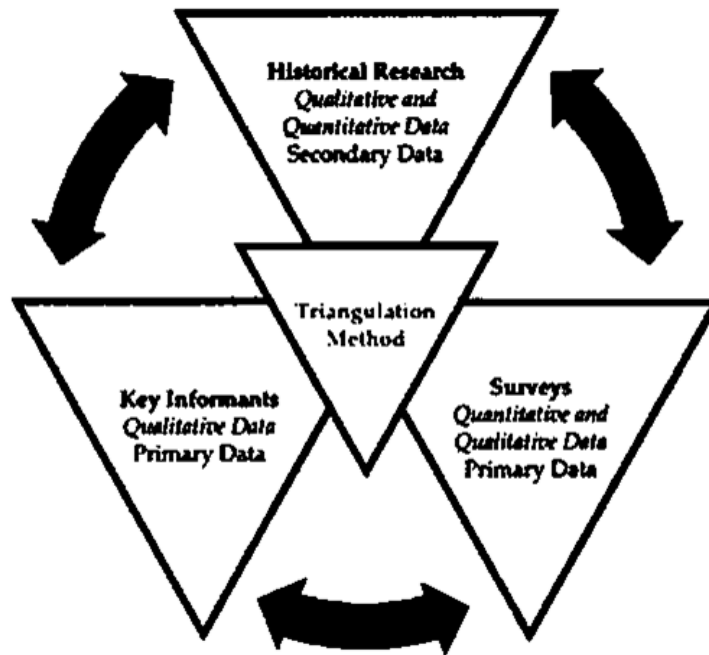


Figure 8. Triangulation method framework

2.4 Statistical Treatment

In this study, the researcher gathered both quantitative and qualitative data from the different sets of interviews and survey questionnaires. The researcher maximized the use of interviews and questionnaires in gathering and collecting data. Survey questionnaires were be used in gathering data for the research to determine and know the extent of use IT resources in LU.

The researcher used stratified sampling which is the process of selecting a sample that allows identified subgroups in the defined population to be represented in the same proportion that they exist in the population. The researcher adopted this for both proportions and stratification sampling that represents the desired strata. In the same manner, the researcher gave the survey questionnaires to LU's students, faculty, administrators and personnel.

In general, the size of the sample in each stratum was taken in proportion to the size of the stratum. The researcher took a sample of 10 other employees, stratified according to the above categories. The first step was to find the total number of 84 and calculated the percentage in each group.

The researcher utilized Likert Scale-based questions to rate the respondents' perception on the status of utilization of IT resources in the academic programs management of LU from 1 to 5, with 5 as the highest rating. The levels (or scale) were used to differentiate between very high, high, medium, low, and very low quality evaluations. Each level is accompanied by a criterion, or set of criteria, that specifies what is needed to reach that level of quality. Finally, a descriptor labels or defines each level.

Table 3 shows the rating and equivalent descriptor of the scale based on the utilization of IT resources and academic program management. The four scale was used for respondents' perception. The interpretation of responses agreed to the extent of utilization of IT resources.

Table 3. Interpretation to the extent of utilization

RANGE	EXTENT OF UTILIZATION
4.2 – 5.0	Very High
3.4 – 4.1	High
2.6 – 3.3	Average
1.8 – 2.5	Low
1.0 – 1.7	Very Low

Table 4 displays the interpretation of responses according to range of responses of the different stakeholders. With the rating of 5 – Always, 4 – Usually, 3 – Sometimes, 2- Rarely and 1 – Never.

Table 4. Interpretation of responses and the corresponding range

RATING	VERBAL DESCRIPTION
5	Always
4	Usually
3	Sometimes
2	Rarely
1	Never

3. Results and discussion

This chapter presents the analysis and interpretation of the results of the survey conducted by the researcher. This section also aims to answer the objectives as a basis for the development of a backup and security model. The researcher administered survey questionnaires to the administrators, faculty member, administrative staff and students of LU as respondents.

Objective No. 1: To evaluate the extent of use of IT resources in Laguna University in the areas of admission and enrollment, classroom management and research in terms of:

- 1.1. hardware
- 1.2. software
- 1.3. network
- 1.4. database
- 1.5. people

Table 5 shows the extent of utilization in hardware. In terms of admission and enrollment, administrators responded “average” with the mean of 3.03 on the extent of utilization and interpreted as “sometimes” on response according to range. One of the 10 administrators said that there were computers and printers available but insufficient, and there was no ink available. With regard to availability of printers, there were only few in selected offices. Their laboratory was not connected to local area network (LAN); connection was only for computer laboratories. Some of the hardware in IT resources were on a personal property basis.

