EFFECTIVENESS OF E-LEARNING ON THE LEARNING PROCESS DURING COVID -19 LULL: GRETSA UNIVERSITY, THIKA SUB-COUNTY KIAMBU, KENYA

BY

BONFACE SIRO   EDU-G-4-0292-17

GODWIN YALA   EDU-G-4-0296-17

BATHSHEBA KERONGO   EDU-G-4-0386-17

A RESEARCH PROJECT SUBMITTED TO THE SCHOOL OF EDUCATION IN PARTIAL FULLFILLMENT FOR THE REQUIREMENT FOR THE AWARD OF BACHELOR OF EDUCATION ARTS GRETSA UNIVERSITY
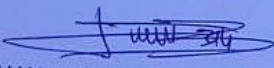
APRIL 2021

DECLARATION

Declaration

The research project is our original work and has not been presented for award of a degree or for a similar purpose in any other institution.

Signature .... Date .....07TH DECEMBER 2021

Boniface Siro   EDU-G-4-0292-17

Signature .... Date .....7th DECEMBER 2021

Godwin Yala   EDU-G-4-0296-17

Signature .... Date .....7th December 2021

Bathsheba Kerongo   EDU-G-4-0386-17

SUPERVISOR

This research project has been submitted with my approval as the university supervisor

Signature .... Date 08/12/2021

Mr. Peter Gakwa

School of Education

Gretsa University

ii

DEDICATION

We dedicate this work to our able supervisor Mr. Peter Gakwa for his support, guidance and tireless efforts towards ensuring that this work-study comes into completion, to our family for moral and financial support and all the friends for the support they have accorded us throughout the entire exercise. Lastly we dedicate the work to our lovely friend, Miriam Kagendo for her support too in this research study.

ACKNOWLEDGEMENT

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

ABBREVIATIONS AND ACRONYMS

IT   Information technology

KENET   Kenya education network trust

SPSS   Statistical packages for social sciences

OPERATIONAL DEFINITION OF TERMS

E learning

The application of technology in order to foster learning. A learning system based on formalized teaching but with the help of electronic resources, teaching can be based in or out of the classrooms, the use of computers and the Internet forms the major component of Elearning.

Effective elearning

Learning process that has achieved the possible learning outcomes and one that has helps the learners and the lectures achieve the set goals and objectives

ABSTRACT

The research study focused on the effectiveness of eLearning on the learning process in Gretsa University. The statement of the problem was based on the fact that there are less empirical studies and literature review concerning the effectiveness of eLearning on the process of learning in various institutions in Kenya. The researchers therefore found a research gap in investigating the effectiveness of eLearning in Gretsa University introduced due to Covid19 lull. The study was guided by four objectives, the general objective being to determine the effectiveness of eLearning on the learning process during the Covid 19 lull, and specific objectives being: to find out how access to eLearning resource affected the learning process during Covid-19, to find out how the network connectivity affected the learning process during Covid -19, and to examine how online platform used affected learning process during Covid-19. The study area is Gretsa University; therefore, a case study research design was used. The target population is Gretsa students, lecturers and the IT department. Stratified sampling technique for schools was employed and simple random sampling was employed for students and for IT and lectures convenient random sampling was considered. The data collection method used was administering of questionnaires. Upon the gathering of the data it was sorted, transformed and analyzed using mathematical calibration software (SPSS). Results obtained are presented using charts, graphs and tables. The study found out that, the application of e-learning was not effective due to frequent technical hitches therefore the study recommends frequent and constant observation and software repair of the E-learning system. Lecturers were not able to teach some of the practical courses in their respective schools for instance school of health science. The study recommends that; the school should make arrangements with various health facilities within a student's geographical area to allow the students to carry on with the practical sessions in the health facility.

CHAPTER ONE: INTRODUCTION

1.0 Background of the study

E-learning is one of the most significant platforms that have so far been used in the world by most learning institutions. The application of e-learning is widely used mainly because it has been able to have the greatest effect in the improvement of learning to its various respective learners through its enabled form of interactive learning that enables the learners achieve various desired learning in their various logistical environments despite being far from the learning institutions(Harry,2018).

According to Essmiller, K Alvarado (2018) the application of information technology (e-Learning) has been a significant and a vibrant aspect in terms of ensuring that learners are up to date with the various learning aspects and concepts that are being discussed and issued towards the learners. He further gives out an account that it is necessary to ensure that most of the learning institutions are well organized and facilitated with the necessary technological applications of learning so as to raise their standards of learning in most of these learning institutions.

A similar observation was seen by Martin (2019) who undertook a research in South Africa on the role of informational technology towards the development of learners understanding in various private schools in Soweto in the South African republic. His research findings found out that there are a number of factors that in turn have contributed towards the development of the learners' understanding and conceptualization of various subjects that have been taught in the various respective learning institutions. It was observed that through the application of eLearning, most of the learners in the learning institutions have had a better a better

understanding of the subject matter, an improvement towards the various respective examinations and tests that have been carried out so far as well as the increase in skills and competencies that in turn have been issued so far in the learning institutions.

Philip (2019) stated that in the time and period of the novel corona virus pandemic, there has been a significant growth in the implantation of eLearning in various institutions of learning despite the various costs that they have been able to incur due to government closure of learning institutions, there was a need to ensure that there is a continuation of learning by students who had several national examinations in Kenya. Her findings found out that this application of eLearning has contributed immensely towards the continuation of learning in most schools even during the on-going pandemic of the novel corona virus which in turn has halted a lot of activities.

1.1 Brief history of Gretsa University

Gretsa University is a private university in Thika municipality in Kenya that provides degree, diploma and certificate courses. It was started in September 2006 after receiving the letter of interim authority from the commission for higher education in May 2006. The university began with three degree programs in business, computer Science and Hospitality Management. The third class of degree students graduated in December 2012. Gretsa University introduced the use of eLearning on May 2020 due to the outbreak of Covid 19 and was used till October 2020.

The institution introduced the elearning program to help them meet the uprising needs of the learners as well as ensuring that the learning process continues despite the challenge that was before hand, Covid 19 pandemic. The researcher had chosen Gretsa university because the institution took part in elearning process and it was their first attempt to enrolled the program

therefore we wanted to determine how effective the e-learning was towards the process of learning during the Covid-19 lull (May-August)

1.2 Statement of Problem

Alfred (2017) in his study pertaining to the effectiveness of eLearning in East Africa gave out findings that there has been less empirical studies and literature reviews pertaining to the effectiveness of eLearning on the learning process at various respective learning institutions in East Africa. For effective learning to take place, there are indicators that are supposed to be put in place such as elearning resource such as laptops and good or strong network connectivity and an effective online platform among other indicators. However, during Covid pandemic elearning process in Gretsa University was introduced and therefore, the research study aimed at looking at how effective was the application of eLearning towards the learning process in institutions and specifically Gretsa University-Thika during the novel corona virus pandemic.

1.3 Purpose of the study

The purpose of the study was to examine the effectiveness of eLearning on the process of learning at Gretsa University during the novel corona virus in 2020 (May-August) semester of academic year.

1.4 Objectives of the study

1.4.1 General objective of the study

The general objective of the research study was to determine the effectiveness of eLearning on the learning process during Covid19 lull at Gretsa University.

1.4.2 Specific objective of the study

The specific objective of the study shall be as follows:

I.   a). To find out how access to eLearning resources used affected the learning process in Gretsa University during the Covid19 pandemic from May – August 2020.

II.   b). To find out how the network connectivity affected the learning process in Gretsa University during the Covid19 pandemic from May – August 2020.

III.   c) To examine how online platforms used affected the process of learning in Gretsa University during the Covid19 pandemic from May – August 2020.

1.5 Research questions

The study was guided by the following research objectives and research questions.

1.5.1 Research questions

I.   Has access to eLearning resources used affected the learning process in Gretsa University during the Covid 19 lull?

II.   Has network connectivity affected the Learning process in Gretsa University during the Covid 19 lull?

III.   Has the online platform used for eLearning affected the learning process in Gretsa University during the Covid 19 lull?

1.6 Conceptual Framework

Independent variable   **Dependent Variable**

```
┌─────────────────────────┐
│ E-learning Resources    │
│                         │
│   • Smart phones        │
│   • Laptops             │
│   • Electricity         │
│                         │
└─────────────────────────┘

┌─────────────────────────┐              ┌──────────────────────────────┐
│ Network connectivity    │              │ The learning process         │
│                         │              │                              │
│   • Network bandwidth   │ ───────────▶ │   • Class attendance         │
│                         │              │   • Student's participation  │
└─────────────────────────┘              │   • Access to class notes    │
                                         │   • Class presentations      │
┌─────────────────────────┐              └──────────────────────────────┘
│ Online Platform         │
│                         │
│   • KENET Web           │ ───────────▶
│     conferencing        │
│                         │
└─────────────────────────┘
```
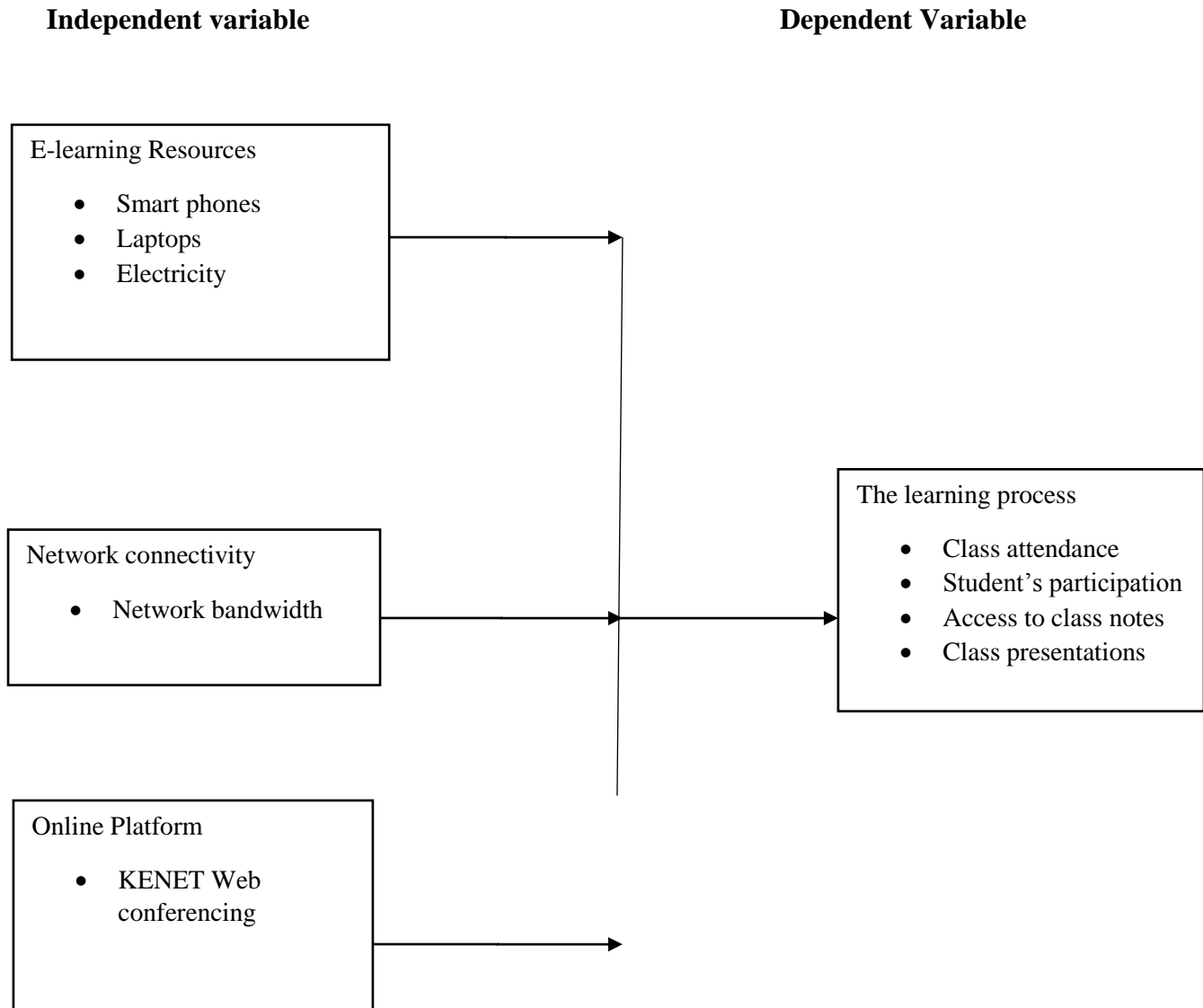
Figure 1conceptual framework

1.7 Significance of the study

The research study shall in turn be of significance to various groups of people as follows:

To Gretsa University that will use the final research document on the recommendation issued by the researchers on knowing how to solve various problems and outcomes that have been justified in the research study.

