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## **ONLINE LEARNING AMONGST UNIVERSITY OF NAIROBI UNDERGRADUATE STUDENTS AMID COVID-19 PANDEMIC, KENYA**

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### **Abstract**

*Acquisition of Education is crucial in an individual and society's development which cuts across different stages of human growth with specific and achievable goals. The survey sought to establish the extent to which the Corona Virus Pandemic influenced the adoption of Online learning among undergraduate students of the University of Nairobi. The study had five objectives which focused on learners' attitudes towards the adoption of virtual learning, how they learned online while coping with online challenges. A total of 232 students were used while the Spear-man Coefficient of Correlation Formula was applied to test research instruments' reliability. Data was analyzed and presented in tabular, graphic, and percentages forms. The study established that 109 respondents forming 46.98% didn't know online learning existed, while 34 forming 14.66% felt it was impossible to learn online. Further, 45 respondents forming 19.40% felt the method was not suitable for examinations while 44 (18.96%) preferred face-to-*

*face teaching. Respondents used Google Meets and Google Classroom to learn. Despite the university ensuring learning continued online, 151 students forming 65.09% faced unreliable electricity, internet unreliability, and unfavorable study environments. The survey recommended that strategies were urgently needed for building a Resilient Education System to enhance learning in the university.*

### **Keywords**

COVID-19 Pandemic, Cessation of Movement, Lockdown, Online Platforms, Resilient Education System

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## **1. Introduction**

Education is universally recognized as a basic human right to which every child of school-going age is entitled. Walsh, 2009 observes that education is so essential in one's life that when its provision to learners is disrupted, it brings far-reaching consequences that are capable of breaking society and many generations to come. The main goal of education at the university level is to see to it that it has prepared learners adequately for a life of purpose within any given environment or society by offering them a diversified curriculum that caters to individual differences and one that takes care of their talents, opportunities and also their future responsibilities while inspiring them to have the desire for self-development and achievement of full satisfaction, among others. Corona Virus disease was first discovered in December 2019 in Wuhan which is one of the cities in China. Since that time, many countries across the world have witnessed thousands of cases of infections that have led to the loss of lives and by extension closer of many higher education learning institutions.

MoHFW, 2020 observed that, as of 22<sup>nd</sup> June 2020, positive Corona Virus cases had surpassed 8000 marks while in India for example, as of 18<sup>th</sup> June 2020 alone, it had reported 170,384 positive cases, 194,324 recoveries, and 12,237 deaths. The Kenyan government, while working together with other governments globally, came up with stringent mitigation measures that were aimed at controlling the spiral spreading nature of the virus and which included nationwide curfews and lock-downs. Cecco, 2020 pointed out that the Canadian government started providing essential services from 1<sup>st</sup> August 2020.

According to Davis et. al. 2015, undergraduate education is education that is provided to learners who have successfully completed secondary school education and have joined colleges, university campuses, and their subsequent learning centers and for which the learner is typically expected to graduate after being awarded a Bachelors Degree in a congregation organized by his or her respective university. In some countries such as USA, Britain, Kenya, among others; all students who are registered

to do programs at higher education institutions, campuses, and also those enrolled in tertiary institutions are mostly referred to as "Campus students". As observed by Giuffrida et. al. 2020, approximately 600 million university students' learning was interrupted globally due to the closure of their learning institutions.

Abidah et.al. 2020, explains that, during lock-downs, lecturers are instructed to provide learning services through online learning platforms. According to Ebijuwa, 2005, there is a need for institutions of higher learning to embrace creative teaching which ensures learning continues irrespective of any prevailing virus outbreak. The unprecedented outbreak of COVID-19, according to Davies, & Tearle, 1999, has resulted in a digital revolution that is currently witnessed at institutions of higher learning. Universities have been left with no choice but to embrace virtual learning as an alternative measure to the face-to-face method of teaching in lecture theaters. According to Gonzalez et. al. 2020, the COVID-19 pandemic has brought about a significant positive impact. They observe that the virus has brought about a new era of learning efficiency and performances that have resulted in the adoption of contemporary online learning strategies.

## **2. Research Objectives**

The survey sought to achieve the following objectives;

- 1) To assess the extent to which online learning was adopted amongst undergraduate students of the University of Nairobi amid the Corona Virus Pandemic;
- 2) To assess the extent to which undergraduate students studying at University of Nairobi centers were conversant with the usage of available Online Platforms;
- 3) To examine the influence of Corona Virus Pandemic on students' learning status and progression during cessation of movement and lock-downs;
- 4) To assess the influence Corona Virus Pandemic had on learners' economic, social interactions and on their educational development.
- 5) To explore challenges undergraduate students studying at the centers were facing while using online platforms to attend their online classes.