Faculty members answered “high” with a mean of 3.54 on the extent of utilization and resulted to “sometimes” on response according to range. They stated that admission and enrollment were part of the Registrar’s Office work as well as assigned administrators, if there is an IT administrators. There were sufficient equipment for ICT procedures. The LU provided the equipment for the admission and enrollment. Some of the faculty members said that they helped in enrollment procedure. Manual procedure was being used. Two of the faculty members said that sometimes there was no printed form.

The administrative staff responded “average” with a mean of 3.30 on the extent of utilization and interpreted as “sometimes” on response according to range. Based from the interview, MIS office was available in LU but there was no communication between MIS and other offices specifically with Registrar’s Office. Students answered “high” with a mean of 3.91 on the extent of utilization and interpreted as “sometimes” on response according to range. They said that there was an official enrollment form for each student which was printed and available for students.

For the classroom management, the administrators answered “low” with a mean of 2.53 on the extent of utilization and interpreted as “sometimes” on response according to range. Two out of 10 administrators reported that there were limited LCD projectors installed in the lecture rooms. Some said that there was none in the lecture room. Computer laboratories were properly ventilated with multimedia system for demonstration and visual purposes.

Faculty members answered “average” with a mean of 3.22 on the extent of utilization and interpreted as “sometimes” on response according to range. They said that there were only 2 out of 3 laboratories that had LCD projector. Some used their own personal equipment. The administrative staff responded “high” with a mean of 3.44 on the extent of utilization and interpreted as “sometimes” on response according to range. Offices were very well ventilated. But they remarked that there were no available breakers in the different offices. Students answered “high” with a mean of 3.52 on the extent of utilization and interpreted as “sometimes” on response according to range. They cited that they were satisfied on the computer laboratories and lecture rooms in LU. These were conducive in learning for the different courses.

For the research, administrators answered “low” with a mean of 2.47 on the extent of utilization and interpreted as “rarely” on response according to range. The number of computers in terms of facilitating and conducting research in the institution is considered low. Faculty members answered “average” with a mean of 2.89 on the extent of utilization and interpreted as “rarely” on response according to range. In terms of facility for conducting research which can be found in the library, some of the faculty members said that there was no Internet connection. Several of the faculty members explained that they were not aware of the plan of LU in conducting a research.

The administrative staff answered “high” with a mean of 3.18 on the extent of utilization and interpreted as “sometimes” on response according to range. Research materials can be found in the library and in the Research Development Center. Students answered “high” with a mean of 3.45. These results mostly are due to students’ satisfaction on the performance of e-Rizal Tablet in the library having ICT for performing research.

The overall mean is 3.21 which is “average” on the extent of utilization of hardware and interpreted as “sometimes” on response according to range.

Table 5. Extent of utilization in hardware

HARDWARE				
Respondents	Administrators	Faculty Members	Administrative Staff	Students
Admission and Enrolment	3.03	3.54	3.30	3.91
Classroom Management	2.53	3.22	3.44	3.52
Research	2.47	2.89	3.18	3.45
Overall mean				3.21
Extent of Utilization				Average
Extent of Utilization: 4.2-5.0-Very High 3.4-4.1-High 2.6-3.3-Average 1.8-2.5-Low 1.0-1.7-Very Low				
Responses on Corresponding Range: 5-Always 4-Usually 3-Sometimes 2-Rarely 1-Never				

As indicated in Table 6, administrators answered “low” with a mean of 2.54 on the extent of utilization of software and interpreted as “rarely” on response according to range which denotes that there was a system for admission and enrollment but were not sufficient to some of the procedures in the LU. The availability of software can be seen in the offices only. Sulayman (2009) proposed a systematic literature review of software process improvement for companies and organizations. It has been observed that software process improvement emerges and become challenges among companies.

Faculty members answered “average” with a mean of 3.24 on the extent of utilization and interpreted as “sometimes” on response according to range which implies that the system for the admission and enrollment had limited access only for the professors who were authorized in performing ICT on admission and enrollment procedures. The administrative staff answered “average” with a mean of 3.07 on the extent of utilization and interpreted as “sometimes” on response according to range which indicates that that there was a system in performing ICT in accepting enrollees but sometimes the manual procedure is used for some of the procedures in enrollment. Students answered “high” with a mean of 3.78 on the extent of utilization and resulted sometimes on response according to range for having a system that facilitated their admission and enrollment. The problem, however, was in the time of waiting for their turn due to many enrollees and sometimes due to slow process.

