

ONLINE ACADEMIC DISCUSSION SYSTEM

ACASE STUDY OF IBANDA UNIVERISITY

BY

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DECLARATION

I **Kagumaho Nicholas** declare that this proposal is my own work in its original form and has never been submitted to any institution for examination

Signature:  Date: 26/03/2018

APPROVAL

This proposal entitled "Online Academic Discussion System of Ibanda University in Ibanda District" was done under my supervision. It is now ready for submission for examination.

ENG. BEGUMISA GENEROUS

Signature

Date

9/4/2018

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DEDICATION

I dedicate this Research Report to my Family members especially my parents **Mr. Kitembo Banard** and **Nasanga Annet**, my brothers, sisters, Relatives, Lecturers and Friends who endured to support me financially, academically, spiritually and made me who I am. Thank you, May God bless you.

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Great thanks and honor go to the almighty God whose grace is sufficient. I also acknowledge my parents for the great financial support, generous love, care and guidance extended to me throughout my education. May God richly bless you.

Above all, I thank my dear supervisors who kept me going in whatever situation i found myself in and for helping me finish successfully. I will always remember you.

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GLOSSARY OF ACRONYM

LMS	Learning management systems
CSS	Cascading Style Sheets
DBMS	Database Management System
HTML	Hyper Text Markup Language
ICT	Information Communication Technology
MYSQL	My structured Query language
PHP	Hypertext Processor
SQL	Structured query Language
KIU	Kampala International University
ERD	Relational Diagrams
CMS	Course management systems

ABSTRACT

Universities are exploring pedagogical approaches to learning in order to deal with challenges such as increased class sizes, limited funding support, and difficulties in facilitating and encouraging active participation and learning among a diverse cohort of students. This paper reports on a study of the effective of a pedagogical approach that blends online discussion board and case study (Brown, R, 2001). Analyzing quantity and quality of online postings and comparing accounting students' performance with previous cohort, this study observes a significant improvement in student learning. Appropriate design and delivery strategies and clear assessment criteria for assessment and use have provided an effective learning vehicle for students, helped them overcome their own language related barriers and encouraged them to participate in a nonthreatening environment. This approach further complemented the benefits of peer to peer learning and case study pedagogy. Reported increase in workload for students and marking load for academics and measuring the values of learning, however, are some of the challenges that need further attention by researchers (Wallace, R. 2003).

The system has been designed to do a whole lot more than just reduce class discussions. It can make significant contribution to a University learning and performance among the students. Online academic discussion system make possible for students to conduct discussions online, which helps them to boost their learning.

The main purpose of developing this system is to provide effective discussions that increase critical thinking among the students (F. Gao, T. Zhang, and T. Franklin, 2013).

CHAPTER ONE

1. INTRODUCTION

This chapter includes the background of the study, problem statement, objectives of the study (both general and specific objectives), scope of the study and significance of the study.

1.1 BACKGROUND OF THE STUDY

Ibanda University is a private university located in Ibanda district Uganda which has made a name in Uganda's education sector with remarkable resilience. Currently students of Ibanda University are using face to face interaction in conducting discussions. With Online discussion forums, classroom conversations and learning was extended by getting students to engage with class material online in different departments basing on the kind of questions raised. Online discussions are often arranged by discussion boards, forums. In the online discussion forums literature, there is a lot of emphasis on the benefits that online discussion forums can have and how learners can be more involved in online interaction.

Let's take a step back and think about the wonders of modern technology for one second. The web has made it possible to participate in near-instant communication on a global scale. In almost every corner of the Internet, you have people talking to one another: news sites, blogs, Facebook, YouTube, email, forums, and more.

1.2 PROBLEM STATEMENT

The students have to be present on condition that means students compulsory have to go to campus and normal increase of class sizes so that the moment the online academic discussion forum is introduced, there is a desire for conducting discussions. Through online forums, students will be enabled to conduct discussions on course related topics with each other, by use of their Internet connection.

Other than in full online courses, there adoption in traditional learning environments complementing face-to-face teaching increased and become a common educational strategy in higher education. In fact, interest in using online discussion forum as an indicator of students' performance increased. Online discussion forums are expected to enable flexible and independent learning and knowledge construction and develop

critical thinking skills. There are many advantages of its use, students use of the online discussion forums in the context of their study and the characteristics of an effective online discussion environment that facilitate effective learning need to be investigated.

The main purpose of this research is to develop a one roof platform for the effective interaction, effective exposure, and a right direction toward communication. The researcher's aim is to provide our users an opportunity to enhance their knowledge by sharing their views on this platform by having discussions with other users.

1.3 OBJECTIVES OF THE STUDY

1.3.1 GENERAL OBJECTIVES

The general objective was to develop an online academic discussion system for effective discussions and independent learning and knowledge construction and develop critical thinking skills among the students.

1.3.2 SPECIFIC OBJECTIVES

- I. To study and analyze the current discussion system at Ibanda university.
- II. To establish requirements for designing system for online academic discussions.
- III. To design and develop a system for online academic discussions.
- IV. To test and implement an online academic discussion system at Ibanda university to ensure effective learning.

1.4 SIGNIFICANCE OF THE STUDY

Online academic discussion system was fully developed and implemented; it impacted positively on students, lecturers and administrators.

1. **To the students**, a discussion board forum led to the development of our cognitive and critical thinking, allowed time for thoughtful, in-depth reflection on course topics facilitates exploratory learning. (Ross, S., A. Kukulska-Hulme, H. Chappel and H. Joyce, 2004).
2. **To lecturers**, it reduced on the time spent on teaching and conducting discussions unlike the current system (Biesenbach-Lucas, S, 2003).

3. **To the administrators,** it led to effective learning among students which is always a problem to the university. A number of studies have found that online forums are beneficial in developing communication skills (Abrams 2003; Blake 2009). The greatest potential for effective use of online communication as a learning tool is when the students are at a distance from the school and their teachers (Crowell & McCarraher, 2001).

1.5 SCOPE OF THE STUDY

1.5.1 CONTENT SCOPE

The system is providing the platform for online academic discussions to students. Students conducted discussions according to the departments allocated. Students in long distances were also given a chance to participate since everything is done online.

1.5.2 GEOGRAPHICAL SCOPE

The study was conducted at Ibanda University located in Western part of Uganda in Ibanda district which is approximately 100km from Mbarara kamwenge road.

1.5.3 TIME SCOPE

The study conducted between 2017 and 2018.

CHAPTER TWO: LITERATURE REVIEW

2.0. INTRODUCTION

This chapter entails research discoveries and related information with an aim of identifying a problem of concern such that no repetition of earlier research work was done. This was sourced by reviewing documented resources such as existing systems, text books related to the research topic and online publications in the same area.