The students or scholars who are in line with the respective course specification these individuals shall use the research as grey literature when it comes to researching other outcomes related to the research study.

1.8 Delimitation of the study (scope of the study)

The research study mainly focused on investigating the effectiveness of eLearning towards the process of learning during the novel corona virus in Gretsa University, Thika, Kiambu County.

1.9 Limitations of the study

The research limitations that were anticipated were as follows:

The reality that Covid19 pandemic is still a threat in the learning institutions, the researchers anticipates it being a great threat too during the research for instance during administration of the questionnaires as it will require physical handling of questionnaire which can lead to the spread of Covid19. However, the researchers heeded to the Covid19 health protocols put in place by the government.

1.10Assumptions of the study

The researchers anticipated the following assumption:

Gretsa University in Thika had the application of eLearning for students as from March to October 2020 during the corona virus pandemic.

CHAPTER TWO: LITERATURE REVIEW

2.0 Introduction

The time period can be discussed in various methods as one of the most present-day gear within the contemporary education internationally. E-learning consistent with Lukas (2019) is referred to as the advanced and current platform of gaining knowledge of which a pupil is capable of receiving knowledge where in, they are able to develop their respective needs to have a look at through the making of numerous technologies based total systems that during turn allow the scholars to achieve their studying objective.

2.1 Empirical review

2.1.1 E-Learning

James (2021) suggested that the arena is advancing in terms of the numerous technological concepts it advances. Most of the agencies inside the commercial world are making it viable to mission into numerous differentiated ways of technological advancements. He similarly alludes that no matter the numerous technological advancements in special fields and disciplines, e-learning has end up one of the most enormous aspects wherein cutting-edge technology is used and internalized inside the making of various numerous opportunities to the learner through the inception of present-day approaches of amassing of various notes, the technological enablement of pupil-lecturer webcams and different diverse ways of gaining knowledge through online studies.

2.1.1.1 E-Learning resources

P.A. Okpechi (2018) and C. Abuo on utilization of eLearning resources, they stated that the awareness of eLearning resources was generally high. The result of their research showed that educators and trainees should be systematically trained in order to gain the appropriate skills

for the use eLearning facilities such as the desktops, smart phones. Therefore, the use and utilization of eLearning resources contributes towards the academic achievement of learners. Learning resources which includes computers and smart phones among others have a great impact of learners partaking to their studies online.

2.1.2 Network connectivity

Thompson .S. H. Teo in his research of effectiveness of eLearning, stated that the effectiveness of eLearning is enhanced by building efficient eLearning infrastructure, and making progressive standardization efforts, which included applying some socially appropriate online pedagogies, therefore internet and network accessibilities is a necessary tool for eLearning to take place which in turn shall account for the performance of a learner.

Philip (2018) discusses on the various impact of e-getting to know towards the accelerated performance of elderly college students in universities in Nigeria. His research findings and end accounts that there may be a high-quality increase in the manner novices are capable of successfully reap and conceptualize their gaining knowledge of goals in the technological manner. He discusses that most of the elderly students who're able to acquire e-getting to know within the college are capable of attain various systems wherein they're capable of make strides in their activity working environments and still be capable of catch up with the various avenues of studying through the high-quality systems of e-learning era.

2.1.3 Online platform

Mary (2016) offers out an account on how e-gaining knowledge has been the handiest answer of learning in the course of the covid-19 duration of calamity. On his observe regarding the function of records communications technology (I.C.T) at the advancement of learning in western Kenya at some stage in the Covid19 pandemic, she became capable of discovering

that various aspects of e-gaining knowledge have been significant in being the solution in the direction of the mastering in non-public colleges in western Kenya. A survey on private schools in Butere gives out findings that establishments of gaining knowledge of that have been capable of meet these requirements of qualification were capable of meet the thing and opportunity of getting to know therefore such studying establishments had been able to acquire the opportunity of mastering in this respective private colleges through the factor of e-getting to know of their respective establishments. Also important factors such as the platforms that are used in the elearning process are key consideration in ensuring that the learning process is smooth and effective. A study shows that KENET platforms, Google classroom, Google meet among others were highly preferred because of their efficiency and easy operations by both teachers and the students.

2.2 Theoretical framework

Orodho (2019), theoretical framework is the collection of correlative ideas based on theories trying to make clear why things are the way they are based on theories introducing a new view of research problem allowing understanding the realm of the problem, helping interpret the topic in its whole and to recognize the problem from a wider perspective of objectivity.

The theory of Cognitive flexibility (Spiro) states that the ability to spontaneously restructure one's knowledge in many ways in adaptive response to radically changing situational demands, to facilitate the transfer of knowledge and skills to new learning situations. The theory has got the following assumption: learning activities must provide multiple representations of contents; instructional materials should avoid oversimplifying the content

domain and support context-dependent knowledge, that knowledge sources should be highly interconnected rather than compartmentalized.

The researchers therefore are going to use this theory to ascertain if the materials that were provided covered the content that was likely to be covered in the particular cause of study during the Covid pandemic lull.

CHAPTER THREE: RESEARCH METHODOLOGY

3.0 Introduction

This chapter mainly looks at the research methodology, techniques that were used in the process of gathering of various data that was necessary in the attainment of research findings.

3.1 Research design

James (2019) suggests that a research design is the aspect of attaining a research objective in terms of what needs to be done in the making of a research. The research design that was employed was case study.

3.2 Study area

The study area of the research was at Gretsa University which is a private learning institution in Thika constituency, Kiambu County in Kenya.

3.3 Target population

The target population of the research study was Gretsa University students, Head of Schools and the IT officials in the university during Covid 19 pandemic (May-August 2020). The total population of students who took part in the eLearning process was 637 and the Heads of

Schools were 5and 3 IT officials who were in session during the period. This totaled to 645 respondents.

3.4 Sampling techniques

The sampling techniques that were used in this research study were stratified sampling technique, simple random sampling technique and convenient sampling technique. Stratified technique was used to group students into strata which represented different schools in Gretsa University, Simple random sampling was employed to randomly select the grouped students into samples. For the IT officials and heads of school, convenient sampling technique was used because they had relevant information including complaints from lectures and students.

3.5 Sample size

According to Mugenda and Mugenda (2003) she stated that 30% of the total population is considered as adequate and viable for the research study. In this aspect, the research study then focused on a sample size of 191 respondents.

Table 1Sample size table

Respondents	Sampling technique	Target population	Sample size derived	Percentage
School of education	Mugenda and Mugenda 30% sampling technique	190	57	30%
School of business	Mugenda and Mugenda 30% sampling technique	153	46	30%
School of computing and informatics	Mugenda and Mugenda 30% sampling technique	127	38	30%
School of hospitality and tourism management	Mugenda and Mugenda 30% sampling technique	100	30	30%
School of healthy science	Mugenda and Mugenda 30% sampling technique	67	20	30%
Lectures and IT department	Convenient sampling technique	5 heads of school and 3 IT officials	8	-

3.6 Measurement of Variables

The researchers were able to measure eLearning resources, network connectivity and online plat form by using the nominal scale to obtain the data.

Table 2Measuring of variables

Variables	Indicators	Unit scale	Source of information
ELearning resources	Smart phones	Nominal	Students and IT Department (Gretsa University)
Network connectivity	Network bandwidth	Nominal	Student and IT department (Gretsa University)
Online platform	KENET Web conferencing	Nominal	IT department(Gretsa University

3.7 Research instruments

The research instrument that was used in the process of the research was administering questionnaires that contained various questions. These questions were based on the objectives of the research study and were able to gather quantitative and qualitative data that was used in the process of data analysis.

3.8 Validity of measurements

According to Kibera (2017) he alludes that validity is commonly termed as the notion under which a research is well and purely grounded and supported to the fact that it meets its preferable standards. The concept of validity in the research study was adhered to in that the research study intended to meet the basis of the research objectives and the supervisor guided the researchers.

3.9 Reliability of measurements

Hamersley (2018) defines reliability as the degree of consistency whereby phenomena are given the same cluster by different observers or by the same observer on different situations. The research study in turn utilized pre-testing methodology on the various questionnaires administered and verified that the information given by the respondent was valid.

3.10 Data collection technique

The researchers collected data through questionnaires which was used in the process of data analysis whereby the researchers accounted on quantitative information.

3.11 Data analysis

After the gathering of various data, the researchers sort, transformed and analyzed the respective data using mathematical calibration software (SPSS).

Data was analyzed and the research findings were in turn brought and presented using various charts and design to elaborate more on the data findings.

3.12 Logistical and ethical considerations

The various logistical and ethical considerations that in turn were used in the research study were as follows:

a) The researchers ensured that the questions in the questionnaire did not infringe on the respondents privacy

b) Researchers ensured that they were able to meet any additional accrued expenses of the research study.

c) The researchers ensured that they had a research permit that was authorized by Gretsa University- Thika.

CHAPTER FOUR: FINDINGS AND DISCUSSIONS.

4.0 Introduction

This chapter discusses about the various findings and analysis of information on the respondents who were in turn engaged in the research study at large. The research study also contains findings and discussions of the research study that in turn would be essential in the process of learning.

4.1 Response rate of the Study

The research study was able to engage all the respondents who were sampled out in the research study. Data was collected whereby the questionnaires were issued to the respondents and later ensured that all the questionnaires were received in hand from the respective respondents.

Upon answering the questionnaires, the research study was able to account one phenomenal in the sense that the research study was able to statistically analyze the response rate of the respondents.

Table 3Response rate

Respondents luster	Figure index	Response rate index
Questionnaires answered	153	80%
Questionnaires not answered	38	20%

Figure 4.1 Pie-chart of response rate
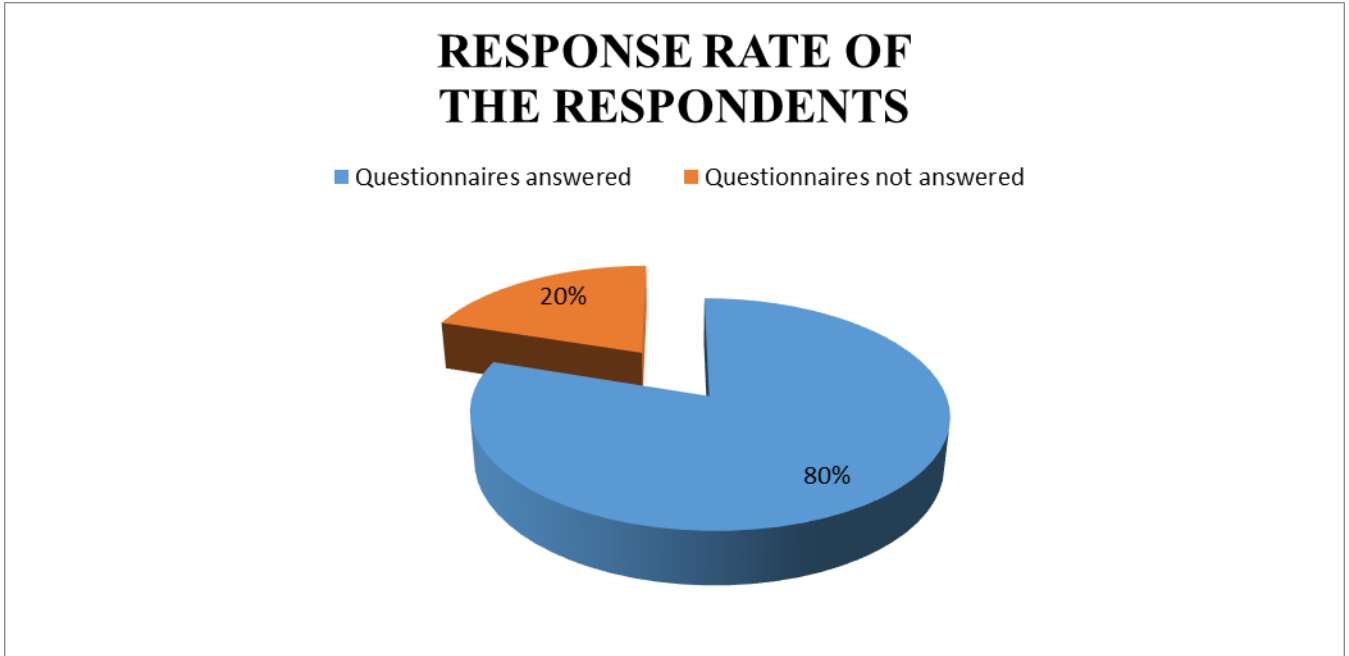
Figure 2 Pie-chart of response rate