In classroom management, administrators answered “average” with a mean of 2.80 on the extent of utilization and interpreted as “rarely” on response according to range. According to 5 out of 10 administrators, from their interviews, the operating systems were in good condition but instructional materials were not sufficient for all facilities in LU. Faculty members answered “low” with a mean of 2.52 on the extent of utilization and interpreted as “rarely” on response according to range. There was no WiFi inside the laboratories. Sometimes, it depended on the availability of connections in the administrative offices. For the system where professors can upload their teaching materials, they said that it was available on the e-Rizal Tablet.

Faculty members sought for their own website that will be helpful in the subjects that they teach. The administrative staff answered “average” with a mean of 2.87 on the extent of utilization and interpreted as “rarely” on response according to range, because sometimes. There was a WiFi connection in their offices. There was a website for the administrative staff for information updates but they failed to update the system because of lack of communication. Students answered “high” with a mean of 3.41 on the extent of utilization and interpreted as “sometimes” on response according to range. This denotes that there were quality software provided for their different subjects. There was also a website for the course resources that were available for the students. WiFi was located only at the academic offices.

Administrators answered “average” on Research with a mean of 2.30 on the extent of utilization and interpreted as “rarely” on response according to range, which implies that there different researches in the Research Development Center but some administrators are not aware of how to disseminate research availability in the institution. Faculty members answered “low” with a mean of 2.52 on the extent of utilization and interpreted as “rarely” on response according to range which signifies that there is no system and software for professors in conducting a research. In conducting a Research for Software, research is not applicable on the work of an administrative staff. Students answered “average” with a mean of 3.23 on the extent of utilization and interpreted as “sometimes” on response according to range. The students remarked that they were maximizing the use of the e-Rizal Tablet.

The overall mean is 2.93 which is “average” on the extent of utilization on software and interpreted as “rarely” on response according to range and the extent of utilization.

Table 6. Extent of utilization in software

SOFTWARE				
Respondents	Administrators	Faculty Members	Administrative Staff	Students
Admission and Enrolment	2.45	3.24	3.07	3.78
Classroom Management	2.80	2.52	2.87	3.41
Research	2.30	2.52	Not applicable	3.23
Overall mean				2.93
Extent of Utilization				Average

Extent of Utilization: 4.2-5.0-Very High 3.4-4.1-High 2.6-3.3-Average 1.8-2.5-Low
1.0-1.7-Very Low

Responses on Corresponding Range: 5-Always 4-Usually 3-Sometimes
2-Rarely 1-Never

As displayed in Table 7 on extent of utilization in network, in terms of admission and enrollment, administrators answered “low” with a mean of 2.47 and interpreted as “rarely” on response according to range. This means that the local area network (LAN) that interconnects computers within the area of the LU were available only in the computer laboratories and some were on personal basis. There were network facilities for admission and enrollment that are not utilized. In the case study of Lundstrom, it is still unknown how the successful bridges structural holes and the characteristics influence network.

Faculty members answered “low” with a mean of 2.45 on the extent of utilization and interpreted as “rarely” on response according to range. This suggests that before, the connection of laboratories was networked in the first laboratory of LU. But due to many enrollees, there was an additional computer laboratory which was not yet networked until this time. Administrative staff answered “average” with a mean of 2.63 on the extent of utilization and interpreted as “rarely” on response according to range. It indicates that there was no LAN connection in the different offices. Haucap and Klein 2013, showed how network affects service quality in organizations and analyzed network regulation that affected investments into network infrastructure.

The offices have their own means of connections, but the MIS office is working on it. Students answered “high” with a mean of 3.45 on the extent of utilization and interpreted as “sometimes” on response according to range. This implies that there was a room provided to them for having a network on different procedures on admission and enrollment.

For the classroom management, administrators answered “low” with a mean of 2.21 on the extent of utilization and interpreted as “rarely” on response according to range which indicates that there was lack of licensed software required by CHED. In facilitating network for classroom, there was no available network equipment due to no Internet connection. Faculty members answered “low” with a mean of 2.43 on the extent of utilization and interpreted as “rarely” on response according to range and said that there was a lack of network equipment to have connections in the three computer laboratories. But there was a HUB switch for the connection of computers inside the laboratories. Having a network for classroom management was not applicable to the field of work of the administrative staff. Students answered “high” with a mean of 3.51 on the extent of utilization and interpreted as “sometimes” on response according to range. There is a network connection whenever they need to share files in the laboratories during subject discussions.