## **3. Research Questions**

The survey was out to seek answers to the following questions;

1. To what extent had the Corona Virus Pandemic influenced undergraduate students' adoption of online learning platforms at learning centers?
2. To what extent were undergraduate students studying at the centers conversant with the usage of available Online Platforms?
3. How had COVID-19 Pandemic influenced students' learning status and progression during cessation of movement and lockdowns?
4. To what extent had COVID-19 Pandemic influenced students' economic, social Interactions and their educational development?
5. What were the challenges students enrolled at the University of Nairobi Centers facing while using online platforms to attend to their online lessons?

#### **4. Research Methodology**

This section details the research methodology that is the blueprint that guided the collection and analysis of data. It describes the research design, Targeted Population, Research Instruments, and also how the Validity and Reliability of the Instruments used were tested.

##### **4.1. Research Design**

This was an online survey-based study. According to Carlson, Firpo, 2001, a survey design is an instrument that is used to collect data focusing on information on a given phenomenon and is in most cases applied in psychology-based research that collect self-reported data from study respondents. The survey chose the design because it provides a suitable instrument for collecting a large amount of data which in this case was a structural questionnaire. The design therefore adequately covered both the independent and dependent variables in the survey and it made it possible for the researcher to obtain a lot of information in the survey area.

##### **4.2. Target Population**

Muloye, 2008 explains that the target population in a survey includes a set of units by which the survey's data is generated in order to be utilized in making inferences that will make the study arrive at generalized conclusions. This survey targeted 468 undergraduate students enrolled at Nakuru and Kisii Learning Centers of the University of Nairobi as per the official records available then. The researcher used Stratified Random Sampling criteria to select 232 respondents he used for the survey and he worked on an assumption that selected participants were going to be available at the time the survey was going to start.

### 4.3. Research Instruments

Using a structural questionnaire developed and administered online, the survey was conducted between 1<sup>st</sup> May and 20<sup>th</sup> July 2020 and it involved 232 participants. This number was arrived at through the Stratified Random Sampling procedure carried out by the researcher. The study also used an interview schedule to obtain data from the respondents. Both the questionnaire and the interview schedule were then sent to the selected sample through their group WhatSapps, and their email addresses. By using Google Meets and through purposive sampling, the researcher interviewed the administrators of the two centers, the Kisii Center Regional Coordinator, and two Class Representatives from the two centers.

### 4.4. Validity of Instruments

According to Joppe, 2000, and Gribalosik, Midaslimack, 2011, validity is the survey instruments' ability to accurately measure what it is set to measure, that is, how factual the information given by respondents is. The researcher improved the instrument's content validity by using experts to assess the suitability of the questions asked in the questionnaire and who then focused on areas of their expertise and made a judgment. The study, therefore, made use of the principal investigator, who is himself an expert in research to validate the instruments.

### 4.5. Reliability of the Instruments

Researchers use various techniques to test the reliability of instruments. As observed by Phelan & Wren, 2006, the split-half reliability technique was used to test the reliability of the instruments used for this survey whereby, the researcher randomly placed into two halves all questionnaire items that were seeking similar information. The test was then given to the sampled respondents who were carefully selected from outside the regions which were to be covered by this survey and the total score for the two sets was computed in order to get split-half reliability which made it possible for the researcher to get the correlation between the two 'split sets' of the scores. The researcher, therefore, computed the scores for each half using the Spear-man Coefficient of Correlation formula which made the final Correlation Coefficient index stand at 0.7 and which therefore was good enough for the research instruments' use in the study. The result was arrived at using the formula shown below;

$$\text{RELIABILITY OF SCORE ON TOTAL TEST} = \frac{2 * \text{RELIABILITY FOR } \frac{1}{2} \text{ TEST}}{1 + \text{RELIABILITY OF } \frac{1}{2} \text{ TEST}} \quad (1)$$

*(Source: Self)*

The instruments' internal consistency was also determined by grouping questions in the instruments that measure the same concept as observed by Gribalosik, Midaslimack, 2011. The study then used SPSS to calculate the piloted instruments' internal reliability by use of Cronbach Alpha since the instruments were seeking students' attitudes towards online learning using the Likert Summated Scale. The equivalent-Form method was used by developing two sets of instruments that measure the same variables. The instruments were then administered to the pilot respondents which were filled and collected immediately after they were completed. The two instruments were correlated to calculate consistency using Spear-man Correlation formula.