RESPONSE RATE OF RESPONDENTS

RESPONSE RATE OF RESPONDENTS	QUESTIONNAIRES ANSWERED	QUESTIONNAIRES NOT ANSWERED
	80%	20%
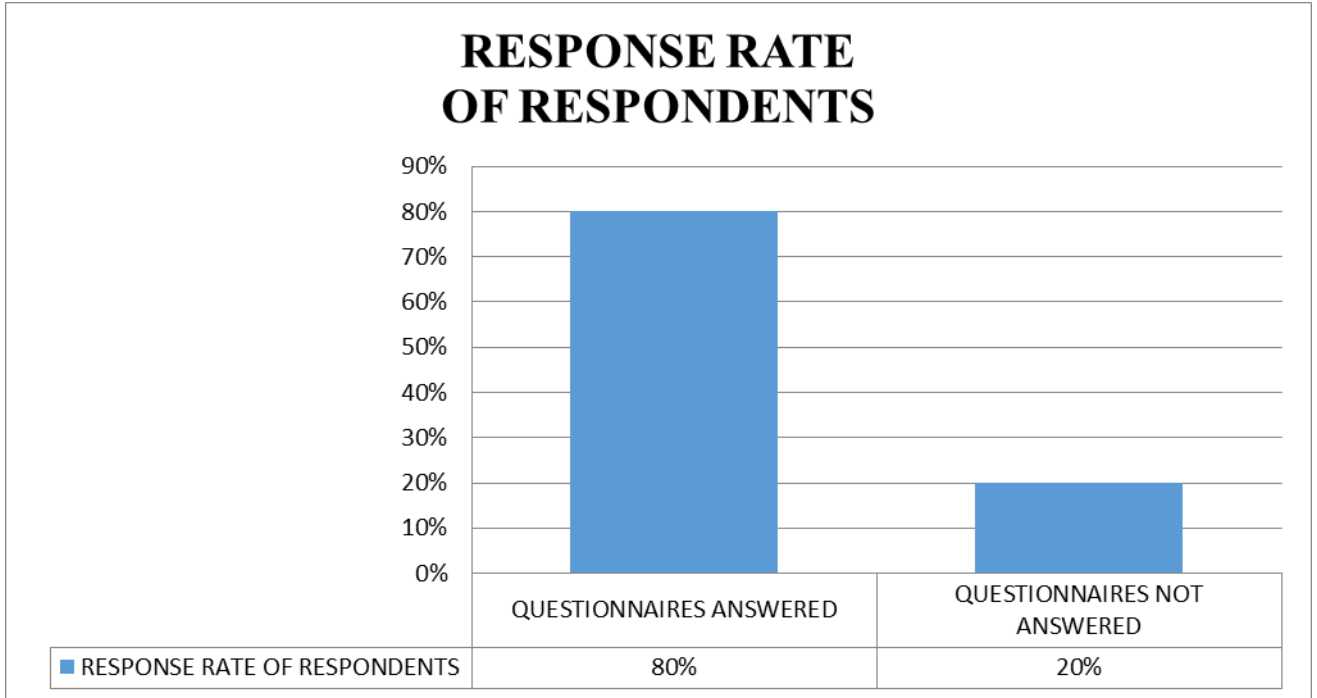
Figure 3 Column Representation

4.1.1 Discussion of the response rate

Historically, questionnaires have been a good source of information in the aspect of the collection and the explanation of various terms and variables. Alternatively, it is historically evident that most questionnaires are not fully answered by the respective respondents in that some of the respondents are either too busy or ignorant towards observation and answering the questionnaires.

In the research study, a statistical figure of 191 respondents was issued with questionnaires upon the start of data collection of the research study. The research was able to find out that, out of the total number of respondents who were issued with the questionnaires to fill, only 80% of the respondents were able to answer the questionnaires and therefore the remaining

number of respondents who constituted 20% of the respondents was not able to fill the questionnaires.

The research study made efforts to understand and fathom why the other remaining 20% of the respondents did not answer the questions and the research study found several reasons as to why they were unable to answer the questionnaires was due to ignorance and inability to spare time for answering the questionnaires.

Table 4 Reasons for not answering the questionnaires

Reasons for not answering the questionnaires	Percentile figure
Ignorance	73%
Inability to spare time for answering the questionnaires	27%

REASONS FOR NOT ANSWERING THE QUESTIONNAIRES

	Ignorance	Inability to spare time for answering the questionnaires
Reasons for not answering the questionnaires	73%	27%
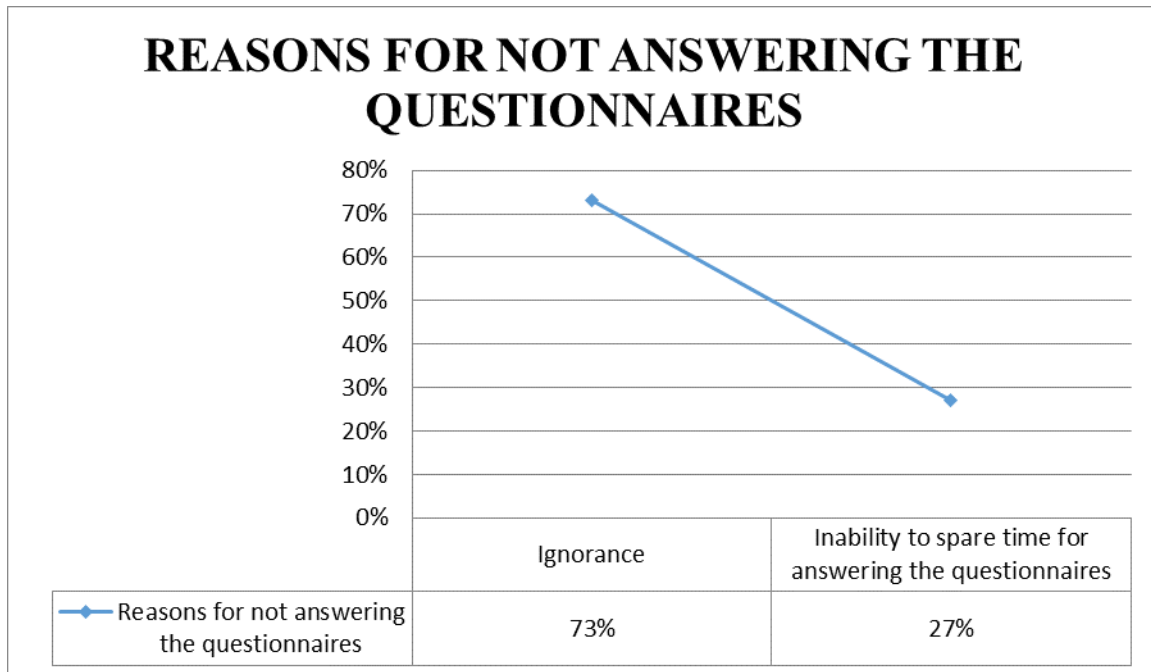
Figure 4 Reasons for not answering the questionnaires

4.2 Discussion of the findings (Based on questionnaires issued to students)

4.2.1 E-learning resources (accessibility)

The research study was able to carry out on the various gadgets that were in turn used in the process of e-learning. They were able to note down that some of the various gadgets that were mainly used in the research study included smart phones and laptops.

Table 5E-learning resources

E-learning resources	Percentage figure
smart phones	68%
Laptops.	32%

*Figure 5 **E-learning resources***

Figure 6 E-learning resources

E-learning Resources

	Smart Phones	Laptops
■ E-learning Resources	68%	32%
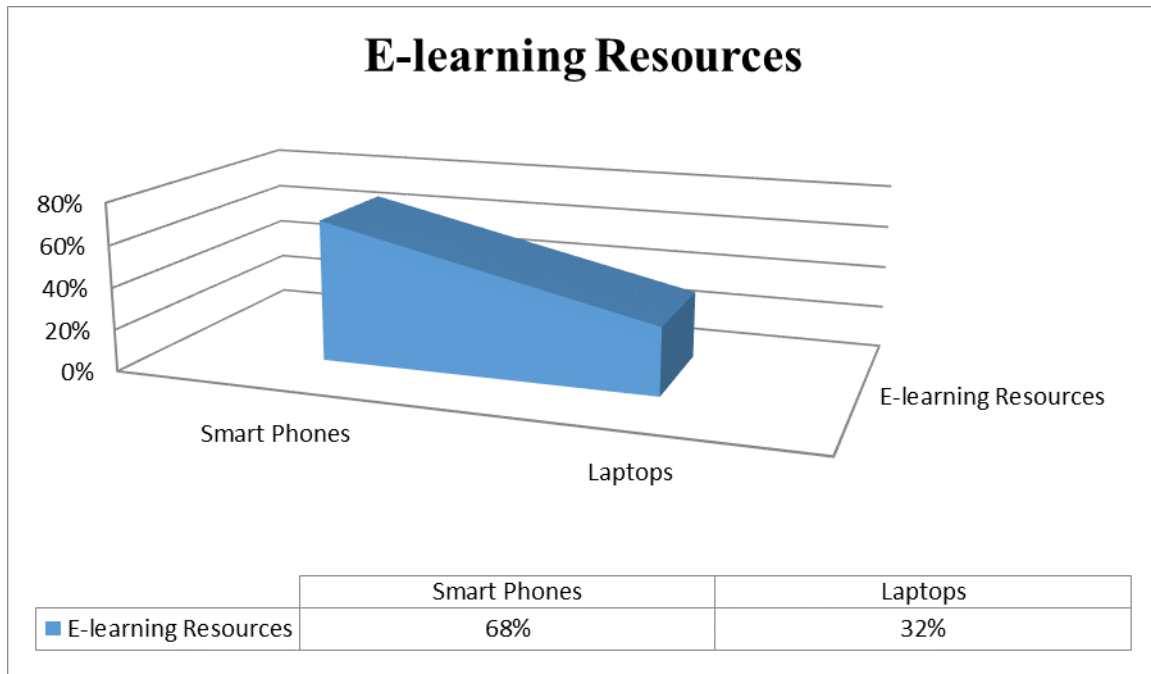
4.2.1.1 Discussion on E-learning resources. (Phones and laptops)

The research study was able to account for the various findings that were derived from the questionnaires that had been answered by the respondents in terms of the various e-learning resources (Gadgets) that were mainly used for the sole purpose of carrying on with e-learning activities by the students at Gretsa University.

A statistical figure of 68% of the respondents was able to conclude that one of the most common gadgets that were used in the process of e-learning was mobile phones. The remaining 32% of the respondents were able to state that the other gadget that was mainly used in the process of e-learning was laptops that were mainly owned by the students who were able to access them.