For the research, administrators they answered “low” with a mean of 1.90 on the extent of utilization and interpreted as “never” on response according to range. There was always no Internet connection to facilitate research in LU. Faculty members answered “low” with a mean of 2.24 on the extent of utilization and interpreted as “rarely” on response according to range. It means that there is lack of network facility in conducting research. But there is a plan for having network facilities for Research and Development Center. Administrative staff answered “average” with a mean of 2.73 on the extent of utilization and interpreted as “rarely” on response according to range. There is a list of student-researchers in the library and Research Development Center. Students answered “average” with a mean of 3.23 on the extent of utilization and interpreted as “sometimes” on response according to range. It means that students maximized the use of e-Rizal Tablet that can be found in LU Library.

The overall mean is 2.66 which is “average” on the extent of utilization in network and interpreted as “rarely” on response according to range and the extent of utilization.

Table 7. Extent of utilization in network

NETWORK				
Respondents	Administrators	Faculty Members	Administrative Staff	Students
Admission and Enrolment	2.47	2.45	2.63	3.45
Classroom Management	2.21	2.43	Not applicable	3.51
Research	1.90	2.24	2.73	3.23
Overall mean				2.66
Extent of Utilization				Average

Extent of Utilization: 4.2-5.0-Very High 3.4-4.1-High 2.6-3.3-Average 1.8-2.5-Low
1.0-1.7-Very Low

Responses on Corresponding Range: 5-Always 4-Usually 3-Sometimes
2-Rarely 1-Never

As shown in Table 8 on the extent of utilization in database, for the admission and enrollment, administrators answered “low” with a mean of 2.55 on the extent of utilization and interpreted as “rarely” on response according to range. There was a database system that keeps records of students but it was not shared to all departments. Faculty members answered “average” with a mean of 2.70 on the extent of utilization and interpreted as “rarely” on response according to range. There was a database for admission and enrollment provided that handled records of students but not all professors can access the system.

MIS as studied by Gorry and Scott (2004), stated that in viewing management system, it is essential to an organization to plan effectively and to make sensible allocations of resources to information tasks. Administrative staff answered “average” with a mean of 2.84 on the extent of utilization and interpreted as “rarely” on response according to range. This shows that there was a system called Integrated Laguna University Information System (iLUIIS) database that supports to keep records of students. Students answered “high” with a mean of 3.82 on the extent of utilization and interpreted as “sometimes” on response according to range. The students also experienced a system that accommodates them in their admission and enrollment.

For the classroom management, administrators answered “low” with a mean of 2.21 on the extent of utilization and interpreted as “rarely” on response according to range. There was a minimal database software that was being used. Faculty members answered “average” with a mean of 2.65 on the extent of utilization and interpreted as “rarely” on response according to range. This indicates that there was a database that handles the data of students. Administrative staff answered “average” with a mean of 2.91 on the extent of utilization and interpreted as “rarely” on response according to range. It proves that they can use their office’s manual database in keeping the records of students particularly on how long they have rendered their services in their offices. Students answered “high” with a mean of 3.47 on the extent of utilization and interpreted as “sometimes” on response according to range. It indicates that students saw the different records and system from their professors.

For research, administrators answered “low” with a mean of 2.20 on the extent of utilization and interpreted as “rarely” on response according to range. This implies that there was minimal database for the LU, as well as in its use in their lessons in classrooms and laboratories. Faculty members answered “low” with a mean of 2.24 on the extent of utilization and interpreted as “rarely” on response according to range. It implies that there was no computer that keeps record of the researches in LU. Some faculty members said that researches’ list can be found in the Research Development Center. Administrative Staff answered “average” with a mean of 2.95 on the extent of utilization and interpreted as “rarely” on response according to range. This infers that some researches were available in LU. Students answered “high” with a mean of 3.49 on the extent of utilization and interpreted as “sometimes” on response according to range. They specified that in every department in LU, students conduct researches and visit best practices in performing researches.

The overall mean is 2.83 which is “average” on the extent of utilization in database and interpreted as “rarely” on response according to range.

Table 8. Extent of utilization in database

DATABASE				
Respondents	Administrators	Faculty Members	Administrative Staff	Students
Admission and Enrolment	2.55	2.70	2.84	3.82
Classroom Management	2.21	2.65	2.91	3.47
Research	2.20	2.24	2.95	3.49
Overall mean				2.83
Extent of Utilization				Average

Extent of Utilization: 4.2-5.0-Very High 3.4-4.1-High 2.6-3.3-Average 1.8-2.5-Low
1.0-1.7-Very Low
Responses on Corresponding Range: 5-Always 4-Usually 3-Sometimes
2-Rarely 1-Never

Table 9 presents the extent of utilization in peopleware. For the admission and enrollment, administrators answered “average” with a mean of 2.82 on the extent of utilization and interpreted as “rarely” on response according to range. LU provided a plan for IT development. There was no particular IT administrator in the current time for admission and enrollment. Faculty members answered “average” with a mean of 2.91 on the extent of utilization and interpreted as “rarely” on response according to range. This means that LU provided a plan and actively participated in admission and enrollment. Vancouver Island University has the plan for transforming IT process of teaching and learning that reduced barriers to education.