2.1. STUDY THE CURRENT SYSTEM

According to Zhao, Y. (2001), Increasing class sizes, reducing resources, and widening diversity of students' cohorts have all placed demands on higher education and stimulated them to explore new pedagogies. Identifying the most successful use of technology tools available in higher education and deploying them effectively in the classroom in order to improve student learning are now an important research issue facing accounting education. In that context, using an asynchronous medium for learning will now become a significant component of course delivery in higher education. Higher educational institutions will start adopting hybrid or blended models of education that combines classroom and asynchronous and distributed learning environments (Morse, K, 2003). Driven by increasingly competitive higher educational environment, these hybrid models resulted into the convergence of the traditional classroom and online learning modes combining the strengths of face-to-face and online learning modes of learning and became one of the key responses to changing higher educational climate

According to S. Rop, (2001), online academic discussion forums were considered an extension of traditional learning that promoted dialogue, reflection, knowledge construction, and self-assessment. Given their potential benefits, online discussion forums were widely adopted as tools for online learning. Online discussions have the potential to improve students' critical thinking and problem solving skills, decision-making ability, and written communication skills and contribute to students' ability to organize and analyze information. Combining the online discussion forum with a case study method, a common pedagogical technique used in many business schools, is considered to be an effective method that encourages students to relate theory to practice (R. O'Leary, 2005). Many academics therefore started using online discussion

forums for teaching via the case method. While learning goals of online case discussions and face-to-face case discussions are generally the same, there is relatively little research focusing on the online case-method pedagogy and assessment in business and accounting education. Effects of these hybrid models of learning that combine traditional classroom case study pedagogy with the asynchronous media such as online discussion forums on learning outcomes and processes are, however, not well understood. With the widespread adoption of course management systems (CMS) and learning management systems (LMS) by the academic institutions being a recent phenomenon, further studies to offer insights into the current and future directions of this field are necessary (Davis, B.G.2009).

Two studies have examined how students perceive online case method pedagogy in business education.

According to study by Jonassen and Kwon (2002), perceived students' satisfaction and perceived quality of the discussion process and outcomes were higher for members of the online group when compared with face-to-face groups. They observed that online groups went through more cycles of the ideal problem solving process which involves defining the problem, orienting the discussion, and developing a solution. Their study found that online groups produced less amount of verbal interaction than their face-to-face counterparts. In another study, Webb et al (2001) compared groups working with difference "doses" of online component in case method instruction from purely online to purely face-to-face. According to them, members that were under heavy online conditions have more positive perceptions of peer interaction during the discussion than others, and they have outperformed the face-to-face students in terms of conceptual and factual knowledge about the case discussed. These findings must be treated with caution because of the differences in the cases and topics taught to these different groups. Further, it is possible that the newly developed online skills rather than increasing dose of online discussion may have contributed to these positive findings (Rovai, A, 2007).

2.1.1 CHALLENGES OF ONLINE LEARNING

In addition to the above, other studies have reported challenges of online learning. According to Valaitis et al (2007), reported confusion about the navigation of online environment by nursing students that has overshadowed the learning, while

Colcannon et al (2008) observed tendencies of accounting students to overlook critical aspects of the online environment as they are not particularly fond of computer technologies. Zhu's analysis of topical discussions in several undergraduate, graduate, and professional courses found that only 15–25% of the content was judged as cognitively deep.

According to Angeli et al (2009), Found that only 9% of contents posted were justified (theoretically based) claims or opinions, while 49% were unsupported or personal opinions questioning the cognitive engagement of students. While Garrison and Vaughan and de Wever et al (2003) found low levels of critical thinking, Hara et al. observed high levels of critical thinking in the online discussions for example, observed topic decay with the percentage of posts on the topic decreasing steadily from 65% to 33% during the first nine days of discussion. In general, online discussions in higher education learning environment are feasible and viewed positively by students and the process and outcomes are as good as its face-to-face version. While some studies examined educational applications of online technologies in broader terms, others have suggested best practices and strategies.

According to Meyer, K. (2003), Threaded forums are one of the most commonly used environments for online discussion, and, though well supported by learning theories, several limitations are identified by researchers. Excessive focus on new posts, overlapping exchanges and hierarchical structure of discussion threads, and lack of timely feedback are some of the problems reducing the opportunities for meaningful reflection, social interaction, and knowledge construction. Researchers have suggested improvements to the guidelines and instructions to students, developing online activities to engage learners, adopting teaching or moderating strategies, and enhancing the design of environments to encourage good discussion.

According to F. Gao, T. Zhang, and T. Franklin (2013), Even though learning through online discussion forums was studied by several researchers as shown above, research that focuses on the online case-method pedagogy and assessment is limited. Further, findings on the effectiveness of online discussion forum are also inconsistent and depend on the nature of discussion environments. The experimental and descriptive studies relevant to this question have not produced coherent knowledge about how and

when online discussion groups perform better or worse. As the review suggests, findings on the effectiveness of online discussion forum are mixed with some pointing to the difficulty of facilitating students' critical thinking and cognitive engagement. Online discussion forum is just another technology enabled tool and the principles of technology acceptance, usability, ease of use, and so forth, was equally applicable here (B. Apostolou, J. M. Hassell, J. E. Rebele, and S. F. Watson, 2010). The availability of tool does not necessarily mean that students (users) will use it or perceive it as useful, and the learning effectiveness is influenced by other external factors such as incentives to participate, perceived value of those tools, moderator's skills, quality of the discussion environment, and past experience of the students in using those tools. Factors such as structure of the online environment, prior ability of students, facilitator's style, and participation, however, may have some influence on the quality of the discussion and the outcomes. Though best practices and strategies and effective design environments were suggested, there were no studies that measured the effectiveness of the design and delivery of online case discussion and assessment in a business school context (P. Cookson, 2002).

According to N.-S. Chen, Kinshuk, C.-W. Wei, and C.-C. Liu, (2011), Lack of participation by a majority and dominance of a few handful students are the main challenge in asynchronous discussion forums. As assessment is the currency that students deal in, grading can be a workable strategy that will encourage participation. Past online experience may not be a factor any more given that the current generation of students has a lot of online and social media experience. Therefore, it is possible to encourage their participation and thereby the learning by grading students for their contribution. The consequent fear of losing marks may constrain their interaction to some extent; grading may actually encourage students to participate in the discussion with due consideration and adequate preparation. By opening up too much, for example, student may be afraid of exposing their lack of knowledge that could count against them. An effective learning environment and assessment must be carefully designed without unwittingly discouraging the motivation for learning.

According to Aviv, R. Z. Erlich, G. Ravid, A. Geva (2013), Even though collaborative learning is critically important, and that the technology is a powerful enabler that

match what is needed for discussion and collaboration, the extent to which asynchronous discussion forums succeeded in enabling learning is not known and lacks sufficient empirical evidence where a case study assessment is incorporated. Rather than comparing face-to-face and online groups, unlike previous studies, this study directly investigates online groups engaged in case based discussions. The findings of this study will contribute to the literature on case study pedagogy in online context, an area where existing research findings are limited. It addresses the impact of a blended model that combines the strengths of online discussion forum and case study method in a business school. It incorporates effective design principles advocated by GAO Et Al (2000) strategies suggested by (Rollag, 2005), and a significant assessment weightage to encourage active and quality participation.