Table 6 Ownership of the gadgets

Ownership of the e-learning	Percentile figure

resources (gadgets)	
Smart phones borrowed	17%
Smart phones owned	33%
Laptops borrowed	21%
Laptops owned	29%

Figure 7 Ownership of the gadgets

OWNERSHIP OF THE E-LEARNING…

■ Onwership of the e-learning gadgets

Smart…
50% 17%
Laptops 33%Smart…
21%
Laptops…
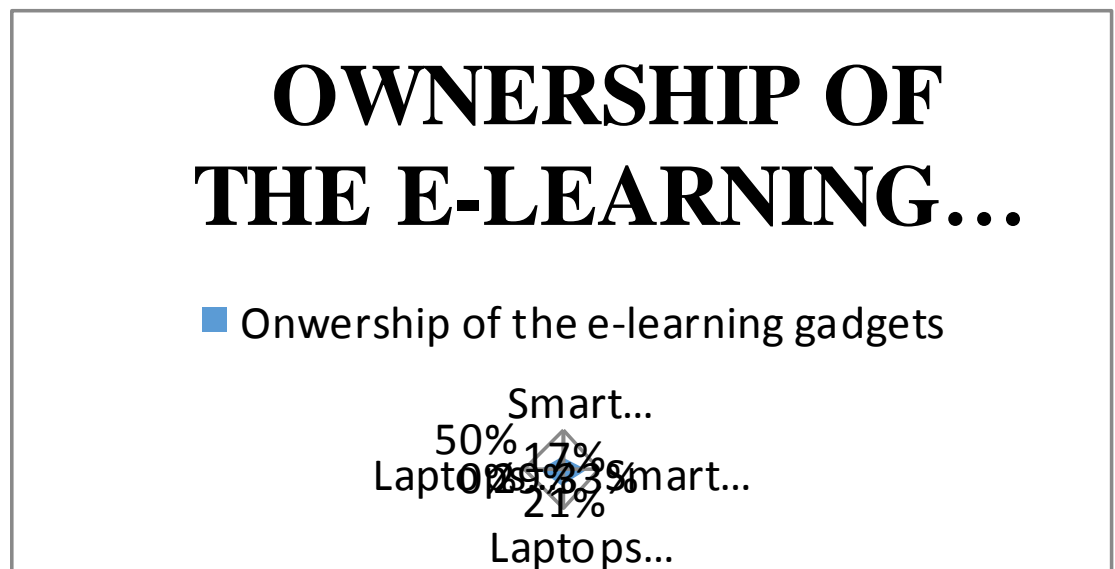
The other resource that the respondents were able to allude in the research study that in turn helped them towards the quest for e-learning was the aspect to do with electricity. Electricity is an essential commodity which helps to ensure that the e-learning resource gadgets are in proper condition and co-existence.

A statistical figure of 90% of the respondents were able to give accounts on that they were able any moment and time fracture to receive and consume electricity services within their jurisdicted geographical region. The remaining 10% of the respondents were able to give accounts on that they were unable to receive or access any electricity services and thus limited the way they were able to carry on with their day to day learning activities at large. The 90% of the respondents that were able to access electricity were mainly from urban areas while the remaining 10% of the respondents were from rural areas.

Table 7 Access to electricity and geographical area

Access to electricity	Percentile index	Geographical region	Percentile index
Those who accessed	90%	Urban	90%
Those who did not access electricity	10%	Rural	10%

Figure 8 Access to electricity and geographical area

ACCESS TO ELECTRICITY AND GEOGRAPHICAL AREA

	Those who accessed electricity	Those who did not access electricity
■ Percentage figure 2	90%	10%
■ Geographical area	0	0
■ percentage figure	90%	10%
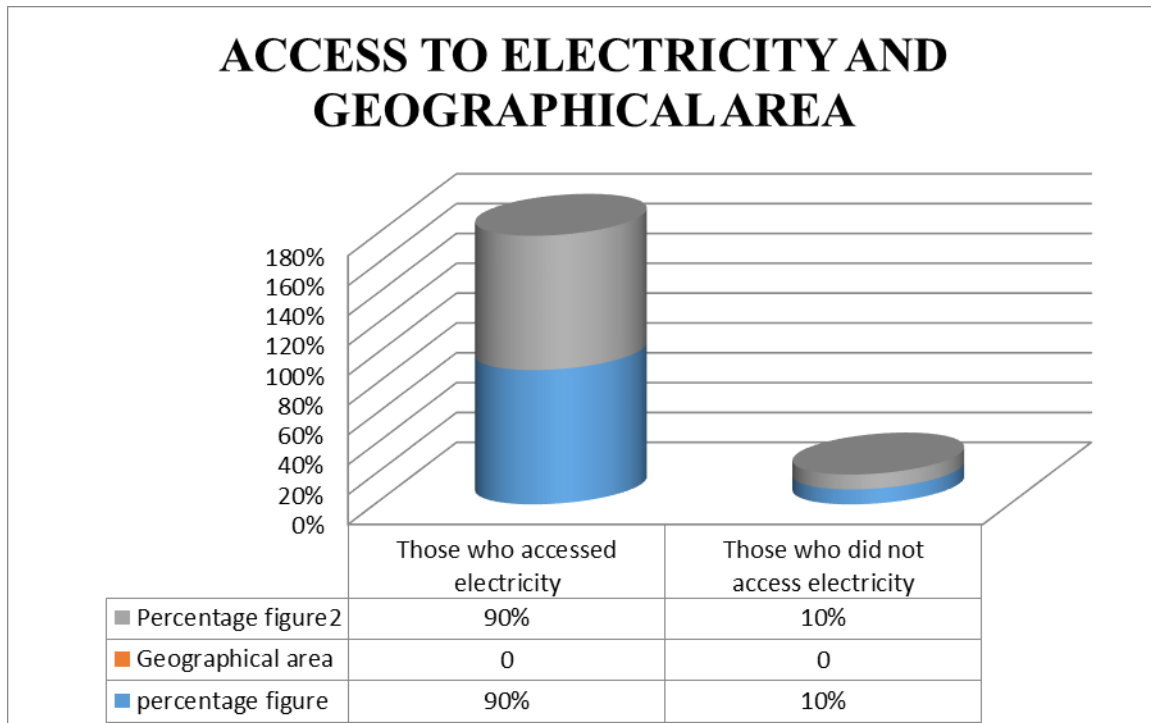
4.2.2 Network connectivity

The research study was able to get a variety of information on how network connectivity has also resulted towards creating effective learning process among students at Gretsa University. Some of the information on network connectivity is as follows below,

Table 8 **Type of service provider**

Type of service provider Percentile	Percentile		Strength of Bandwidth
Safaricom	70%	Good	70%
		Average	25%
		Weak	5%
Airtel	30%	Good	45%
		Average	52%
		Weak	3%

Figure 9 Type of service provider

TYPE OF INTERNET PROVIDER AND NETWORK BANDWITH
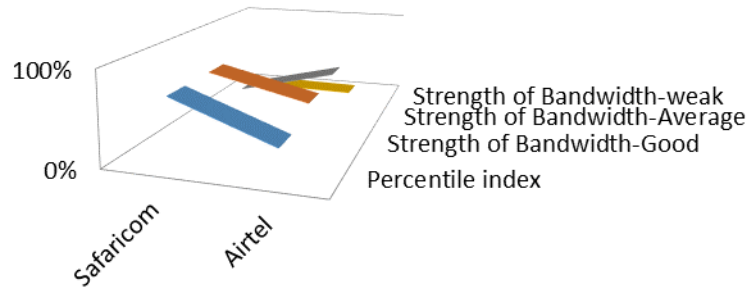
	Safaricom	Airtel
■ Percentile index	70%	30%
■ Strength of Bandwidth-Good	70%	45%
■ Strength of Bandwidth-Average	25%	52%
■ Strength of Bandwidth-weak	5%	3%

4.2.2.1 Discussion of network connectivity

The research study was able to analyze and conceptualize on the research findings concerning the aspect to do with the various types of network service providers that were mainly offering students with the necessary internet services so as to ensure that they do not succumb to lack of internet service during their period of learning in the university.

A statistical fraction of 70% of the respondents was mainly using Safaricom as their most preferable network provider in terms of internet connections and services. The other remaining 30% of the respondents mainly preferred using Airtel as their other choice network service provider.

The other outstanding findings that were able to be accounted in the research study were on the issue of network connectivity bandwidth (Strength) whereby various statistical data was accrued towards the research study findings. The research study found out that respondents alluded that 70% of the respondents believed that Safaricom internet network was strong and was not under siege by any logistical factors. 25% of the respondents, who believed that Safaricom was much preferable than Airtel, termed the network's strength as average in its performance and performance's strength. The remaining 5% of the respondents who choose Safaricom as their number one choice of internet provider believed that the strength of Safaricom Internet connection was weak and required frequent checkup and delivery so as to ensure that their services are up to per.

The other remaining category of individuals (Students) who choose Airtel as their choice of internet provider stated out differentiated results both at a factual and in a statistical quality. 45% of these respondents believed that the internet Service providers were good in terms of their provision of services while 52% of the respondents believed that Airtel network providers have an average internet provision when used by most of the respondents. Only 3% of the respondents believed that Airtel network Providers were weak in terms of their strength and weakness.

4.2.3 Online Platforms used in E-learning

There are various findings that the research study was able to accumulate concerning the aspect to do with the various online platforms that in turn were used in E-learning studies of

the students of Gretsa University. The most significant findings that the research study was able to attain was that Kenet E-learning Technological Systems.

4.2.3.1 Kenet Web conferencing

The research study was able to carry out research on the various platforms that in turn were used in the process of learning among the respondents who were University Students at Gretsa University. The respondents gave an account that the most viable and convenient mode of learning that they were able to use was the kenet web conferencing system.

The respondents gave out their various information on how Kenet Web conferencing was useful and more convenient in terms of administering learning in the learning institutions. Out of the respondents that were engaged in the research study, 93% of the respondents agreed that indeed their respective lecturers were able to display notes on the screens. The remaining 7% of the respondents all came to an agreement that lecturers were not able to display notes on the screens thereby causing distortions on the learning process activities.

Table 9did lecturers display notes on the screen

Did lecturers display notes on the screen	Percentile index
Yes	93%
No	7%

Figure 10did lecturers display notes on the screen
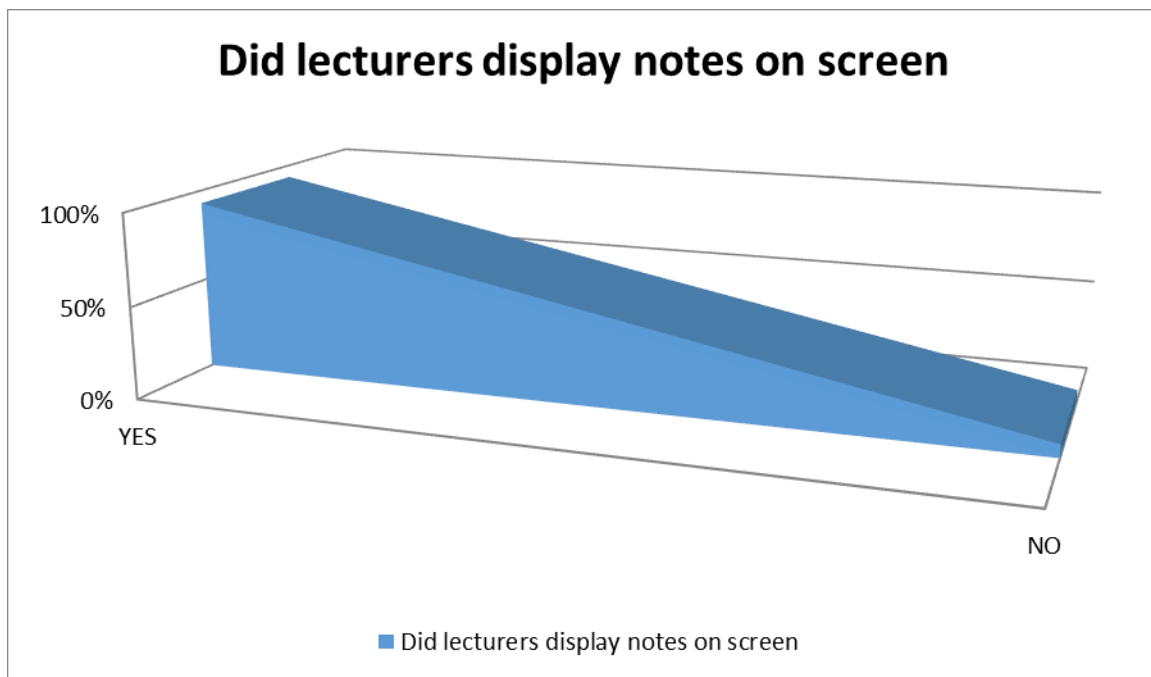
The other significant findings that were found out was that 75% of the students who were engaged in the research study agreed that using the Kenet Web Conferencing Technology, they were be able to ask questions, give comments and access various e-books recommended by their lecturers and the university fraternity for the benefit of their studies. The other

31

remaining 25% of the respondents were able to come into a constant agreement that they were unable to ask questions, give comments and access various e-books that were recommended by their lecturers for the benefit of their studies.