Administrative staff answered “average” with a mean of 3.14 on the extent of utilization and interpreted as “sometimes” on response according to range. It indicates that the staff actively participated in the formulation and updating on utilization of IT resources in admission and enrollment. Students answered “high” with a mean of 3.65 on the extent of utilization and interpreted as “sometimes” on response according to range. They saw to it that LU provides those new IT ventures and plan for development of IT in admitting students.

For the classroom management, administrators answered “average” with a mean of 2.80 on the extent of utilization and interpreted as “rarely” on response according to range. IT implies that there was an alignment of vertical articulation in LU management. The different faculty members and administrative staff will be on their field of expertise. Faculty members answered “high” with a mean of 3.85 on the extent of utilization and interpreted as “sometimes” on response according to range. The professors were aligned on their field of specialization and were taking up Master’s program to be one step higher than their students and to provide more quality education at this time. Administrative staff answered “average” with a mean of 3.16 on the extent of utilization and interpreted as “sometimes” on response according to range. The administrative staff, in their field of specialization, they were focusing on the needs of LU in their designated offices. Students answered “high” with a mean of 3.58 on the extent of utilization and interpreted as “sometimes” on response according to range. The different professors were aligned and equipped on their field of specialization for the students. Evaluations are important and for students so that they are not left behind by other universities.

In research, administrators answered “average” with a mean of 2.60 on the extent of utilization and interpreted as “rarely” on response according to range. LU conducted trainings, planed and did researches to ensure quality awareness. Faculty members answered “low” with a mean of 2.50 on the extent of utilization and interpreted as “rarely” on response according to range. They stated that professors had no seminar on conducting a research, but there was a plan for strengthening research with a seminar. Administrative staff answered “average” with a mean of 3.14 on the extent of utilization and interpreted as “sometimes” on response according to range.

Researchers’ lists are available in some of the designated offices in LU. Students answered “high” with a mean of 3.31 on the extent of utilization and interpreted as “sometimes” on response according to range. The departments provided plans and activities in conducting researches. Professors conducted research activities within their subject matter. Administrative staff answered 3.14 on the extent of utilization and resulted sometimes on response according to range. They had researches in their designated offices. Students answered 3.31 on the extent of utilization and interpreted as “sometimes” on response according to range. The departments provided activities in conducting a research.

The overall mean is 3.12 which is “average” on the extent of utilization and interpreted as “sometimes” on response according to range.

Table 9. Extent of utilization in peopleware

PEOPLEWARE				
Respondents	Administrators	Faculty Members	Administrative Staff	Students
Admission and Enrolment	2.82	2.91	3.14	3.65
Classroom Management	2.80	3.85	3.16	3.58
Research	2.60	2.50	3.14	3.31
Overall mean				3.12
Extent of Utilization				Average

Extent of Utilization: 4.2-5.0-Very High 3.4-4.1-High 2.6-3.3-Average 1.8-2.5-Low
1.0-1.7-Very Low

Responses on Corresponding Range: 5-Always 4-Usually 3-Sometimes
2-Rarely 1-Never

Objective No. 2: To analyze how the administrators, faculty, staff and students assess the utilization of IT resources of the institution in managing the academic programs of the institution.

As exhibited in Table 10, the overall mean on the extent of utilization is 2.49 and interpreted as “rarely” on response according to range. It states that the extent of utilization is “low” on how the administrators assessed the utilization of IT resources on admission and enrollment, classroom management and research based on the different IT resources such as hardware, software, network, database, and peopleware.

Table 10. Administrators Response on extent of utilization

	HARDWARE	SOFTWARE	NETWORK	DATABASE	PEOPLEWARE
Admission and Enrolment	3.03	2.45	2.47	2.55	2.82
Classroom Management	2.53	2.80	2.21	2.21	2.80
Research	2.47	2.30	1.90	2.20	2.60
Overall mean					2.49
Extent of Utilization					Low

Extent of Utilization: 4.2-5.0-Very High 3.4-4.1-High 2.6-3.3-Average 1.8-2.5-Low
1.0-1.7-Very Low

Responses on Corresponding Range: 5-Always 4-Usually 3-Sometimes
2-Rarely 1-Never

Table 11 shows that the overall mean, on the extent of utilization is 2.80 and interpreted as “rarely” on response according to range. It indicates that the extent of utilization is “average” on how the faculty members assessed the utilization of IT resources on admission and enrollment, classroom management, and research based on the different IT resources such as hardware, software, network, database and peopleware.