2.2 REQUIREMENTS TO THE DESIGN OF ONLINE ACADEMIC DISCUSSION SYSTEM

The requirements for designing a system for online academic discussion are classified as functional and non-functional requirements.

Functional requirements; these are specific functions, tasks or behaviors the system must support. They include the following;

1. It allows discussions to be conducted online
2. It authenticated users.

Non-functional requirements; these requirements describe general conditions the software system must meet to satisfy the needs of the users and are not bound to the specific functions of the system.

2.3 STEPS TAKEN IN DESIGNING AND DEVELOPING A NEW SYSTEM

Review the existing system, defining the data needed for relevant units within institute , determine the most appropriate and effective data flow, Design the data collection and reporting tools. Develop the procedures and mechanisms for data processing, Develop and implement a training program for program for data provided and data users Pre-test, and if necessary re-design the system for data collection, data flow, data processing and data utilization, Monitor and evaluate the system, Develop effective data dissemination and feedback mechanisms and Evaluate the system (Picciano, A, 2002).

2.4 SYSTEM IMPLEMENTATION

As with other phases of the system development life cycle, the system implementation phase has multiple components or sub-phases, when the system has been planned, analyzed, and designed. The next step is the system development which is known as coding and is the first sub-phase.

2.4.1 TESTING

The second sub-phase is to test the newly coded system on multiple levels. The third phase is the planning and implementation of the new system. Finally, the post implementation is the final sub phase of the system implementation.

CONCLUSION

The above studies left a knowledge gap in their researches. No one of the above authors tried to design and implement an online academic discussion system. Therefore, this study intends to assess an existing system for Ibanda University. Furthermore; the study designed and implemented an online academic discussion system that provided students with effective learning.

CHAPTER THREE: METHODOLOGY

3.0 INTRODUCTION

This chapter includes the research design, research area, data collection methods, study population, sample size, instruments, data analysis tools, study design structure, ethical considerations and anticipated limitations.

3.1. RESEARCH DESIGN

The study design is a cross sectional design that is descriptive in nature, using quantitative approach in order to determine the impacts of the current system of academic discussions on students of Ibanda University and whether there is need for improvement.

3.2. RESEARCH AREA

The study was conducted to identify the need for online academic discussion system in Ibanda district at Ibanda University. The study area enabled the collection of data at one point in time but from different offices and people at the university.

3.3 STUDY POPULATION

The study population included 30 employees and 500 students of the university. The students and employers were considered because they have enough detailed information of the advantages and disadvantages of the existing system.

3.4 SAMPLE SIZE

It is an important feature of any empirical study in which the goal is to make inferences about a population from a sample.

The sample size was estimated using the formula (Sloven's formula)

$$n = \frac{N}{1 + N(e^2)}$$

Where: n is the sample size; N is the sample population; e is the marginal error which is constantly 0.05

Sample size for students

$$n = N \cdot \frac{N}{1 + N(e^2)}$$

$$n = \frac{500}{1 + 500(0.05^2)}$$

$$= \frac{500}{2.25} = 222 \text{ students}$$

sample size for employees

$$n = \frac{N}{1 + N(e^2)}$$

$$n = \frac{30}{1 + 30(0.05^2)}$$

$$= 28 \text{ employees}$$

Sample size for students and employees = 222+28 = 250 according to Sloven's formula.

3.5 DATA COLLECTION METHODS

These are the methods used to collect information from different areas. The researcher used interview, questionnaire in collecting data from different respondents.

3.5.1 INTERVIEW

The researcher conducted face to face interviews with the students and employees. An interview was designed and guiding questions were prepared which also act as a tool for collecting data. The interview was conducted using the study for lectures and students who study from university.

3.5.2 DOCUMENTARY REVIEW

Documentary review is the critical examination of public or private recorded information related to the issue under investigation (Amin, 2005). The researcher accessed documents like journals, News study, Development plans, assessment reports, internet sources to provide qualitative data in the institution. Secondary data was collected from scholarly journals, government documents, conference papers, research papers, published books and recognized Websites.

3.5.3 QUESTIONNAIRE

Questionnaire technique helped the researcher to collect data in a far distant place that would require a lot of resources.

For that matter, questionnaires were designed basing on sample size and distributed to respective individuals that is (lecturers and students) in the chosen sample for answering.

This is the dominant primary data collection method in the study. This helps the researcher to get information from different questionnaires.

A questionnaire is a carefully designed instrument for collecting data in accordance with the specifications of the research questions and hypotheses. It consists of questions in which the subject responds to in writing (Denscombe, 2000). A questionnaire was used because it is easy to administer, relatively cheap, questions are standardized, and results can easily be quantified and allows anonymity (Munn, 2004).

3.6. DATA ANALYSIS TOOLS

Students' responses for each of the questions were the primary data used in this study. This data was analyzed by two persons independent of each other—the author/facilitator and a research assistant. This research assistant was a qualified educator, specialized in online learning, and was working in the teaching and learning unit of the business school. The objective of this analysis was to assess the quality of responses and online discussion interaction. Rather than positioning the discussion interaction as a dependent variable along with the learning outcomes, a post hoc measurement approach was used in this study. According to this, the discussion interaction and quality of the responses were considered independent variables in relation to learning outcomes. Barron suggests two alternative ways of conducting content analysis. The first approach involves qualitative analysis of the discussion and the second approach focuses on the responses related to proposed solutions to the case study questions. This second approach was adopted in this study which involves qualitative analysis of the student responses (N. Hara, C. J. Bonk, and C. Angeli, 2000).

Quality of responses by each of the students for each question was analyzed for assessment purposes as well as for evidence to support learning. While the first approach helped in awarding assessment mark to each of the responses, the second approach had helped in identifying any evidence to peer-to-peer and collaborative learning, data analysis skills, using and citing other sources, pooling of different ideas, and building on others' contributions. A comparison of the analysis revealed 81% consistency in the rating of both evaluators. The remaining 19% of the responses were subsequently reevaluated jointly in order to arrive at a consensus assessment mark and evidence.

In addition to students' responses, their perception of the entire process was also collected using semi structured interviews. The approach taken in the analysis was to analyze the responses of students to semi structured questions; to examine their feedback on the effectiveness of this online assessment task, and to assess its pedagogical benefits. Further in the interviews, participants were asked to give their views on the structure of the learning environment including the online discussion forum, appropriateness of the weightage assigned to this assessment task, timing and level of difficulty of the case study questions, and participation by the academic as a moderator and their perception of collaborative and peer-to-peer learning. From a total sample of 28 employees, 20 employees have volunteered to be interviewed and provided such qualitative feedback.

3.7 STUDY DESIGN STRUCTURE

Admin Module

"This is a Master creation Module. It looked after and controlled all the discussions being created and posted. Once the discussions are created and posted the admin has the authority to see and alter those discussions."