Table 10Ability to ask questions, comments and access to e-books

Ability to ask questions, comments and access to e-books	Percentile index
Yes	75%
No	25%

Figure 11Ability to ask questions, comments and access to e-books
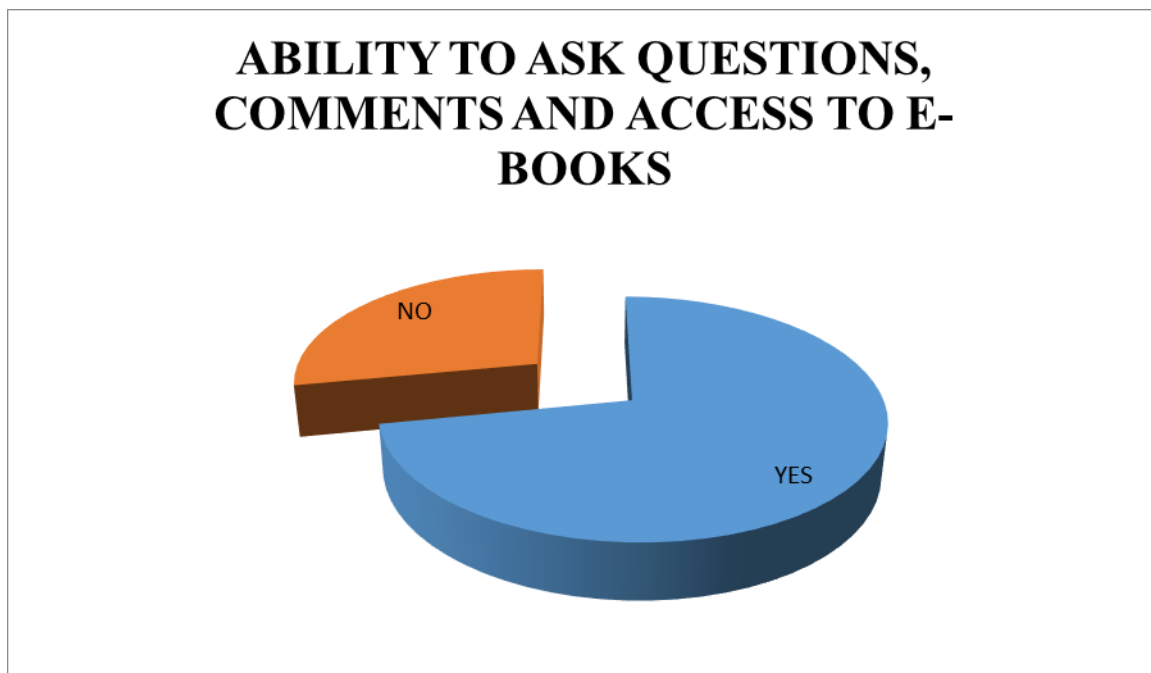
4.3 Discussion of findings on online platform (Based on questionnaires issued to lecturers)

4.3.1 Student attendance

The research study was able to find out on how the lecturers were able to make their statements and conclusions on how the students were attending classes virtually. The research study was able to account that 80% of the students attend the classes on an average scale. 15% of the students attend the classes on a good scale while the remaining 5% of the students are not able to attend classes properly thereby being clustered as students who attend classes on below average scale.

Table 11 Student attendance

Student attendance	Percentile figure
Good	15%
Average	80%
Below average	5%

*Figure 12 **Student attendance***

STUDENT ATTENDANCE

The research study also accounted information from the lecturers on the consistency of class attendance at the stipulated time frame. The lecturers were able to find out that 55% of the students who undertook virtual learning did not satisfy the requirement of staying on-class during a class session and thus resulted towards most students potentially having the behavior of attending class's mid-way during the virtual learning.

Moreover, 45% of the remaining students were recognized by their lecturers as those students that were able to stay during the whole hours of a learning session and thereby satisfied the university guidelines on making sure that a student is able to complete the required class attendance hours.

Table 12Student time attendance

Student time attendance	Percentile figure
Students who attended fully the whole learning sessions	45%
Students who did not attend fully the whole learning sessions	55%

*Figure 13**Student time attendances***
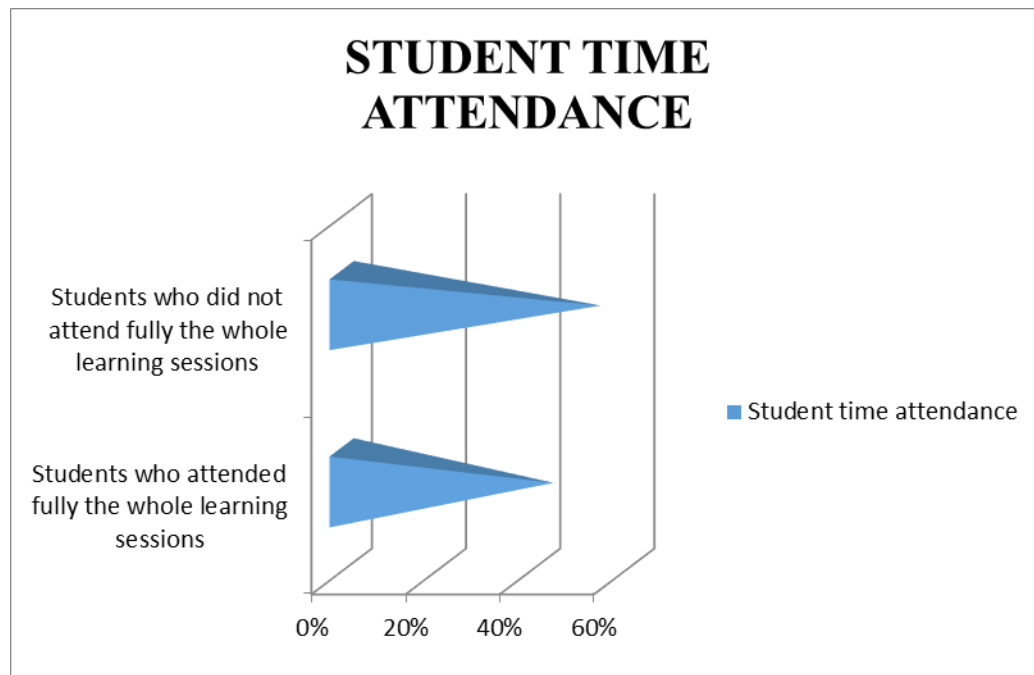
4.3.2 Student participation and presentation

The research study was able to attain the various information on the student's participation on various learning activities as well as the various presentations that might be undertaken in the various classes. It was found out that 75% of the students were able to carry on various

learning participations which include; asking of questions on the virtual platforms, answering

questions from lecturers and commenting on various topics.

Nevertheless, the lecturers also alluded that 25% of the students were not able to participate

actively in the learning activities as well as the class presentations that were sometimes

enforced by the lecturers.

Table 13 Student participation and presentation

Student participation and presentation	Percentile figure
Active participators and presenters	75%
Passive participators and presenters	25%

Figure 14 **Student participation and presentation**

STUDENT PARTICIPATION AND PRESENTATION
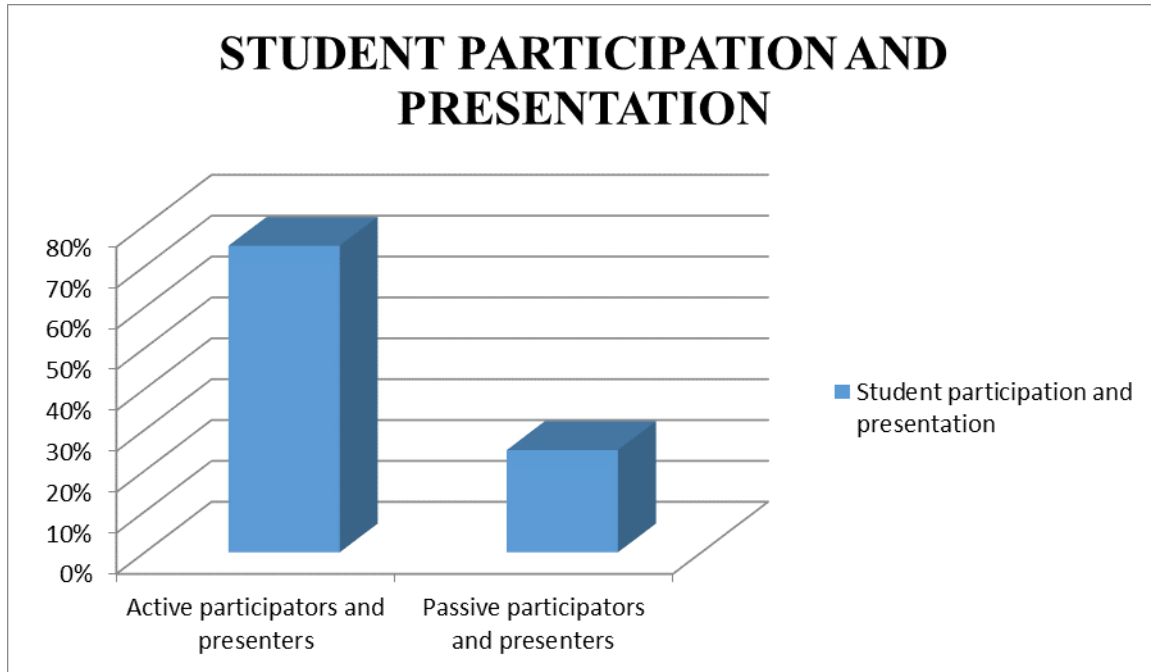
4.4 Discussions of findings (Based on questionnaires from the Information technology department)

4.4.1 Complains by the students who undertook e-learning process.

The research study undertook a research analysis on how the information technology department was able to receive or get any complaints regarding how the students were giving out suggestions and complain on the issue of eLearning. The consolidated data is expressed and explained in the below tables and figures.

Table 14 Complains by the students who undertook e-learning process

Were there any complains	Percentile figure

concerning e-learning	
Yes	65%
No	35%

Table 15 Complains by the students who undertook e-learning process.

*Figure 15 **Were there any complains concerning e-learning***
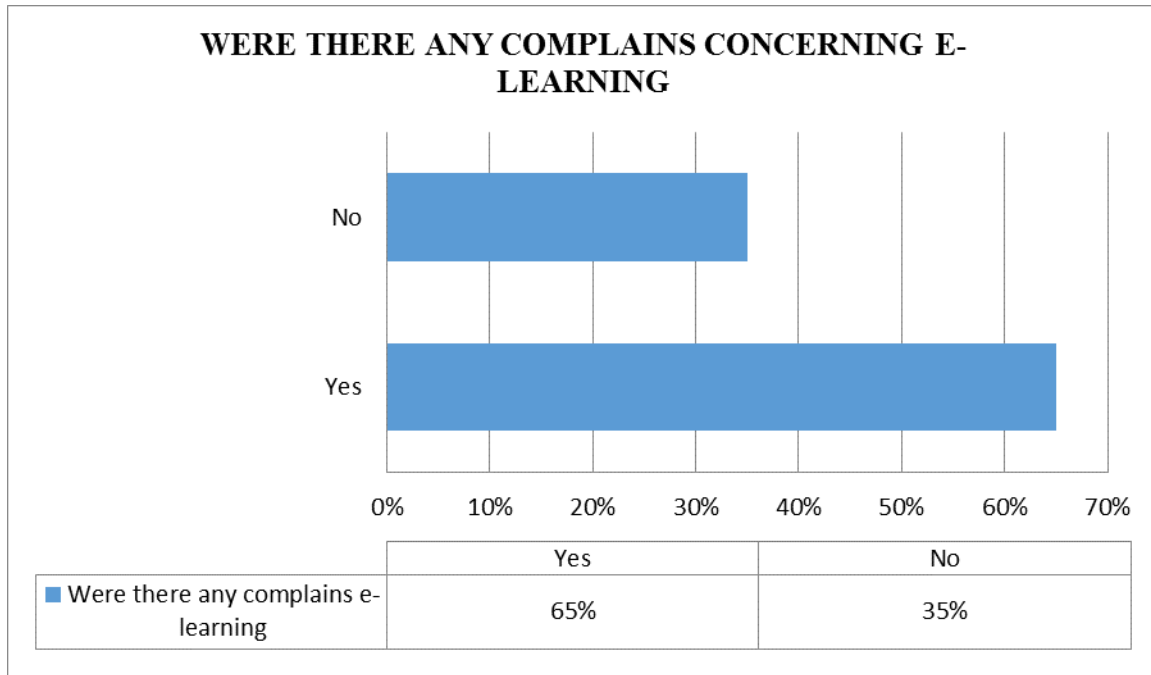
The research study was able to analyze the various opinions and responses that the students gave out the information technology department concerning if there was any complaint that they would in turn wish to make regarding the concern on the implementation and the usage of eLearning. A statistical data of the results indicated that 65% of the respondents indicated that most students gave out serious complains regarding the use of e-learning in Gretsa University while the remaining 35% of the respondents gave out a no opinion on whether there were any complaints that were made regarding the use of e-learning.