Table 11. Faculty Members Response on extent of Utilization

	HARDWARE	SOFTWARE	NETWORK	DATABASE	PEOPLEWARE
Admission and Enrolment	3.54	3.24	2.45	2.70	2.91
Classroom Management	3.22	2.52	2.43	2.65	3.85
Research	2.89	2.52	2.37	2.24	2.50
Overall mean					2.80
Extent of Utilization					Average

Extent of Utilization: 4.2-5.0-Very High 3.4-4.1-High 2.6-3.3-Average 1.8-2.5-Low
1.0-1.7-Very Low

Responses on Corresponding Range: 5-Always 4-Usually 3-Sometimes
2-Rarely 1-Never

Table 12 reveals that the overall mean on the extent of utilization is 3.03 and interpreted as “sometimes” on response according to range and it states that the extent of utilization is “average” on how the response of administrative staff assessed the utilization of IT resources on admission and enrollment, classroom management, and research based on the different IT resources such as hardware, software, network, database and peopleware.

VIU’s Information Technology Plan (2012), stated that IT is a strategic tool to facilitate innovation in teaching. The following trends such as virtualization, patter and analytics are very much important and it will affect further the utilization of IT resources.

Table 12. Administrative Staff Response on extent of utilization

	Hardware	Software	Network	Database	Peopleware
Admission and Enrolment	3.30	3.07	2.63	2.84	3.14
Classroom Management	3.44	2.87	Not applicable	2.91	3.16
Research	3.18	Not applicable	2.73	2.95	3.14
Overall mean					3.03
Extent of Utilization					Average

Extent of Utilization: 4.2-5.0-Very High 3.4-4.1-High 2.6-3.3-Average 1.8-2.5-Low
1.0-1.7-Very Low

Responses on Corresponding Range: 5-Always 4-Usually 3-Sometimes
2-Rarely 1-Never

Table 13 shows that overall mean on the extent of utilization is 3.52 and interpreted as “sometimes” on response according to range. It states that the extent of utilization is “high” on how the response of Administrative Staff assessed the utilization of IT resources on admission and enrollment, classroom management, and research based on the different IT resources such as hardware, software, network, database and peopleware.

Table 13. Students Response on extent of utilization

	HARDWARE	SOFTWARE	NETWORK	DATABASE	PEOPLEWARE
Admission and Enrolment	3.91	3.78	3.45	3.82	3.65
Classroom Management	3.52	3.41	3.51	3.47	3.58
Research	3.45	3.23	3.23	3.49	3.31
Overall mean					3.52

Extent of Utilization				High
Extent of Utilization: 4.2-5.0-Very High 1.0-1.7-Very Low		3.4-4.1-High	2.6-3.3-Average	1.8-2.5-Low
Responses on Corresponding Range:		5-Always 2-Rarely	4-Usually 1-Never	3-Sometimes

Objective No. 3: To determine whether current IT resources and extent of utilization suffice the development and implementation of a proposed IT infrastructure model of Laguna University in terms of:

- 1.1 admission and enrollment
- 1.2 classroom management
- 1.3 research

Table 14 exposes the overall mean on the extent of utilization on admission and enrollment is 3.09 and interpreted as “sometimes” on response according to range. It implies that the extent of utilization is “average” on admission and enrollment based on how the response of administrators, faculty members, administrative staff and students assessed hardware, software, network, database and peopleware.

Table 14. Utilization of IT resources on admission and enrollment

	HARDWARE	SOFTWARE	NETWORK	DATABASE	PEOPLEWARE
Administrators	3.03	2.45	2.47	2.55	2.82
Faculty Members	3.54	3.24	2.45	2.70	2.91
Administrative Staff	3.30	3.07	2.63	2.84	3.14
Students	3.91	3.78	3.45	3.82	3.65
Overall mean					3.09
Extent of Utilization					Average

Extent of Utilization: 4.2-5.0-Very High 1.0-1.7-Very Low		3.4-4.1-High	2.6-3.3-Average	1.8-2.5-Low
Responses on Corresponding Range:		5-Always 2-Rarely	4-Usually 1-Never	3-Sometimes

Table 15 exposes the overall mean on the extent of utilization on classroom management is 3.00 and interpreted as “sometimes” on response according to range. It implies that the extent of utilization is “average” on classroom management, based on how the response of administrators, faculty members, administrative staff and students assessed hardware, software, network, database, and peopleware.