Registration Module

"This module is responsible for the registration of a new user. In this module the user register's itself by entering the required information. This module also verifies the new user details with the previously registered users."

Profile Management Module

"This module manages the profiles of all the registered users. In this module All the details of the registered users are stored. It creates a separate record for individual users about all the discussion being created and posted."

Discussion Module

"This module manages the discussions created by the corresponding users. It helps the user to have discussions with each other. This module helps in managing all the discussions amongst different users." <http://www.aspsnippets.com/>

3.8.0 SYSTEM DESIGN

System design was based on the outcomes of the phase, and it includes software and hardware design making trade off by trading in consideration any constraints from

those outcomes. At the time test plan was prepared, test plan described the various tests which were carried out on the system after completion of development (Al-Salman, S.M. 2009).

3.8.1 DEVELOPMENT TOOLS

Wampserver which is a web development platform on windows that allows for the creation of dynamic web applications with Apache2, PHP and MYSQL. HTML which is a standard markup language for creating web pages. CCS is another tool that helps in styling HTML document, while PHP is also another tool that helps in making dynamic web pages. And finally Macromedia Dreamweaver CS6 is a web design and development tool which combines both visual surface and code editor with standard feature such as syntax.

3.8.2 ETHICAL CONSIDERATIONS

Prior to the study, a researcher obtained an introductory letter from the faculty of science and technology after which he took to Ibanda University to gain permission to collect data. Data collected was kept confidential and names of respondents not appeared in the questionnaire. At the end of data collection notes taken and documents collected was compiled and put together which helped the researcher in data processing.

3.9. ANTICIPATED LIMITATIONS

In spite of positive endorsement and observed improvement in the learning, some challenges are identified. They include reported increase in students' workload because of the online discussion forum, inability to freely express their ideas and views because of the assessment involved, restriction to the number of postings per student per question, inadequate number of responses by some students, poor integration and synthesis of others' ideas by students, insufficient moderation by the lecturer, and some subject related issues. About 85% of the participants believed that the weightage given to the assessment task was appropriate and motivated them to actively engage in the discussion and learning. Some students, however, viewed the weight given to this single assessment component (25% of the overall assessment weight) as a major constraint in freeing up the discussion. Further, academic administration of this online discussion forum has been a challenge. With each student posting on average 1.4 postings per question, the total number of postings has reached about 270 and

enormously increased the marking load to the academic. In addition, the need to monitor the discussion forum, edit some unhelpful comments, redirect the debate to the issues relating to the subject content, and provide hints has added to the normal teaching and administrative load. In addition to this, some of the typical challenges in case study pedagogy have also resurfaced during the discussion. They include request for one single answer to the case study questions, inability to comprehend the case study materials by some, inadequate English language skills of students, inability to apply theoretical frameworks, and skills in scoping out, assumptions, and analysis (N. P.Napier and S. Smith, 2009).

CHAPTER FOUR:

4.0 INTRODUCTION

This chapter includes system analysis, logical design, entity relationship diagram, data flow diagram, the new design system, data input and findings from questionnaires.

4.1 SYSTEM ANALYSIS

4.1.1 DEFINITION

System Analysis is the detailed study of the various operations performed by the system and their relationships within and outside the system. Analysis is the process of breaking something into its parts so that the whole may be understood. System analysis is concerned with becoming aware of the problem, identifying the relevant and most decisional variables, analyzing and synthesizing the various factors and determining an optional or at least a satisfactory solution.

4.1.2 DESCRIPTION OF EXISTING SYSTEM

Currently Ibanda University, Students conduct academic discussions physically that is face to face whereby they use pens and papers to write down answers and questions raised.

4.1.3 DATA ANALYSIS AND PRESENTATION

The researcher used questionnaires where most of the correspondents including the students and employees were requested to answer some questions related to the current academic discussion system, how it works and challenges being encountered while using it. The researcher found out that the current system of academic discussion system was not perfect to both students and employees of Ibanda University.

The researcher was able to meet the following categories of system users in regard to their Gender

Table 1: showing the respondent's Gender balance

Gender	No. of respondents	% age
Female	100	40%
Male	150	60%
Total	250	100%

Source: field data

In regard to Gender in Table 1 above, the researcher also found out that males were more than females where by males are 150 and females are 100 respectively

The student's Questionnaire results about the wish to have an online academic discussion system are presented in the table as follows:-

Table 2: showing the rating of the current system

Question	No. of respondents		Total
Do you wish to have an online academic discussion system?	Yes	No	
	160	90	250
Number of respondents	160	90	250
% age	64%	36%	100%

Source: field data

CONCLUSION

Many respondents checked yes meaning that they would like to use another method.

The employees' questionnaire results about the challenges on the current system are presented in the table as follows:-

Table 3: Results about the challenges on the current system

Question	No. of respondents		Total
What are the challenges of using current method of academic discussion system?	Yes	No	
	110	140	250
No. of respondents (f)	110	140	250
% age	44%	56%	100%

Source: field data

In regard to table 3 above, it shows that a new method of academic discussion was necessary to be put in place giving a researcher a go head to carry out this with a new system that conducts discussions online basing on the number of respondents that felt uncomfortable with the existing system

CONCLUSION

Basing on the number of respondents that felt uncomfortable with the current discussion system and basing number of respondents who believed online academic discussion system would be a perfect alternative to the current system, the researcher had to go ahead with designing and implementing the new online academic discussion system.

4.1.4 DESCRIPTION OF THE NEW SYSTEM

It is a computerized web-based system that is to provide a sustainable solution for academic discussions by allowing discussions to be conducted online. Thus, the new system enabled students especially in long distances also to participate in the discussions since process was conducted online (N. Hara, C. J. Bonk, and C. Angeli, 2000).

4.2 SYSTEM REQUIREMENTS

4.2.1 REQUIREMENTS ANALYSIS

The following are requirements for the different users of the system:

1. users view their login and edit their profile
2. Users ask and answer questions.
3. The System administrator view and updated information.
4. The users sent messages to other users on the board.
5. Users react on both questions and answers for example downloading the document.

4.2.2 FUNCTIONAL REQUIREMENTS

This part presents the functions that the online academic discussion System provided when installed:

1. The system allows the users to login.

2. The system allows the user to register on the online board.
3. The system allows the systems administrator to control and manage data in the system.
4. The system captures processes and stores users' information.
5. The system allows the users to update their information.

4.2.3 NON-FUNCTIONAL REQUIREMENTS

These are concerned with the system properties, characteristics that the system must exhibit

The system was speedy, accurate, secure and easy to use by all users (Ken Bird, 2009)

The following are the functional requirement of the online academic discussion system

1. The system was easy to learn and use by its end users.
2. The system was portable so that it may easily run on most operating systems
3. The system allows data modifications to the authorized users through implementing a password security policy.
4. The data output was accurate since the input data is validated.
5. The system was efficient so as not to waste system resources.
6. Data accessibility. Data was accessed to the authorized users.
7. Reliability because the application was a standalone system relying on database stored on a remote server hence allowing for fast system start up.