Table 16Complains addressed

COMPLAINS ADDRESSED	PERCENTILE
Failure by the administration to provide free internet bundles to students from disadvantaged backgrounds	45%
Network Bandwidth (Strength of the network) as a result of large geographical configurations	30%
Inconvenient technical error	15%
Delay of lecturers to attend classes	10%

Figure 4.15 complains addressed

COMPLAINTS ADDRESSED BY THE STUDENTS TO THE…

■ Failure by the administration to provide free internet bundles to students from disadvantaged backgrounds

■ Network bandwiths(Stength of the network) as a result of large geographical configurations

30%

15%

25%

45%

10%
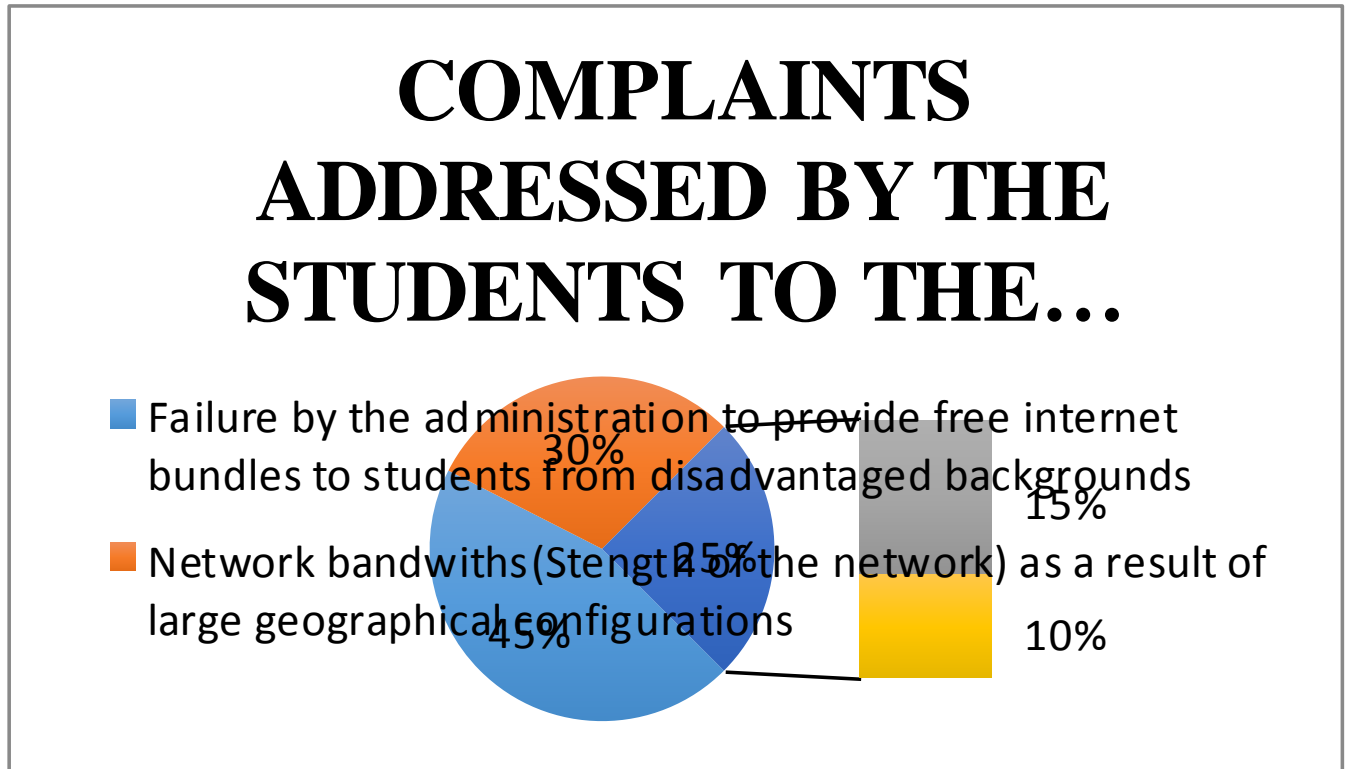
Figure 16 complaints addressed by student

The research study was able to obtain various information that in turn gave out findings regarding the various complaints that the students addressed regarding the use and the application of e-learning technology. A statistical data issued stated that 45% of the respondents complained of Failure by the administration to provide free internet bundles to students from disadvantaged backgrounds, while 30% of the students complained on Network Bandwidth (Strength of the network) as a result of large geographical configurations, 15% of

the students complained about inconvenient technical error while 10% of the other remaining students complained on Delay of lecturers to attend classes

4.4.2 Complaints by the lecturers who undertook e-learning process.

The research study undertook a research analysis on how the information technology department was able to receive or get any complaints regarding how the teachers were giving out suggestions and complain regarding the issue to do with online learning. The consolidated data is expressed and explained in the below tables and figures.

Table 17complaints by the lecturers who undertook e-learning process

COMPLAINTS BY THE LECTURERS WHO UNDERTOOK E-LEARNING PROCESS.	PERCENTILE
No	28%
Yes	72%

Figure 17 complaints by the lecturers who undertook e-learning process

The research study also went and sought to investigate on how the information technology respondents were able to capture their views, ideas and suggestions regarding if the lecturers at Gretsa University were in turn able to give out any complains with regards to the use of e-learning technology that was administered unto Gretsa University-Thika.

The research study was able to account that 28% of the lecturers gave out a remarkable opinion and did not convey any message on whether they had any complaint or problem with regards to the use and application of E-learning technology in Gretsa University. The other remaining 72% of the respondents were satisfied with the fact that they had obliged to issue out complaints regarding the use of eLearning at Gretsa University-Thika.

Table 18complaints by the lecturers who undertook e-learning process

COMPLAINTS BY THE LECTURERS WHO UNDERTOOK E-LEARNING PROCESS	PERCENTILE INDEX
Irregularities in most of the learning tests (i.e. CATS and Main exams)	70%
Underprivileged opportunities to teach practical courses (Cooking, Baking and wine preparations) in the hospitality department and computer practical classes.	16%
Inadequate technological facilities to help in the aid of teaching technical subjects (Pot math Software used in	14%

Mathematics)

The research study carried out an analysis on the various complaints by the lecturers who undertook e-learning process. A statistical percentile indicated that 70% complained about Irregularities in most of the learning tests (I.e. CATS and Main exams) whereby the students copy and pasted the exam results from various internet sources and search engines (Google, Research gate, Sage and Course hero). 16% of the lecturers complained on Underprivileged opportunities to teach practical courses (Cooking, Baking and wine preparations) in the school of hospitality department while 14% of the lecturers complained on Inadequate technological facilities to help in the aid of teaching technical subjects (Pothmath Software used in Mathematics)

4.5 Effectiveness of eLearning to the learning process during Covid19 lull at Gretsa University

The research study sought to analyze and give information on how effective has the application of e-learning been effective on the learning process during the Covid19 lull at Gretsa University. A statistical data was obtained in which the respondents were able to give out their views and opinions based on the how they believed that the application of e-learning was effective in terms of the learning process.

The students and the lecturers gave out similar information as to regards on whether the application of eLearning has indeed resulted towards the effective elearning application.

The students first advocated that the application of elearning technology was ineffective in that, some of them experienced a lot of technical hitches during the time of class learning process and others also were having the major challenge of low bandwidth strength capacity onto students who are logistically located in rural areas of Kenya. This then limited them from accessing effective learning processes.

The lecturers advocated that the application of e-learning was ineffective in that, some of them faced the challenge of not being privileged to have the safe capacity and opportunity to lecturer their students in correspondence to the nature and preferential standards of their course. This was evident whereby several schools (i.e. school of hospitality, school of computer science, school of health science), suffered this challenge and thus limited their efficiency in the delivery of learning standards. Such schools included; school of hospitality whereby students who wanted to learn the skill and art of pastries and baking had no avenue to carry on with food production practical's in the Gretsa Exotica restaurant, the school of health science which suffered the challenge of not undertaking any anatomy and health laboratory science practical's while the school of computing and informatics suffered the challenge of not attending or carrying on with physical software and hardware practical.

Cluster of respondents	Those who believed it was effective	Those who believed it was not effective
Students	35%	65%
Lecturers	40%	60%

I.T department	66%	34%

Table 4.16 Effectiveness of eLearning to the learning process during Covid19 lull at Gretsa University
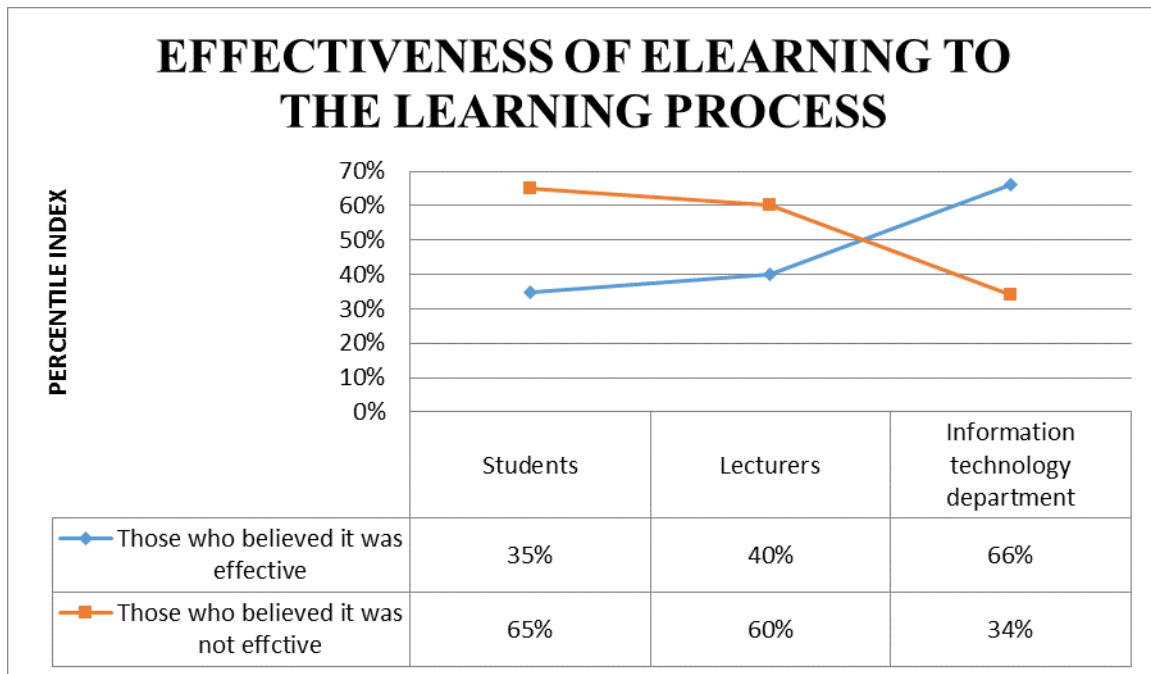
Figure 18 effectiveness of eLearning to learning process