Table 15. Utilization of IT resources on classroom management

	HARDWARE	SOFTWARE	NETWORK	DATABASE	PEOPLEWARE
Administrators	2.53	2.80	2.21	2.21	2.80
Faculty Members	3.22	2.52	2.43	2.65	3.85
Administrative Staff	3.44	2.87	Not applicable	2.91	3.16
Students	3.52	3.41	3.51	3.47	3.58
Overall mean					3.00
Extent of Utilization					Average

Extent of Utilization: 4.2-5.0-Very High 1.0-1.7-Very Low		3.4-4.1-High	2.6-3.3-Average	1.8-2.5-Low
Responses on Corresponding Range:		5-Always 2-Rarely	4-Usually 1-Never	3-Sometimes

Table 16, exposes the overall mean on the extent of utilization on research is 2.77 and interpreted as “rarely” on response according to range. It implies that the extent of utilization is “average” on research based on the response of administrators, faculty members, administrative staff and students assessed hardware, software, network, database and peopleware.

Table 16. Utilization of IT resources on research

	HARDWARE	SOFTWARE	NETWORK	DATABASE	PEOPLEWARE
Administrators	2.47	2.30	1.90	2.20	2.60
Faculty Members	2.89	2.52	2.37	2.24	2.50
Administrative Staff	3.18	Not applicable	2.73	2.95	3.14
Students	3.45	3.23	3.23	3.49	3.31
Overall mean					2.77

			Extent of Utilization	Average
Extent of Utilization:	4.2-5.0-Very High 1.0-1.7-Very Low	3.4-4.1-High	2.6-3.3-Average	1.8-2.5-Low
Responses on Corresponding Range:	5-Always 2-Rarely	4-Usually 1-Never	3-Sometimes	

Objective No. 4: To support and implement IT utilization in terms of the use of the proposed IT Infrastructure Model in planning the management of IT resources in LU.

Table 17 shows that 3.09 is the overall mean on the extent of utilization and interpreted as “sometimes” on response according to range. It proves that the extent of utilization is “average” on admission and enrollment based on how the response of administrators, faculty members, administrative staff, and students assessed the hardware, software, network, database and peopleware. In terms of the support of IT infrastructure model that help in planning the management of IT resources in LU, stakeholders agreed to give support as much as they can do.

Table 17. Utilization of IT resources on admission and enrolment

	HARDWARE	SOFTWARE	NETWORK	DATABASE	PEOPLEWARE
Administrators	3.03	2.45	2.47	2.55	2.82
Faculty Members	3.54	3.24	2.45	2.70	2.91
Administrative Staff	3.30	3.07	2.63	2.84	3.14
Students	3.91	3.78	3.45	3.82	3.65
Overall mean					3.09
Extent of Utilization					Average

Extent of Utilization:	4.2-5.0-Very High 1.0-1.7-Very Low	3.4-4.1-High	2.6-3.3-Average	1.8-2.5-Low
Responses on Corresponding Range:	5-Always 2-Rarely	4-Usually 1-Never	3-Sometimes	

Table 18 presents that 3.00 is the overall mean on the extent of utilization and interpreted as “sometimes” on response according to range. It proves that the extent of utilization is “average” on classroom management based on the response of administrators, faculty members, administrative staff, and students assessed hardware, software, network, database and peopleware. In terms for the support of IT infrastructure model that help in planning the management of IT resources in LU.

Table 18. Utilization of IT resources on classroom management

	HARDWARE	SOFTWARE	NETWORK	DATABASE	PEOPLEWARE
Administrators	2.53	2.80	2.21	2.21	2.80
Faculty Members	3.22	2.52	2.43	2.65	3.85
Administrative Staff	3.44	2.87	Not applicable	2.91	3.16
Students	3.52	3.41	3.51	3.47	3.58
Overall mean					3.00
Extent of Utilization					Average

Extent of Utilization:	4.2-5.0-Very High 1.0-1.7-Very Low	3.4-4.1-High	2.6-3.3-Average	1.8-2.5-Low
Responses on Corresponding Range:	5-Always 2-Rarely	4-Usually 1-Never	3-Sometimes	

Table 19 reveals that the overall mean on the extent of utilization is 2.77and interpreted as “rarely” on response according to range. It proves that the extent of utilization is average on research based on the response of administrators, faculty members, administrative staff, and students assessed hardware, software, network, database and peopleware.