## **5. Literature Review**

This section presents a literature review by various scholars, the theory to which the study is anchored, and which therefore is relevant to the stated research questions. Besides, the literature reviewed mainly focuses on the themes developed from the objectives of the study.

### **5.1. Theory of Online Learning**

According to Farmer, 2005, Theory has been both celebrated and condemned in educational practice and research. Many proponents have argued that theory allows and even forces us to see the big picture and makes it possible for us to view our practice and our research from a broader perspective than envisioned from the murky trenches of our practice. This broader perspective helps us make connections with the work of others, facilitates coherent frameworks and deeper understanding of our actions, and perhaps most importantly, allows us to transfer the experience gained in one context to new experiences and contexts as noted by Flores, Gago, 2020.

This survey was guided by Connectivity Theory for Online Learning. According to Siemens, 2005, the Connectivity theory is for the digital age, where individuals learn and work in a networked environment. As a result, we do not have control over what we learn since others in the network continually change information, and that requires new learning, unlearning old information, and/or learning current information. Siemens proposes some guidelines for designing learning materials for the learner, based on Connectivity theory which includes, learners, being allowed to explore and research current information. Appropriate use of the Internet is an ideal learning strategy in a networked world according to Spivack, 2007. Mobile learning promises to help learners function in a networked world

where they can learn at any time and from anywhere as observed by Anderson, 2005. It is therefore based on this background knowledge on the theory that the researcher reviewed relevant literature for this study.

## **5.2. Search for Relevant Literature**

A search for related literature was done based on the themes developed from the survey's objectives. The search focused on the literature on online teaching and learning in the context of Online Teaching published between January 2000 and April 2020. The search was limited to this period because it was after the development of the World Wide Web and the generalization of the use of the Internet into many homes that online learning spread as observed by Bates, 2005. Publications whose title contained the term 'online learning', 'digital learning', or 'e-learning' or 'web-based learning' or 'remote learning' or 'distance learning' or 'virtual learning' and which responded to the descriptors/topics 'teacher education' or 'teacher training' or 'teacher preparation' were sought. Although the concepts of online, e-learning, virtual, digital, web-based, remote, or distance learning are rather different, they were considered relevant for the purpose of this survey of examining any kind of practice in which the teaching and learning process is mediated by the use of technology in a remote scenario. A total of 120 papers fulfilled the inclusion criteria established for this survey in terms of the publication source (academic journals), the nature of the studies (empirical), and the relevance of the topic (main focus on online teaching and learning practices).

## **6. Data Collection Procedure**

Data for this survey was collected by the researcher himself who undertook the exercise by administering the structured questionnaire and interview schedule to all respondents in the two centers. This resulted in the generation of primary data which was needed for the survey to progress well. The use of key informant interview-guided questionnaire administration. Participants' full consent was sought in a Google Meeting with all undergraduate students from the two centers held on 25<sup>Th</sup> April 2020 before their participation in the online survey. A total of 232 students and their center administrators provided complete information regarding the survey.

## **7. Data Analysis Procedure**

The researcher in this survey analyzed data using tables, percentages, and graphs. This was done in order to make the researcher get to know how respondents were distributed across the two survey areas. The researcher calculated percentages, Pearson Correlation Coefficient to establish research instruments' reliability whose final coefficient index was 0.7 and he also calculated participants' responses on educational decisions and problems related to their studying methods during the COVID-19 outbreak.

## 8. Study Findings and Discussions

The section presents an analysis of the study findings and their detailed discussions. Here the researcher presents the background information of the respondents and also findings based on the objectives of the study. It is important to note here that descriptive statistics have been employed in the analysis to discuss the issues in the best way possible.

### 8.1. Respondents' Background Information

This survey first undertook the analysis of the participants' personal profiles and the results were as shown in Table 1 below:

**Table 1:** *Participants' Ages, Gender, and Marital Status*

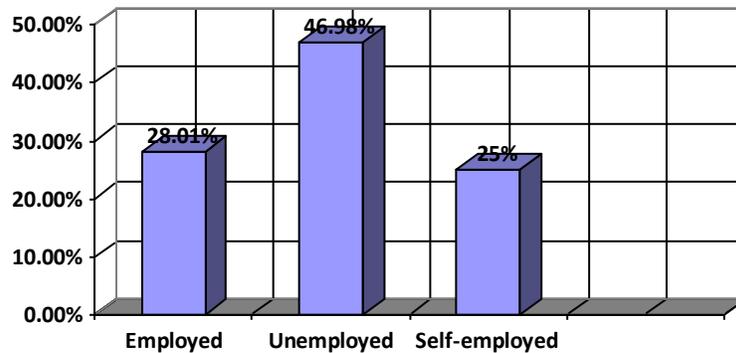
Participant	Age	N	%	Gender	N	%	Marital Status	N	%
	20-24	54	23.28	Males	116	50	Single	113	48.71
25-29	55	23.71	Females	116	50	Married	73	31.46	
30-34	53	22.84				Single Parents	46	19.83	
35-39	37	15.95							
40-44	33	14.22							
<b>TOTAL</b>		<b>232</b>	<b>100</b>		<b>232</b>	<b>100</b>		<b>232</b>	<b>100</b>