Figure 19Effectiveness of eLearning to the learning process during Covid19 lull at Gretsa University

EFFECTIVENESS OF ELEARNING TO THE LEARNING PROCESS

	Students	Lecturers	I.T department
THOSE WHO BELIEVED IT WAS INEFFECTIVE	65%	60%	34%
THOSE WHO BELIEVD IT WAS EFFCETIVE	35%	40%	66%
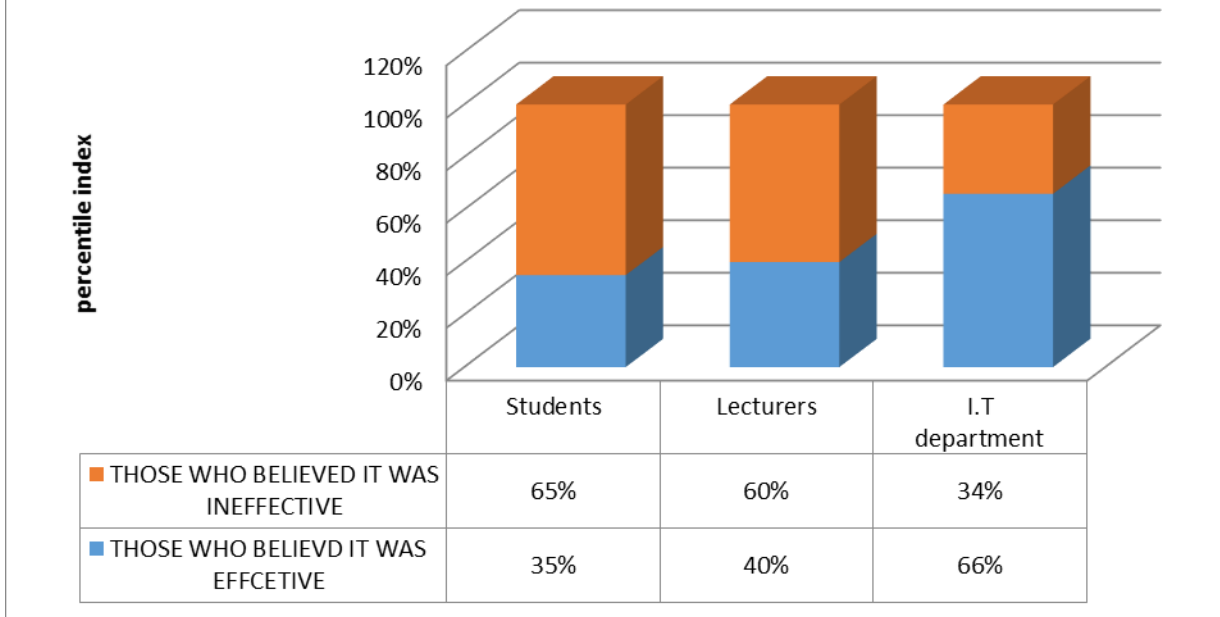
Figure 4.18 Effectiveness of eLearning to the learning process during Covid19 lull at Gretsa University (Based on the general objective of the study)

4.5.1 Inferential statistics

Inferential statistics was carried out to determine if indeed the variables e-learning resources, network connectivity and online platforms used do correlate and thereby a Pearson correlation coefficient was used in order to mathematically calibrate if indeed the three independent variable do have a correlation all together in order to relate with the dependent variable, thereby bringing up an occurrence on whether the independent variables are either constant or flexible.

Pearson Correlation is primarily known as Pearson Product Movement Correlation and its application is the use of linear relationships on the two or three sets of data that shows the measure of intertwined relationships.

The formula for the Pearson correlation co-efficient formula is:

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

Table 19 ***Inferential statistics (Based on the determining the general objective of the study)***

PERCENTILE VALUE	DECIMAL VALUE
35%	0.35

40%		0.4
66%		0.66
65%		0.65
60%		0.60
34%		0.34

*Table 20***Inferential statistics (Based on the determining the general objective of the study)**

Item value	Effective (x)	Not effective(y)	Xy	x^2	y^2
Students	0.35	0.65	0.2275	0.1225	0.4225
Lecturers	0.4	0.6	0.24	0.16	0.36
I.T department	0.66	0.34	0.2244	0.4356	0.1156
Sub-total	1.41	1.59	0.6919	0.7181	0.8981

X— Represents those who answered that the process was effective.

y— Represents those who answered that the process was not effective.

$$r = \frac{n(\sum xy) - (\sum x)(\sum y)}{\sqrt{[n\sum x^2 - (\sum x)^2][n\sum y^2 - (\sum y)^2]}}$$

r=Pearson coefficient

n=number of the pairs of the stock

$\sum xy$=sum of products of the paired stocks

$\sum x$=sum of the x scores

$\sum y$=sum of the y scores

$\sum x^2$=sum of the squared x scores

$\sum y^2$=sum of the squared y scores

$$r = \frac{3(0.6919) - (1.4 \times 1.59)}{\sqrt{[(3 \times 0.7181) - 0.1681][(3 \times 0.8981) - 2.5281]}}$$

$$\frac{2.0757 - 2.226}{\sqrt{2.1543 - 0.1681}}$$

$$\frac{-0.1503}{\sqrt{0.33010644}}$$

$$= -0.2612$$

The research study sought to carry out a Pearson Correlation Co-efficient data analysis in which they were able to analyze the relationship between the dependent variables (E-learning resources, network connectivity and online platforms used) that in turn would establish the occurrence of the phenomenal which then establishes the Independent variable (The learning process at Gretsa University)

Upon the establishment of data and analysis of data, the research study was able to give a statistical result of

-0.2893. A mathematical value of 0 provides numerical information that there is no significant relationship between related sets or variables. This gives an account that the three variables have no correlation with each other and therefore results towards establishing that if by any chance the variables do not have a close or any relationship with one another, then therefore it means that the dependent variable may not result into any phenomal occurrence thereby resulting towards the fact that in the effectiveness of e-learning on the learning process in Gretsa University was not effective in any occurrence at all.

CHAPTER FIVE: SUMMARY, CONCLUSION AND RECOMMENDATION

5.0 Introduction

This section mainly contains the various information pertaining to the respondent's information on the findings that were gotten in the research study.

5.1 Summary of findings

5.1.1 The response rate of respondents

Given that the study issued about 191 respondents with questionnaires and 80% (153 respondents) were able to compile complete responses, we therefore believe that the high rate of response is an adequate support to the findings of the study.

5.1.2 E-learning resources

The study revealed that the respondents (students) used various gadgets and resources to undertake the eLearning. These included laptops and phones. The most fundamental of these resources being electricity. Statically, 68% of the respondents used phones and the remaining 32% used laptops to undertake the eLearning. 90% of the respondents confirmed that they were able to access electricity during the eLearning while unfortunately, the remaining 10% were unable to access the vital resource. The misfortunes of the 10% of the respondents who were not able to access electricity were mainly due to the remoteness of their locations.

5.1.3 Network connectivity

The research study was able to analyze and conceptualize on the research findings pertaining to to the aspect to do with the various types of network service providers that were mainly offering students with the necessary internet services so as to ensure that they do not succumb to lack of internet service during their period of learning in the university.

A statistical fraction of 70% of the respondents was mainly using Safaricom as their most preferable network provider in terms of internet connections and services. The other remaining 30% of the respondents mainly preferred using Airtel as their other choice network service provider.

Of the two types of network provider, Safaricom was termed to be the best in network bandwidth with a percentile index of 70% while Airtel network provider was termed to have provided their internet services at an average rate of 52%.

5.1.4 Online Platforms used in E-learning

There are various findings that the research study was able to accumulate pertaining to the aspect to do with the various online platforms that in turn were used in E-learning studies of the students of Gretsa University The most significant findings that the research study was able to attain was that Kenet E-learning Technological Systems.

The research study was able to carry out research on the various platforms that in turn were used in the process of learning among the respondents who were University Students at Gretsa University. The respondents gave an account that the most viable and convenient mode of learning that they were able to use was the kenet web conferencing system.

The respondents gave out their numerous information concerning how Kenet Web conferencing was useful and convenient in terms of administering learning in the learning institutions. Out of the respondents that were engaged in the research study, 93% of the respondents agreed that indeed their respective lecturers were able to display notes on the screens. The remaining 7% of the respondents all came to an agreement that lecturers were

not able to display notes on the screens thereby causing distortions on the learning process activities.

The other significant findings that were found out was that 75% of the students who were engaged in the research study agreed that using the Kenet Web Conferencing Technology, they were be able to ask questions, give comments and access various e-books recommended by their lecturers and the university fraternity for the benefit of their studies. The other remaining 25% of the respondents were able to come into a constant agreement that they were unable to ask questions, give comments and access various e-books that were recommended by their lecturers for the benefit of their studies.

5.1.5 Student attendance

The research study was able to find out on how the lecturers were able to make their statements and conclusions on how the students were attending classes virtually. The research study was able to account that 80% of the students attend the classes on an average scale. 15% of the students attend the classes on a good scale while the remaining 5% of the students are not able to attend classes properly thereby being clustered as students who attend classes on below average scale.

The research study also accounted information from the lecturers on the consistency of class attendance at the stipulated time frame. The lecturers were able to find out that 55% of the students who undertook virtual learning did not satisfy the requirement of staying on-class during a class session and thus resulted towards most students potentially having the behavior of attending class's mid-way during the virtual learning.

Moreover, 45% of the remaining students were recognized by their lecturers as those students that were able to stay during the whole hours of a learning session and thereby satisfied the university guidelines on making sure that a student is able to complete the required class attendance hours.

5.1.6 Student participation and presentation

The research study was able to attain at the various information on the student's participation on various learning activities as well as the various presentations that might be undertaken in the various classes. It was found out that 75% of the students were able to carry on various learning participations which include; asking of questions on the virtual platforms, answering questions from lecturers and commenting on various topics.

Never the less, the lecturers also alluded that 25% of the students were not able to participate actively in the learning activities as well as the class presentations that were sometimes enforced by the lecturers.

5.1.7 Complains by the students who undertook e-learning process.

The research study undertook a research analysis on how the information technology department was able to receive or get any complaints regarding how the students were giving out suggestions and complain regarding the issue to do with online learning. The consolidated data is expressed and explained in the below tables and figures.

The research study was able to analyze the various opinions and responses that the students gave to the information technology department concerning if there was any complaint that they would in turn wish to make regarding the concern on the implementation and the usage of eLearning. A statistical data of the results indicated that 65% of the respondents indicated

that most students gave out serious complains regarding the use of e-learning in Gretsa University while the remaining 35% of the respondents gave out a no opinion on whether there were any complaints that were made regarding the use of e-learning.

The research study was able to obtain various information that in turn gave out findings regarding the various complaints that the students addressed regarding the use and the application of e-learning technology. A statistical data issued stated that 45% of the respondents complained of Failure by the administration to provide free internet bundles to students from disadvantaged backgrounds, while 30% of the students complained on Network Bandwidth (Strength of the network) as a result of large geographical configurations, 15% of the students complained about inconvenient technical error while 10% of the other remaining students complained on Delay of lecturers to attend classes

5.1.8 Complaints by the lecturers who undertook e-learning process.

The research study also went and sought to investigate on how the information technology respondents were able to capture their views, ideas and suggestions regarding if the lecturers at Gretsa University were in turn able to give out any complains with regards to the use of e-learning technology that was administered unto Gretsa University-Thika.

The research study was able to account that 28% of the lecturers gave out a remarkable opinion and did not convey any message on whether they had any complaint or problem with regards to the use and application of E-learning technology in Gretsa University. The other remaining 72% of the respondents were satisfied with the fact that they had obliged to issue out complaints regarding the use of the application of eLearning at Gretsa University-Thika

The research study carried out an analysis on the various complaints by the lecturers who undertook e-learning process. A statistical percentile indicated that 70% complained about Irregularities in most of the learning tests (I.e. CATS and Main exams) whereby the students copy and pasted the exam results from various internet sources and search engines (Google, Research gate, Sage and Course hero). 16% of the lecturers complained on Underprivileged opportunities to teach practical courses (Cooking, Baking and wine preparations) in the hospitality department while 14% of the lecturers complained on Inadequate technological facilities to help in the aid of teaching technical subjects (Photo math Software used in Mathematics)

5.2 Conclusion

The research study sought to analyze and give information on how effective has the application of e-learning been effective on the learning process during the Covid19 lull at Gretsa University. A statistical data was obtained in which the respondents were able to give out their views and opinions based on the how they believed that the application of e-learning was effective in terms of the learning process.