Table 19. Utilization of IT resources on research

	HARDWARE	SOFTWARE	NETWORK	DATABASE	PEOPLEWARE
Administrators	2.47	2.30	1.90	2.20	2.60
Faculty Members	2.89	2.52	2.37	2.24	2.50

Administrative Staff	3.18	Not Applicable	2.73	2.95	3.14
Students	3.45	3.23	3.23	3.49	3.31
Overall mean					2.77
Extent of Utilization					Average

Extent of Utilization: 4.2-5.0-Very High
1.0-1.7-Very Low

3.4-4.1-High

2.6-3.3-Average

1.8-2.5-Low

Responses on Corresponding Range:

5-Always
2-Rarely

4-Usually
1-Never

3-Sometimes

4. Conclusion and recommendation

The following conclusions are drawn from the study conducted:

Stakeholders agreed that the results of hardware, mostly resulted in average rating in terms of the extent of utilization of IT resources and on the corresponding range responses. LU maximizes the different resources they have. There are different resources in LU, especially the hardware for performing admission and enrollment procedures. However, there are certain situations that these are available but no supplies to maximize the use of resources. Most of the stakeholders are aware of the importance of IT utilization in the delivery of academic program management. Majority of the respondents are quite aware of the availability of the IT resources in LU and understand the potentials of each resources. They consider the resources useful to their academic activities, such that majority of them make use of the resources regularly.

The three computer laboratories had an installed operating system and can be used for class purposes. The faculty members revealed in the interviews that the operating systems were in good condition. Software availability was still depending on the budget of the Provincial Capitol as well as the network and database.

The Internet is available in conducting research in LU. There is lack of network facility in conducting a research. With regard to how the stakeholders assessed the utilization of IT resources in managing academic programs, the administrators and faculty member stated a “low” result. This means that there is lack of IT resources in their programs. The faculty members and administrative staff indicated an “average” result. The student’s gave a “high” rating. It means they really considered all the resources in LU. There are IT resources available but there are less communications in LU.

There is a minimal database for LU in conducting a research. The researches list can be found in the Research Development Center. The database for admission and enrollment provided and handled the records of students. This was facilitated by the administrative-in-charge and some of the faculty members can access the system. The students were also accommodated in the database. People The researcher was able to determine the sufficiency of the extent of utilization for the development and implementation of IT infrastructure model. LU needs to be equipped with the different procedures in order to establish its technology through IT infrastructure. The respondents require assistance of the Provincial Government personnel to use IT resources maximally. Internet is the very important on IT resources available in LU to the stakeholders perhaps due to its usefulness. Some stakeholders could not or rarely use IT resources because they do not know how to use them among other reasons.

Based on the results and analyses made, the researcher highly recommended the following:

The Administrators should see to it that all the IT resources are well maximized in LU. It is also advised that there should be a proposed budget to support the IT resources that already exist and provide a supply for all those equipment available like ink for the printers. The different procedures on having an equipment approved in the Supply Office should always be followed up by the stakeholders-in-charge for that procedures. For all the stakeholders in LU, there should be a seminar for the awareness of every resources available for them.

The three computer laboratories had an installed operating system and can be used for class purposes. Operating System was in good condition. The software availability, as well as the network database, was still depending on the budget of the Provincial Capitol. But these are in need of proper monitoring in all the equipment available in LU.

LU has Internet connection available but a faculty member remarked that there was lack of network facility in conducting a research. There are IT resources that are used and available but there are less communications in LU. It is recommended that LU provides more terminals and other network equipment that would be sufficient for the whole buildings of LU.

As mentioned, there was a minimal database for LU in conducting a research. The list of researches can be found in the Research Development Center. It is recommended that there must be proper database software or a suitable system provided for the Research and Development Center to serve all the researches of stakeholders particularly the faculty members. Researches can be found in the system containing a database. In admission and enrollment, there must provide and handle records of students that was facilitated by the administrative in charge and some of the faculty member can access the system. The students was also accommodated in the database. There must be monthly monitoring and evaluation of iLUIS system so it can provide a database which do not contain errors and wrong outputs for LU.

It is further recommended that the IT infrastructure model be used, monitored and implemented especially in the functions of hardware, software, network, database, and peopleware on the different areas of admission and enrollment, classroom management, and research. People should still be subjected to availability of positions or based on the need of LU. The researcher designed an IT infrastructure model which includes the stakeholders and a need for user and support on the

developed IT Infrastructure. This model was based from theoretical framework of Conner's Conceptual Model for Research Utilization Evaluation and NIST Enterprise Architecture Model. The communications will be organized and practiced on the different areas on admission and enrollment, classroom management, and research. This will be enhanced by having meetings, seminars, and team buildings among stakeholders such as administrators, faculty member, administrative staff, and students. In order to achieve the culture of excellence there is a need to request supplies to support IT resources available in LU. It is recommended that the proposed IT infrastructure model be further developed by maximizing all the resources of LU.

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