4.2.4 HARDWARE REQUIREMENTS

This section described the hardware requirement which is at least necessary to run this system.

Processor

The minimum requirement of processor is at least Pentium IV with 900 MHz processing speed. The speed of processor determines the time taken for the execution of the instructions. Higher processing speed leads to faster execution of the instruction.

RAM

There should be minimum 256 MB of RAM available for the smooth functioning of the project. Higher memory leads in better results.

Hard disk

There should be about minimum 40GB of hard disk for smooth functioning of the project and so the recommended hard disk space is 40 GB.

Cache Memory

There must be about 512 KB of cache memory so that the accessing time can be better and compilation is easier (Toi B. Wright, 2000).

4.2.5 SOFTWARE REQUIREMENTS

According to Stephen Walther (2000), In order for the system to perform as expected, these are its specifications for software.

The system operated efficiently on all the windows platforms and other modifications of the windows operating system. The various Microsoft operating systems under which it operated include; windows XP, windows vista, windows dark edition, windows 7 provided the following applications are installed

- MySQL workbench version 5.2 and WAMP server version 2.10.databases.
- Web browser for example Google chrome version 2.11.
- Wamp server of 5.1 on which the system was accessed from.

4.3 SYSTEM DESIGN

The system has a login page which is the first interface. This page enables the system user that is a student and this is done by logging into the system using valid user ID and passwords. When students login onto the system, he or she is privileged to directly access the forum page with navigation menu where he or she can ask and answer questions.

The entered data is stored in the database that is questions and answers entered by students. System design goes through two phases of development:

- 1 Logical design
- 2 Physical Design.

4.3.1 LOGICAL DESIGN

Logical design (logical models) depict what a system is or what a system must do but not how the system was implemented. They are implementation independent that is, they depict the system independent of any technical implementation. The logical design involves the system entities. A database contains one or more related tables. Each table holds all of the information about an object (Allen, I. E., & Seaman, J, 2010).

4.3.2 SYSTEMS ARCHITECTURE.

The system run on the client server architecture basis where by its operation reflected the co-existence of the server machine and a client machine. This therefore means that the system was hosted on a single computer (server) from which other computers (clients) accessed and execute required operations accordingly.

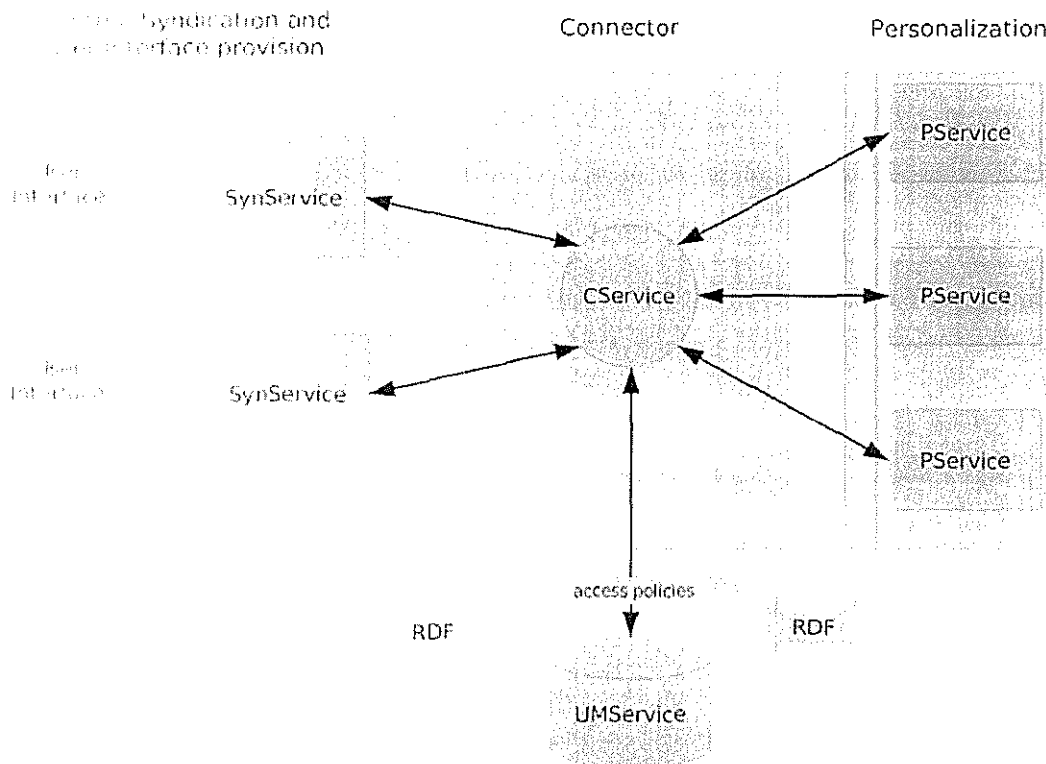


Figure 1: Diagrammatic illustration of system architecture

4.3.3 RELATIONSHIPS BETWEEN THE ENTITIES

A relationship type is a set of associations between one or more participating entity types. The most common degree for relationships is binary. Binary relationships are generally referred to as being one-to-one (1...1), one-to-many (1...*), many-to-many (*...*),

4.3.4 ENTITY RELATIONSHIP DIAGRAM

Under the Entity Relationship Diagram the researcher introduced the basic concepts of the Entity-Relationship model, namely entities, relationships, and attributes. Below is how basic ER concepts are represented pictorially in an ER diagram (<http://stackoverflow.com/>)