(Source: Self)

The survey findings in Table 1 indicate that students aged between 20 to 24 years were 54 in number which constituted 23.28% of the total number of participants while 23.71% of the respondents who were 55 in number were aged between 25 and 29. Those aged between 30 and 34 were 53 in total and they constituted 22.84% while those aged between 35 and 39 were 37 in number and they formed

15.95%. Only 33 participants who formed 14.22% were aged between 40 and 44 years. Findings of the survey thus indicate that, out of the total number of participants (232), almost two-thirds of them fell between the ages of 20 and 29 years with the median age being 30 years.

The survey had an equal number of male and female respondents who participated in it. The Regional Coordinator and Administrator of Kisii Center were all males while the Administrators of Nakuru and Kisii centers were females and therefore they were among the 232 participants of the survey. The survey also sought to establish the marital status of all participants as this was to help the researcher establish whether the students who participated in the study had the ability to make independent decisions on their academic progress or not and the results were as shown in figure 1 below:



**Figure 1:** *Participant's Marital Status*

*(Source: Self)*

From the information presented in figure 1, it is established that out of the 232 participants, 113 of them who formed 48.71% were single, 73 of them forming 31.46% were married and 19.83% were 46 in number were single parents. From the analysis, therefore, this means that those who were single were therefore depending on their parents and guardians and thus were not in a position to make independent decisions on issues concerning their studies, while those who were married also relied on their family members for support and would therefore not make independent decisions. The survey established that single mothers and fathers were more focused and determined to continue with their studies and graduate despite challenges brought about by the COVID-19 pandemic.

## **8.2. Respondents' Families Financial Status**

The survey also sought to establish the financial status of the participants and their families. This was important as it helped the research in establishing whether the participants were capable of meeting

the costs of buying laptops, having internet connectivity in their houses, and buying internet bundles which were necessary components in virtual learning. Besides, the study also sought to establish students who were employed and were earning a monthly salary and the results were as shown in Table 2 and Figure 2 below:

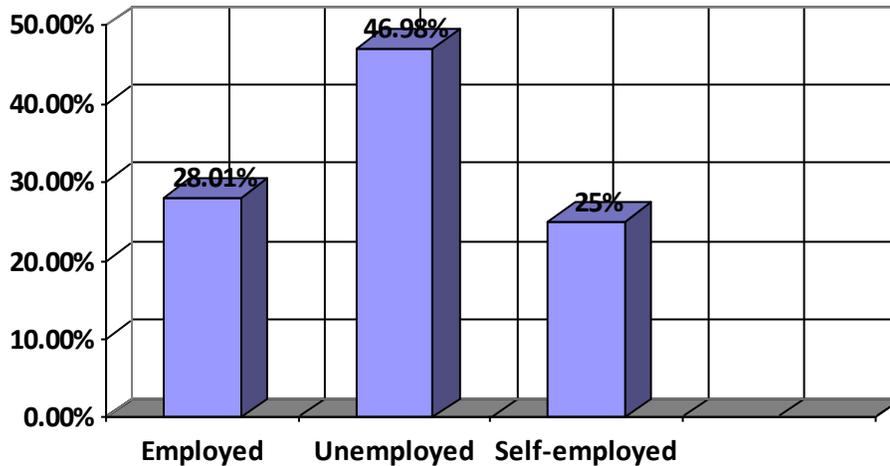
**Table 2: Participants and their Families Financial Status**

<b>Students</b>	<b>Monthly Income</b>	<b>N</b>	<b>%</b>	<b>Parents Category</b>	<b>Monthly Income</b>	<b>N</b>	<b>%</b>
<b>Employed</b>	1000 - 4999	22	9.48	<b>Employed</b>	1000 - 4999	21	9.05
	5000 - 9999	19	8.17		5000 - 9999	18	7.76
	10000 - 14999	17	7.33		10000 - 14999	13	5.60
	Over 15000	10	4.31		Over 15000	13	5.60
<b>TOTAL</b>	-	68	29.29	-	-	65	28.01
<b>Unemployed</b>		61	26.29	<b>Unemployed</b>		109	46.98
<b>Self-Employed</b>		103	44.39	<b>Self-Employed</b>		58	25
<b>TOTAL</b>		<b>232</b>	<b>100</b>			<b>232</b>	<b>100</b>