The students and the lecturers gave out similar information as to regards on whether the application of eLearning has indeed resulted towards the effective eLearning application.

The students first advocated that the application of eLearning technology was ineffective in that, some of them experienced a lot of technical hitches during the time of class learning process and others also were having the major challenge of low bandwidth strength capacity onto students who are logistically located in rural areas of Kenya. This then limited them from accessing effective learning processes.

The lecturers advocated that the application of e-learning was ineffective in that, some of them faced the challenge of not being privileged to have the safe capacity and opportunity to lecturer their students in correspondence to the nature and preferential standards of their course. This was evident whereby several schools suffered this challenge and thus limited their efficiency in the delivery of learning standards. Such schools included; school of hospitality whereby students who wanted to learn the skill and art of pastries and baking had no avenue to carry on with food production practical's in the Gretsa Exotica restaurant. The school of health science which suffered the challenge of not undertaking any anatomy and health laboratory science practical's while the school of computing and informatics suffered the challenge of not attending or carrying on with physical software and hardware practical.

The research study sought to carry out a Pearson Correlation Co-efficient data analysis in which they were able to analyze the relationship between the dependent variables(E-learning resources, network connectivity and online platforms used) that in turn would establish the occurrence of the phenomenal which then establishes the Independent variable (The learning process at Gretsa University)

Upon the establishment of data and analysis of data, the research study was able to give a statistical result of

-0.2893. A mathematical value of 0 provides numerical information that there is no significant relationship between related sets or variables. This gives an account that the three variables have no correlation with each other and therefore results towards establishing that if by any chance the variables do not have a close or any relationship with one another, then therefore it means that the dependent variable may not result into any phenomal occurrence thereby

resulting towards the fact that in the effectiveness of e-learning on the learning process in Gretsa University was not effective in any occurrence at all.

5.3 Recommendations on policy frameworks

5.3.1 E-learning

The students in first place attributed that the effectiveness of elearning was not effective due to the fact that most of the time technical hitches (System collapse) were experienced during the normal learning class time which brought about inconvenience to most learners in the institution. The research recommends that, frequent and constant observation and software repair of the E-learning system so as to ensure that there is no single challenge of technical hitches (system collapse) during the learning process.

The second challenge that was faced by students was on the issue to do with how effective was the learning process towards various technical and practical subjects such as Baking and Pastries in the school of hospitality, Networking and hardware repair of computers in the school of computing, and anatomy and science lab practical's in the school of health science, mathematics illustrations and analysis for the school of education. The research study further recommends that the office of the Chancellor and vice chancellor of Gretsa University should enforce an administrative policy that all the students and the lecturers from the school of education specifically the department of mathematics, to obtain a Photo math Mathematics Software that will allow them to learn mathematics in a precise way without any interruptions.

The third challenge was that the office of the Chancellor and Vice chancellor and the school of health science and the school of computing and informatics should create an avenue in

which students may access some of the practical facilities. This will be achieved through the following ways:

The school of Computing and informatics should send the hardware laboratory apparatus to the students who are logistically scattered to the various differentiated geographical regions. This will be effective in that during the eLearning practical sessions students will achieve the capability to learn in a proper way using various virtual methods. This will be achieved since the University gets payment of practical fee to students and they may use this amount to purchase new hardware apparatus or either transports the co-existing apparatus to the students.

The school of health science should make various networks and linkages with various health facilities within a student's geographical vicinity and liars with them to allow the students to carry on with the practical sessions in the health facility laboratories. This will help even in the molding the student to attain an opportunity to work with the health facility in future upon satisfying the board of governing faculty of the health facility organization if by any chance they are able to see the potential skill of the students. This can be achieved because during the Covid19 period, no hospital can be closed down by the government. In the eventual case whereby the student is far from the health facility, the school may offer to either create boarding facilities to the student or rather offer transportation expense to the student.

5.4 Recommendations for further studies

The research study issues out the following recommendations for future studies. More research should be carried out in a way to make sure they have the solution or rather a closer recommendation on how e-learning can be practically and theoretically effective in the School of Hospitality and Computer Science. This is due to the fact that, there are some lessons that may require large capacity equipment that may be expensive for the University to purchase and maintain them for the students who are undertaking the courses.

For example, if a hospitality class contains 50 students and the school intends to teach virtually and provide Ovens to the logistical differentiated areas of the students, the University may see this as challenging since it may be forced to purchase 50 ovens for every learner who is logistically scattered into differentiated places. Moreover, if by any chance the Covid19 pandemic is contained, therefore the University will be left with 50 extra ovens which may not be a surplus facility in the school of hospitality.

The research study further recommends that a similar research should be done in a different university, properbly in a public university with large number of students to validate on the findings.

REFERENCES

Al Kurdi, B., Alshurideh, M., & Salloum, S. A. (2020). Investigating a theoretical framework for e-learning technology acceptance. *International Journal of Electrical and Computer Engineering (IJECE)*, *10*(6), 6484-6496.

Aparicio, M., Bacao, F., & Oliveira, T. (2016). An e-learning theoretical framework. *An e-learning theoretical framework*, (1), 292-307.

Bates, A. W. (2015). *Teaching in a digital age: Guidelines for designing teaching and learning*.

Coates, H. (2006). *Student engagement in campus-based and online education: University connections*. Routledge.

Dabbagh, N., & Kitsantas, A. (2012). Personal Learning Environments, social media, and self-regulated learning: A natural formula for connecting formal and informal learning. *The Internet and higher education*, *15*(1), 3-8.

Ducoffe, R. H. (1996). Advertising value and advertising on the web. *Journal of advertising research*, *36*(5), 21-21.

Essmiller, K., Thompson, P., & Alvarado-Albertorio, F. (2020). Performance improvement technology for building a sustainable OER initiative in an academic library. *TechTrends*, *64*(2), 265-274.

Faber, R.J., Lee, M. and Nan, X., (2004), Advertising and the Consumer information on Research, 36: 21-35.and Policy, 12: 191-204. Brandweek, 46: 5.

Goldsmith, R.E. and Lafferty, B.A., (2002), Consumer response to Web site and their Gong, W. and Maddox.

Guenaga, M. L., Oliver, J., & Eguíluz, A. (2008). Enhancing The Accessibility Of Digital Resources With Metadata. In *e-Learning* (pp. 235-238).

Journal of Edwards, J., (2005), Pharmacy formulates plans to move marketing from TV Environment online. American Behavioral Scientist, 48: 447-466.

Journal of Edwards, J., (2005), Pharmacy formulates plans to move marketing from TV Environment online. American Behavioral Scientist, 48: 447-466.

Kent W., Ian, F., (2020), the Essential Guide to New Media and Education Platforms in china during the Covid 19 pandemi: 237-240.

Kitawi, A., & Neema-Abooki, P. (2014). Impact of e-Learning strategy on students' academic performance at Strathmore University, Kenya.

Mary, A. V., Kesavan, R., Monica Mirnalini, M. N., Ruth Gethsie, K., Prakash, C., & Priyanka, H. (2020). Dentistry in digital world: A conspectus.

Okpechi, P. A., Denwigwe, C. P., Asuquo, P. N., Abuo, C., & Unimna, F. U. (2018). Awareness and utilization of e-learning resources by trainee counsellors of counselling education in Calabar, Nigeria. *International Journal of Educational Technology and Learning*, *3*(2), 45-51.

Rodriguez- Ascaso, A., Boticario, J. G., Finat, C., & Petrie, H. (2017). Setting accessibility preferences about learning objects within adaptive elearning systems: User experience and organizational aspects. *Expert Systems*, *34*(4), e12187.

Teo, T. S., Kim, S. L., & Jiang, L. (2020). E-learning implementation in south Korea: Integrating Effectiveness and Legitimacy Perspectives. *Information Systems Frontiers*, *22*(2), 511-528.

Thomas, M. J., Lal, V., Baby, A. K., James, A., & Raj, A. K. (2021). Can technological advancements help to alleviate COVID-19 pandemic? a review. *Journal of Biomedical Informatics*, *117*, 103787.

Thompson, T. L., & MacDonald, C. J. (2005). Community building, emergent design and expecting the unexpected: Creating a quality eLearning experience. *The Internet and Higher Education*, *8*(3), 233-249.

STUDENT'S RESEARCH QUESTIONNAIRE

Instructions

Follow the given instructions as indicated below:

a) Kindly do NOT indicate your name on the research questionnaire

b) Answer the questions by putting a TICK on the right answer.

E-LEARNING RESOURCES

I.   Which of the following gadgets did you use to attend online classes?

    a. Computer   (   )

    b. Smart phones   (   )

II. Was the gadget yours or borrowed?

    a. mine   (   )

    b. borrowed   (   )

III. Were you able to access electricity?

    a. Yes   (   )

    b. No   (   )

NETWORK CONNECTIVITY

I.   Which geographical area were you in while undertaking eLearning?

a. Urban   (   )

b. Rural   (   )

II.   Which network provider were you using while undertaking elearning?

a. Safaricom   (   )

b. Airtel   (   )

III. How was the network bandwith (strength) during elearning?

      a. Strong   (   )

      b. Average   (   )

      c. Weak   (   )

ONLINE PLATFORMS

I. Were the lectures able to display notes on the screen?

      a. Yes   (   )

      b. No   (   )

II. Were you able to ask questions and give comments during eLearning?

      a. Yes   (   )

      b. No   (   )

III. Did you make class presentations?

      a. Yes   (   )

      b. No   (   )

MEASURE OF GENERAL OBJECTIVE

A.   Was there any effectiveness of eLearning to the learning process during Covid19 lull at Gretsa University?

      Yes   (   )

      No   (   )

COMMENT

....

....

....

....

....

LECTURER'S RESEARCH QUESTIONNAIRE

Instructions

Follow the given instructions as indicated below:

a) **Kindly do NOT indicate your name on the research questionnaire**

b) **Answer the questions by putting a TICK on the right answer.**

QUESTIONNAIRES

1. What was the average class attendance of your learners during the online classes?

    a. Good   (   )

    b. Average   (   )

    c. Below average   (   )

2. Were students able to attend classes in the duration stated?

    a. Yes   (   )

    b. No   (   )

3. Were students able to participate by asking question, giving comments in class during online learning?

    a. Yes   (   )

    b. No   (   )

4. Were there online class presentations by students?

    a. Yes   (   )

    b. No   (   )

5. Were you able to display your class notes on the screen?

    a. Yes   (   )

    b. No   (   )

MEASURE OF GENERAL OBJECTIVE

6.   Was there any effectiveness of eLearning to the learning process during Covid19 lull at Gretsa University?

    i. Yes   (   )

    ii. No   (   )

COMMENT

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

………………………………………………………..

…………………………………………………………………………………………………

…………………………………………………………………………………………………

…………………………………………………………………………………………………

....

....

....

....

....

....

....

APPENDIX THREE: RESEARCH QUESTIONNIARE

RESEARCH QUESTIONNAIRE

Instructions

Follow the given instructions as indicated below:

a) **Kindly do NOT indicate your name on the research questionnaire**

b) **Answer the questions by putting a TICK on the right answer.**

QUESTIONS FOR I.T DEPARTMENT

Which online platform did you use for online studies?

Kennet   (   )

Google meet   (   )

Did you obtain or got any complain from the lecturers or students concerning e-learning

Yes   (   )

No   (   )

If yes, what were the challenges?

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……………………………………………………………………………………………………

……

…………………………………………………………………………………………………

……

……

……

……

……

<u>MEASURE OF GENERAL OBJECTIVE</u>

1.   Was there any effectiveness of eLearning to the learning process during Covid19 lull at Gretsa University?

      i. Yes   (   )

     ii. No   (   )

COMMENT

……

……

……

……

………………………………………………………………………………………………………

……

……

……

……

……

……

……

……

……

…………