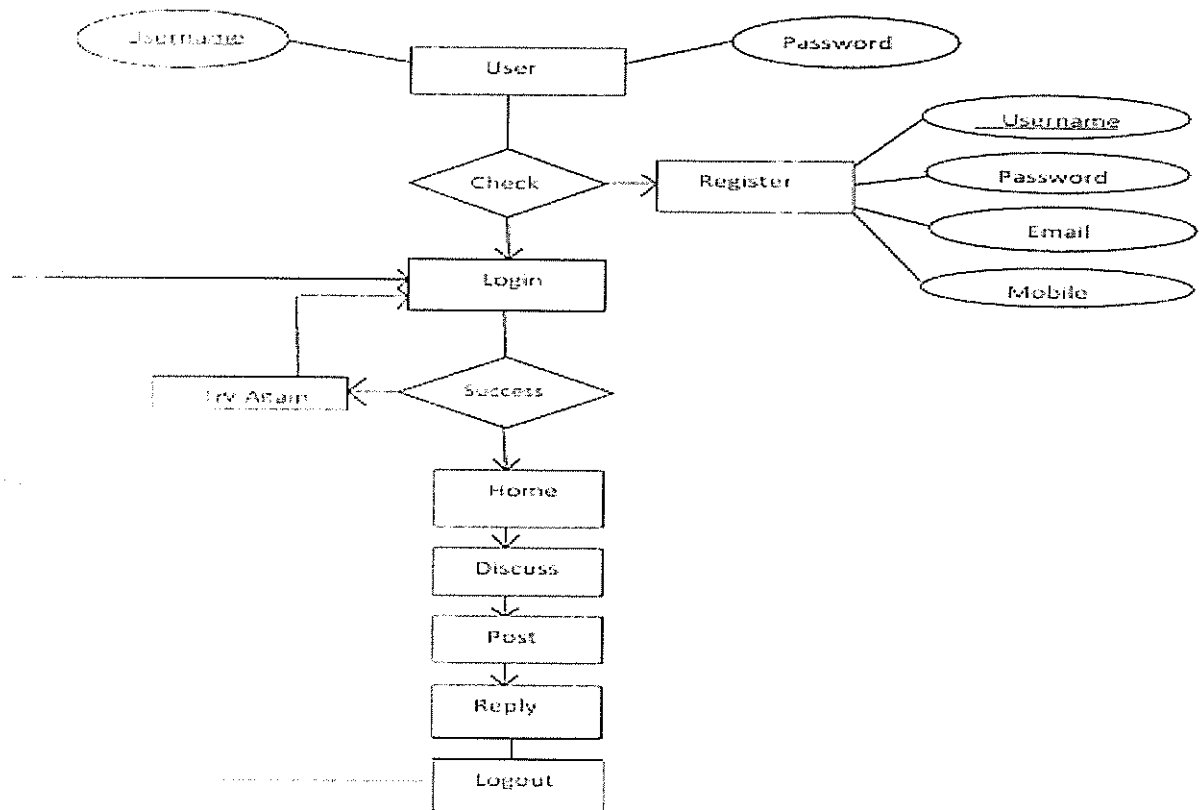


Figure 2: Showing entity relationship diagram

4.3.5 THE CONTEXT DIAGRAM

The overall design for online academic discussion System of context diagram is illustrated below that shows system boundaries and interaction. It also shows the other groups of people that interact with the system and the main flows of data (<http://www.asp.net/>).

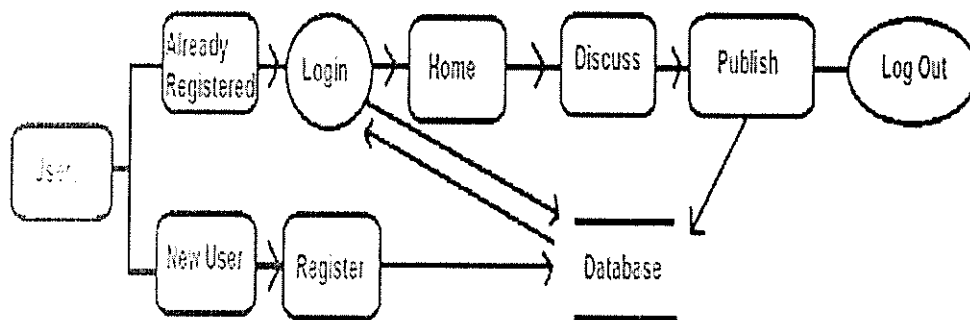


Figure 3: showing the context diagram

4.4 DATA DICTIONARY

A data dictionary is a collection of descriptions of the data objects or items in a data model for the benefit of programmers and others who need to refer to them. A first step in analyzing a system of objects with which users interact is to identify each object and its relationship to other objects. This process is called data modeling and results in a picture of object relationships. After each data object or item is given a descriptive name, its relationship is described (or it becomes part of some structure that implicitly describes relationship), the type of data (such as integer, varchar, date, etc) is described, possible predefined values are listed, and a brief textual description is provided. This collection can be organized for reference into a book called a data dictionary. The data dictionary for First online academic discussion would be as follows:

4.4.1 USER

Table 4: This table identifies User in the database

Field name	Data type	Length	Constraints	Description
User_id	Int	100	Primary key	
Course	Varchar	100		
Regno	Varchar	100		
Category	Varchar	100		
User_type	Varchar	100		
Username	Varchar	100		
Fullname	Varchar	50		
Password	Varchar	50		
User_active	Varchar	1		
Dob	Varchar	10		
E_mail	Varchar	100		
Gender	Varchar	20		
Uimg	Varchar	255		
Isuser	Varchar	1		

4.4.2 TOPIC

The topic table identifies topics in the database.

Table 5: Topic table design

Field name	Data type	Length	Constraints	Description
topic_id	int	11	Primary key	
topic_name	Varchar	250		
Topic_type		50		

The table above identifies the topics tributes

4.4.3 QUESTION

The subject table shows the identification of the question.

Table 6: question

Field name	Data type	Length	Constraints	Description
question_id	Int	11		
Heading	Varchar	50		
Question detail	Varchar	2000		
Datetime	timestamp			
User_id	int	11		
Subtopic_id	int	11		
Views	int	11		

4.4.4 ANSWER

Table 7: answer

Field name	Data type	Length	Constraint	Description
answer_id	Int	11		
Replied	Int	11		
question_id	varchar	50		
Answer detail	varchar	2000		
Datetime	timestamp			
User_id	int	11		
Like	int	20		

4.4.5 CHAT

Table 8: chat table

Field name	Data type	Length	Constraint	Description
chatdetail_id	int	11		
Cdatetime	timestamp			
Message	Varchar	1000		
User_id	int	11		
Chat_id	int	11		

4.4.6 CHAT MASTER

Table 9: chat master

Field name	Data Type	Length	Constraint	Description
Chat_id	int	11		
User_id from	Varchar	255		
User_id to	int	100		

4.4.7 SUBTOPIC

The subjects table shows the identification of the subtopic.

Table 1: question

Field name	Data type	Length	Constraints	Description
Subtopic_id	Int	11		
Subtopic_name	Varchar	50		
Subtopic_description	Varchar	2000		
S_status	timestamp			
topic_id	int	11		

CHAPTER FIVE

5.0 INTRODUCTION

This chapter explains the physical design, data outputs and system implementation.

5.1 PHYSICAL DESIGN

This is a process of producing a description of the implementation of the database on secondary storage. It therefore describes the base relations, file organizations and indexes used to achieve efficient access to the data and any associated integrity constraints and security measures.

5.1.1 DATA OUTPUTS

System Interfaces

These are the system interfaces developed and validated using powerful programming languages.

5.1.2 LOGIN PAGE

This is the first page to be viewed when a System user visits the system.