*(Source: Self)*

From the results given in Table 2, the survey established that 68 undergraduate students who formed 29.31% and who participated in the survey were employed, 61 of them constituting 26.29% were unemployed, while 44.39% of them who were 103 in total were self-employed. The survey indicated that those employed were earning varying monthly salaries. Those earning between KES: 1000 and 4999 were numbering 22 and they formed 9.48% of the total number of the participants while those who earned between KES: 5000 and 9999 were 19 in number and they constituted 8.17% of the total number of the respondents. Students who were working and earning between KES: 10,000 and 14999 were 17 in number and they formed 7.33% while 4.31% of them and who were 10 in number were earning over KES: 15000. This, therefore, means that students who were employed and earning a monthly salary constituted 29.31% and were 68 which is a smaller number compared to a total of 164 of them who formed 70.69% and who were not earning a monthly salary. The survey, therefore, established that those who were earning a monthly salary responded to virtual learning faster compared to those who were not.

The study also sought to establish the financial status of the parents and guardians of the students purposely to ascertain whether students used for this survey were getting support from them and the results were as shown in Figure 2;



**Figure 2:** *Parents and Guardians of Students’ Income*  
 (Source: Self)

From Figure 2, the survey established that 21 parents who formed 9.05% were employed and earning a monthly salary of between KES: 1000 and 4,999 while 18 of them who formed 7.76% were earning a monthly salary of between KES: 5000 and 9,999 as opposed to 13 of them who were earning between 10,000 and 14,999 and who constituted 5.6% of the total number used for the survey. Only 13 parents who also formed 5.6% were earning more than KES: 15000 per month. The study further established that those parents who were working and earning a monthly salary fairly supported undergraduate students in meeting virtual learning requirements at the two centers.

The survey also established that 109 parents forming 46.98% were unemployed while 58 of them who constituted 25% of the number used for this survey were self-employed. Students of such parents faced numerous challenges during COVID-19 pandemic as results showed that they could not manage to continue with online studies due to unfavorable learning environments at their homes.

**8.3. Students Preparedness for Online Lessons**

When students were asked to indicate how prepared they were in embracing online learning while in their homes, the results of the information they gave is as shown in table 3 below:

**Table 3:** *Students who were using both Smart Mobile Phones and Laptops*

SN	Students with Smart Phones	N	%	Students with Laptops	N	%	Those Without any of the two	N	%
1	Females	102	43.97	Females	48	20.69	Females	11	4.74
2	Males	98	42.24	Males	34	14.66	Males	21	9.05
	<b>TOTAL</b>	<b>232</b>	<b>86.21</b>		<b>82</b>	<b>35.34</b>		<b>32</b>	<b>13.79</b>

(Source: Self)

The results of the survey in Table 3 shows that female students who were 102 and who formed 43.97% were having smartphones for use in online learning as opposed to their male counterparts who were 98 of them and who constituted 42.24% of the total number. A total of 48 female students had laptops and they formed 20.69% as opposed to their male counterparts who formed 14.66% and were 34 in number. The survey further showed that 11 female and 21 male students who formed 4.74% and 9.05% respectively neither had neither a smartphone nor a laptop. This category of students, therefore, were feeling that online learning was an extra burden on their studies. The results show that female students who were enrolled in the two centers were more equipped in handling online learning when compared with the males during cessation of movement and lockdowns.

#### 8.4. Students' Attitudes towards Online Learning

When respondents were asked to indicate their attitudes towards the adoption of online learning while in their homes, their responses were as shown in table 4 given below:

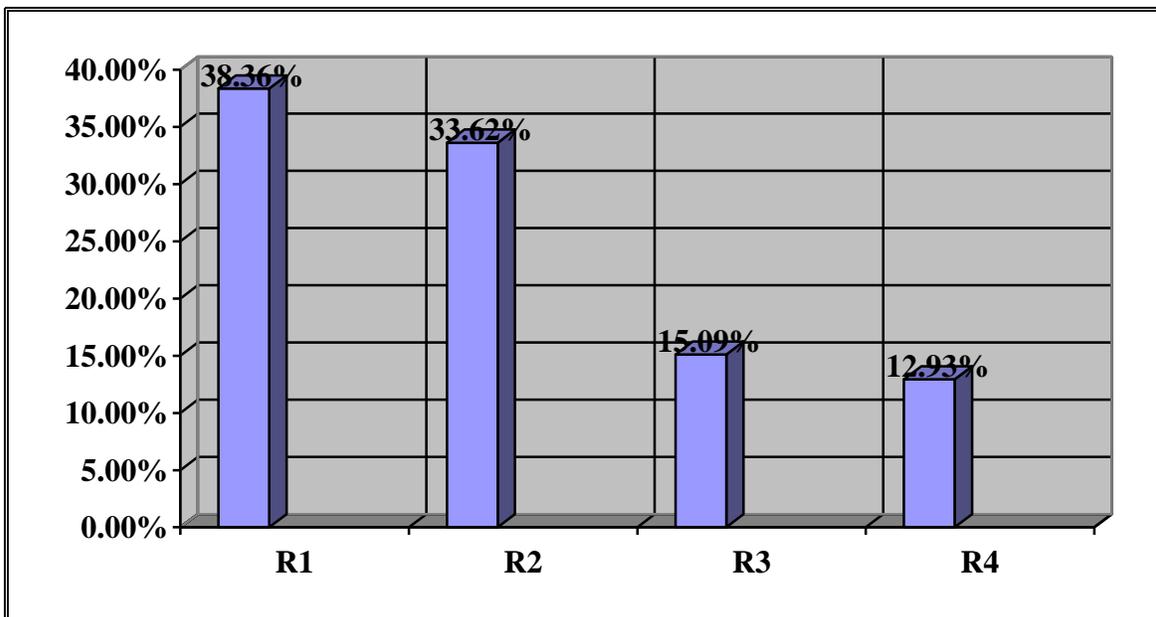
**Table 4:** Respondents' Attitudes and Reactions towards Adoption of Virtual Learning

SN	Attitudinal Statement	N	%	Students' Reaction	N	%
1	I don't know what Virtual Learning Means	109	46.98	I opposed it because I thought it was a complicated way of learning.	89	38.36
2	Virtual Learning is not possible.	34	14.66	I waited to be told how it was going to work.	78	33.62
3	The method is not suitable for doing my end-of-semester exam.	45	19.40	I felt it was only used to teach those working in offices hence less intellectual.	35	15.09
4	Not suitable to replace face-to-face.	44	18.96	I was negative for I feared fees payment.	30	12.93

<b>TOTAL</b>	<b>232</b>	<b>100</b>	<b>TOTAL</b>	<b>232</b>	<b>100</b>
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(Source: Self)

From the responses given in table 4, students who numbered 109 and who formed 46.98% at first did not know what online Learning was and was therefore not able to understand how they were going to learn without attending normal lectures at their centers. Some of the students who formed 14.66% and who were 34 in number felt this type of learning was not going to be possible while 45 of them who formed 19.40% believed that there was no way they could get lessons online and do exams online. The presidential directive which effectively led to the closer of all learning institutions came at a time when most undergraduate students were ending their semesters and were expecting to do end of semester exams. This category of students therefore felt doing exams from home online was not going to be possible since supervision and invigilation of those exams by lecturers were not going to be possible. Students numbering 44 and who formed 18.96% had a belief that online learning was not a suitable method that could replace the face-to-face method of learning. It is important to note here therefore that, from the results given in the table, all students in the two centers had negative attitudes towards the coming in of online learning which has now become the new normal in all departments in the University of Nairobi.



**Figure 3:** Students' Responses on how they reacted to the adoption of Virtual Learning

(Source: Self)

The decision by the university management to have all learning programs continue being offered by the university online caught all undergraduate students at the centers by surprise, therefore, making them react differently as indicated in figure 3. Participants numbering 89 and who constituted 38.36% opposed online learning for fear of the unknown it was going to come with. They feared it because they felt it was a complicated way of learning which they were not conversant with. Participants of the survey who were 78 in total and who therefore formed 33.62% anxiously waited to be told by center coordinators and university management how they were going to learn using this method of learning. This group of students was willing to continue with their studies but they didn't know how it was going to be done. It was clear that every student was willing to continue with his or her studies and do end-of-semester exams as planned early.