Below is the displayed page before logging into the system

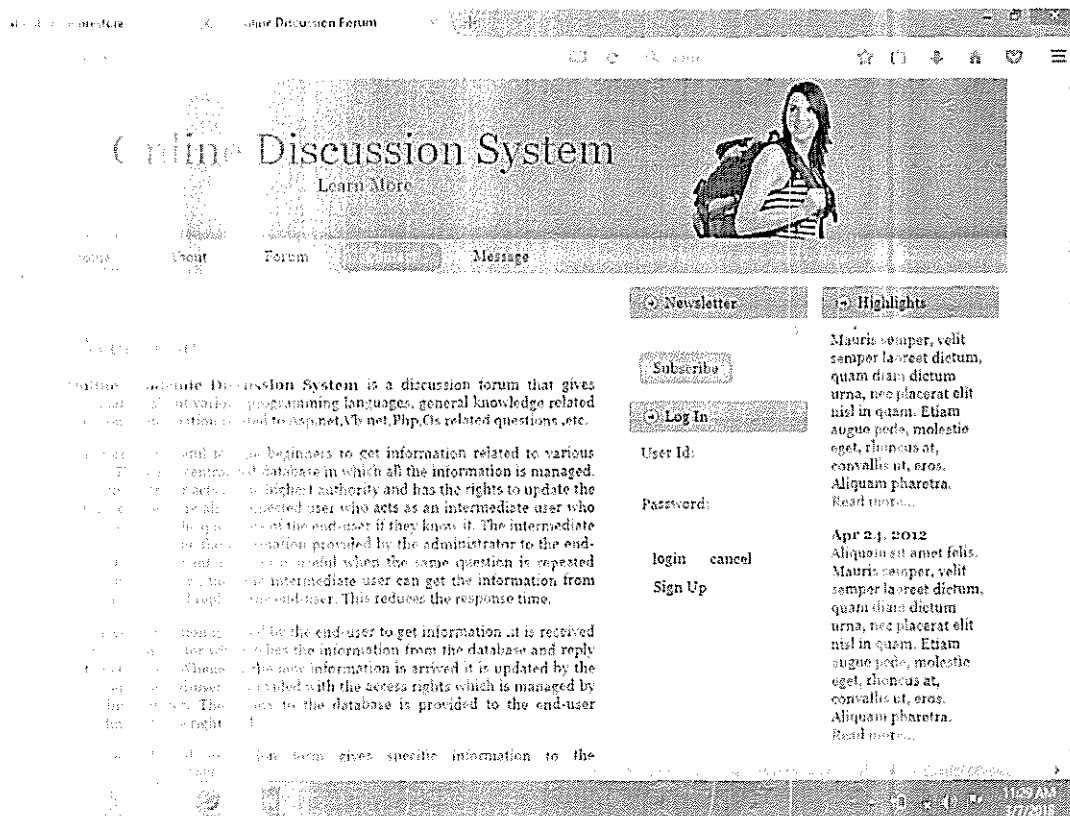


Figure 4: Showing the login interface

The window above shows a menu where a user can login by entering correct user id and password so as to be part of the discussion forum platform.

5.1.3 QUESTION INTERFACE PAGE

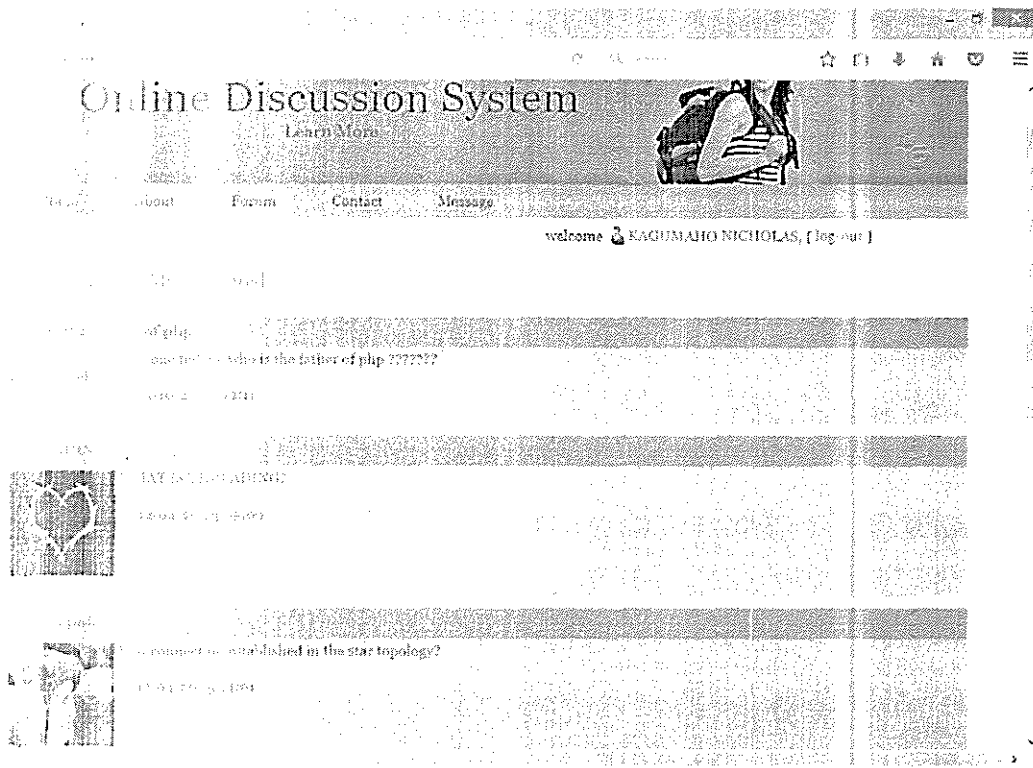


Figure 5: Showing the question interface

The page above displays the question menu where a user posts a question basing on the topic displayed.

5.1.4 USER INTERFACE

It is on this page where a user registers so as to enable him or her to participate in online discussions.

5.1.6 ANSWER INTERFACE

This interface is viewed by all users for answers basing on different questions being asked.

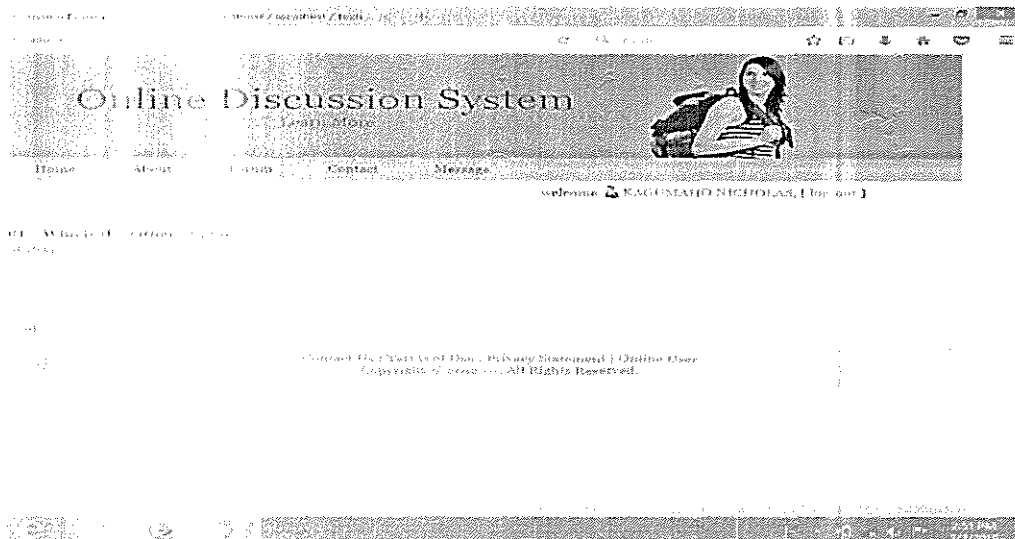


Figure 8: Showing the answer interface

This window above displays the answer menu where user posts an answer basing on kind of question being asked.