### 8.5. How COVID-19 Virus Influenced Students' Learning Status

By the time this survey was being undertaken, it was clear that COVID-19 pandemic had influenced their learning status and academic progress significantly as can be deduced from their responses presented in the table below:

**Table 5:** *Students' Responses on Influence of COVID-19 on their Learning Status*

SN	COVID-19 & its Influence on my Learning Status	N	%	Suggestions on how to make it more Effective	N	%
1	Assurance of continuity in learning hence no loss of time.	105	45.26	Provide us with Sim-Cards and Bundles of a Widespread Network i.e. Safaricom.	78	33.62
2	Has made learning Possible wherever one is.	58	25	Reduce Fees for us since we are learning from homes using our phones & Laptops.	88	37.93
3	Has minimized my travels from home to my Center to get face-to-face lessons	46	19.83	Train all students on effective ways of using online Platforms	43	18.54
4	Has made Book-Based Online Examination Possible Since I can do my exams while at home.	23	9.91	Universities to ensure availability of Wi-Fi Network across the country	23	9.91
	<b>TOTAL</b>	<b>232</b>	<b>100</b>		<b>232</b>	<b>100</b>

(Source: Self)

The table indicates that the majority of the respondents numbering 105 and who formed 45.26% confirmed that the COVID-19 pandemic had led to the introduction of online learning which assured them of their continued learning hence no time was wasted as a result of the virus' effects. Besides, 58 respondents who formed 25% confirmed that they were getting lectures from wherever they were without necessarily going to their centers. This, according to them, had made them cut down costs on travels to the centers to attend to the lessons. This was expressed by 46 respondents who formed 19.83% of the total number of respondents used for this survey. COVID-19 pandemic's effects led to the introduction of Open Book Exams which was never known to exist before as indicated by 23 students who formed 9.91%. These respondents, therefore, despite its many negative effects, expressed happiness that the virus had opened up their eyes thus changing their mode of studying significantly.

### 8.6. Online Learning Challenges

When asked to identify and explain challenges they were facing while using and attending to online Learning lessons and how they were possibly going to be solved, their responses were as shown in the table given below:

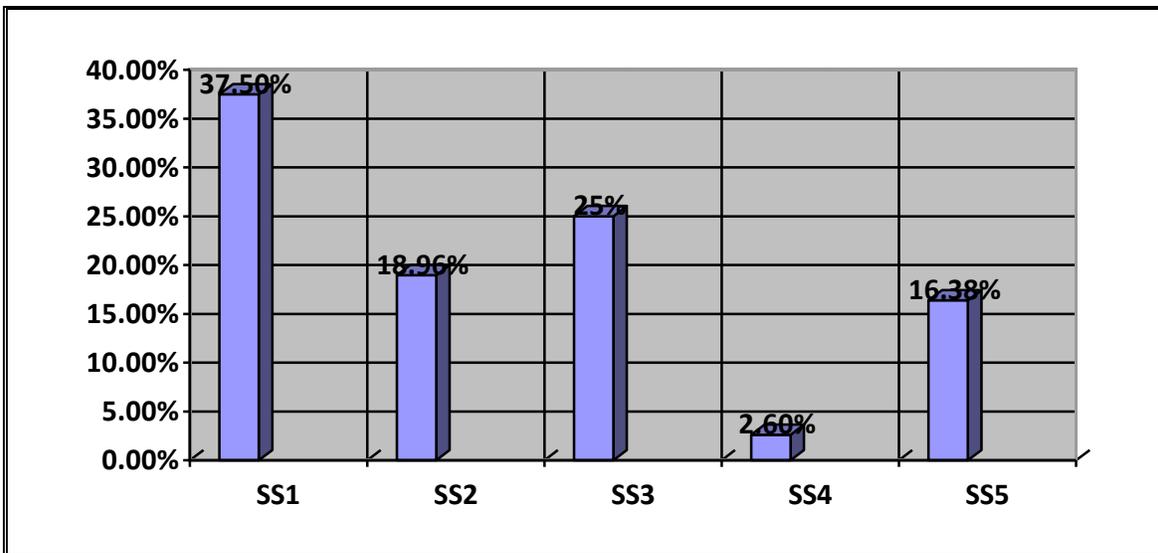
**Table 6: Challenges Faced and Their Suggested Solutions**

SN	Challenge Type	N	%	Suggested Solutions	N	%
1	Lack of Reliable Network	89	38.37	Government to ensure Network availability	87	37.5
2	Lack of Suitable Tools	38	16.38	University to provide laptops to students	44	18.96
3	Lack of Technological Skills	43	18.53	All students to be trained adequately	58	25
4	Poor Learning Environments	33	14.22	Government to ensure affordable housing	05	2.16
5	Unreliable Power supply	29	12.5	Government to ensure reliable power supply	38	16.38
	<b>TOTAL</b>	<b>232</b>	<b>100</b>	<b>TOTAL</b>	<b>232</b>	<b>100</b>

(Source: Self)