5.2 SYSTEM IMPLEMENTATION

To implement the system, installation requirements like hardware and software were acquired. Planning analysis and project writing was done. The System was designed and users were trained on how to use the online academic discussion system. This was done in a period of two days because the user interfaces provided a short learning curve. System testing and review was also done to ensure that it was performing as it was designed to perform. It was reviewed to ensure that it has met the objectives. The System was then implemented and a report was written.

5.2.1 USER TRAINING

The trainees to work with the new system were selected and trained. These are system users and Training involved teaching and guiding the users on how to operate and manage the system program plus interfaces.

5.2.2 SYSTEM TESTING

System testing is recognized as an important part of quality assurance. Testing as shown below proceeds in parallel with system development, here a test plan is developed in parallel with system design. The test plan is then used in system testing. Testing proceeds through a number of steps.

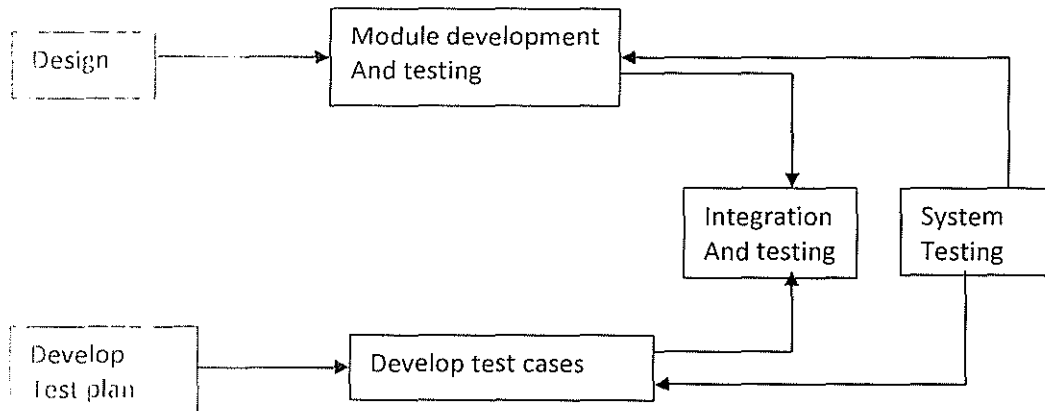


Figure 9: Test Plan

First individual programs modules were tested by the developers. Once Individual modules were tested, the next step was to test whether they can be combined. This is known as integral testing; groups of modules are combined into test modules and tested together. The goal is to determine whether the interfaces between modules work. Then the entire system was tested. It is important to design test cases that test all .The conditions that can arise in system inputs, while at the same time ensuring that tests do not take too long.

5.2.3 SYSTEM CONVERSION

There are four methods that may be utilized in implementing our system. They are: Direct conversion, Parallel conversion, Phased conversion and Pilot conversion.

5.2.3.1 PARALLEL CONVERSION

Parallel conversion involves keeping the old system running alongside the new system for the first couple of weeks or months after the introduction of the new system. This means that any problems with the new system will not affect the continuation of the business.

The problem with parallel implementation is that it costs more to run both systems and also data has to be entered twice which takes more time and is liable to errors.

Ibanda University, parallel conversion was chosen as the users can take time to get familiar with the new system, before switching off the old one. System conversion which is also called system change over, took place upon the approval of the new system testing. The parallel method of conversion from the current system to the new system was selected as the most appropriate for the current solution.

The above figure shows how the system's change over takes place. Both the new and old systems are used concurrently and are fully operational for a period of time, allowing comparison of the two. This allows for the new system to be tested with a real-world set of data, which can be compared to the old system. Also, if the new system fails, the old can continue with a minimum loss of data, as both systems are kept up-to-date.

CHAPTER SIX

6.0 INTRODUCTION

This chapter explains direction for future research, challenges, evaluation of the new system, conclusion and recommendation.

6.1 DIRECTIONS FOR FUTURE RESEARCH

The strengths of the papers discussed in this review lie in their exploratory nature, their focus on teaching and learning, and their pragmatic consideration of opportunities for and constraints on learners. However, several areas remain to be addressed by future case studies.

6.2 EVALUATION OF THE NEW SYSTEM

The main objective of this project was to design and implement an Online Academic Discussion System for effective learning.

This objective has been achieved successfully by designing and building of a web based system for online academic discussion according to the description of the existing system and trying to improve it.

The online academic discussion system has been designed by use of PHP as programming language, Wamps server and MySQL database.

Ibanda University increases effectiveness in its learning. For instance, the system permits only valid entries into the database. To make sure that this is accomplished.

6.3 CHALLENGES ENCOUNTERED

Challenges encountered during the project.

Limited internet Access

The internet was limited to access yet it was the main source of information for the researcher. This delayed the research process.

Coding

Coding was complicated where we could make errors this gave us hard time to debug.

Software compatibility problem

It was hard to get software's that were compatible with our system.

6.4 CONCLUSION

According to the positive responses obtained from the surveys made, the researcher found out that online academic discussion is a great tool to help both the employees and maintain their communication beyond the classrooms by allowing them to provide and share opinions with others at any time and location.

Since the current system is manual, the developed system to a larger extent full filled the requirements of the university as in improving online academic discussions.

6.5 RECOMMENDATION

The researcher recommends online discussion learning as the best choice for university in order to prepare their student's for today's knowledge economy and make a full mobile application so that it can be accessed also on smart phones.

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APPENDIX

QUESTIONNAIRE FOR ONLINE ACADEMIC DISCUSSION SYSTEM

ACASE STUDY OF IBANDA UNIVERSITY

I am **Kagumaho Nicholas**, a student from Kampala International University pursuing Bachelors of computer science. As a necessity leading to the award of a degree, every student is required to carry out a research study. I have therefore decided to carry out our research on the above topic in this area. I kindly request you to offer me all the necessary information for the success of this study and any information obtained was kept confidential.

Thank you.

Signature/thumb

SECTION A

Questionnaire guide for student

1. Do you wish to have an online academic discussion system?

Yes ☐

NO ☐

2. Are any costs involved in using the Current system of academic discussion in Ibanda University? YES ☐ NO ☐

SECTION B

Questionnaire guide for Employee

What are the challenges of using the current system of academic discussions in Ibanda University?

.....
.....

What are the effects involved in academic discussions in Ibanda University?

.....
.....