As observed in table 6, students experienced a number of challenges as they were trying to attend online classes using available online platforms. The majority of the students who participated in this survey who numbered 89 and who formed 38.37%, indicated that they faced network-related challenges. Most of those who gave this as a challenge said that there was no reliable network in the regions where they were living. This made them miss lessons and also Google meetings organized by their coordinators and administrators. Besides, 38 respondents forming 16.38% indicated that they lacked the essential tools like Android Smart Phones and Laptops which they were advised to ensure they had for use while 43 forming 18.53% cited lack of technical skills as a major challenge they were facing. Respondents numbering 33 and who formed 14.22% showed that there was a lack of enabling learning environments in their homes at that time while 29 of them constituting 12.5% cited unreliable power supply as their main problem in their regions. It is important to note here therefore that, in as much as they were willing to embrace online learning in order to continue with learning, taking lessons while at home was a major challenge. However, despite these challenges, they were happy that the university had come up with a method that was a better option than ensured no time was lost in the course of their studies.

The study sought suggestions from respondents as to how the challenges they identified would be countered and given in figure 6 below are the suggestions they gave:



**Figure 4:** Students' Suggestions on How Challenges They Face Would Be Solved

*(Source: Self)*

As indicated in figure 6, respondents numbering 87 and who form 37.5% of the total number used for this survey suggested that our Central Government, through a request to be made by the university,

should consider having all regions in all the 47 counties covered with the reliable network while 58 respondents who constituted 25% suggested that all undergraduate students be adequately trained on how they could access and use available online platforms. This was found to be essential because some students were accessing online lessons using trial and error methods while some never accessed lessons at all. The survey established that the issue of having laptops for use was a big challenge to students as pointed out by 44 respondents who formed 18.96% of the total population used for the survey. Besides, 38 of them forming 16.38% suggested that the government should consider ensuring the availability of power supply across all regions in the country. Power blackouts that interrupted online lessons, especially during rainy sessions were cited as one of the major obstacles to the successful usage of online platforms. While this still remained a challenge, 5 students who formed 2.16% cited poor housing in regions where they were living as a challenge and suggested that the government ensures that citizens are provided with affordable houses as enshrined in its big four (4) agendas rolled out in 2018.

### **8.7. How COVID-19 Pandemic Influenced Students’ Social Behaviors**

Participants were also asked to explain how the COVID-19 pandemic had influenced their socio-economic interactions and their educational development. Besides, they were also required to indicate measures they put in place which ensured they coped up with new social behaviors and their responses were as presented in the table given below;

**Table 7:** *Behaviors That Were Influenced by Corona Virus and Coping Strategies*

<b>SN</b>	<b>Type of Behavior Influenced</b>	<b>N</b>	<b>%</b>	<b>Coping Strategies Employed</b>	<b>N</b>	<b>%</b>
<b>1</b>	Social Distancing	56	24.14	Avoidance of Crowded Places	53	22.84
<b>2</b>	Use of Masks all the time	57	24.57	Purchasing of recommended Masks	50	21.56
<b>3</b>	Freedom of Movement	48	20.69	Adoption of Stay-at-Home Policy	42	18.10
<b>4</b>	Freedom of Worship	33	14.22	Adoption of Online Church Services	41	17.67
<b>5</b>	Face-to-face Teaching	38	16.38	Adoption of Virtual Learning	46	19.83
	<b>TOTAL</b>	<b>232</b>	<b>100</b>	<b>TOTAL</b>	<b>232</b>	<b>100</b>

*(Source: Self)*

According to the results shown in table 7, COVID-19 changed students' behaviors in many ways. Respondents who formed 24.14% and who were 56 in the number indicated that the pandemic effects had brought about social distancing behavior which was never practiced before corona struck the country. The habit of people exchanging greetings by hugging one another and generally interacting very closely had changed and as observed, they were now greeting one another using signs while keeping the 1.5 meters rule given by Ministry of health officials. Besides, 57 respondents who formed 24.57% indicated that the pandemic had brought about wearing of masks all the time as a measure of controlling close infections of the disease while 48 of them who formed 20.69% indicated that it had brought about restricted free movement of people from one place to another. The results in the table also indicate that 33 respondents who formed 14.22% indicated that the disease had led to the closing of worship in churches and mosques, while respondents numbering 38 who constituted 16.38% indicated that the virus brought to an end the face-to-face method of teaching in universities. It is important to note that, the fast-spreading disease led to the closing of many businesses, therefore, ruining the country's economy. As observed by responses given by participants of this study, many people, including their parents lost their jobs while the stay-at-home policy resulted in unprecedented family squabbles and breakages.

### 8.8. How Students coped up with Ministry of Health Protocols

The survey sought responses from participants on how they managed to cope with the strict social conditions that were brought about by the virus and the coping strategies they came up with are as presented in figure 7 below:

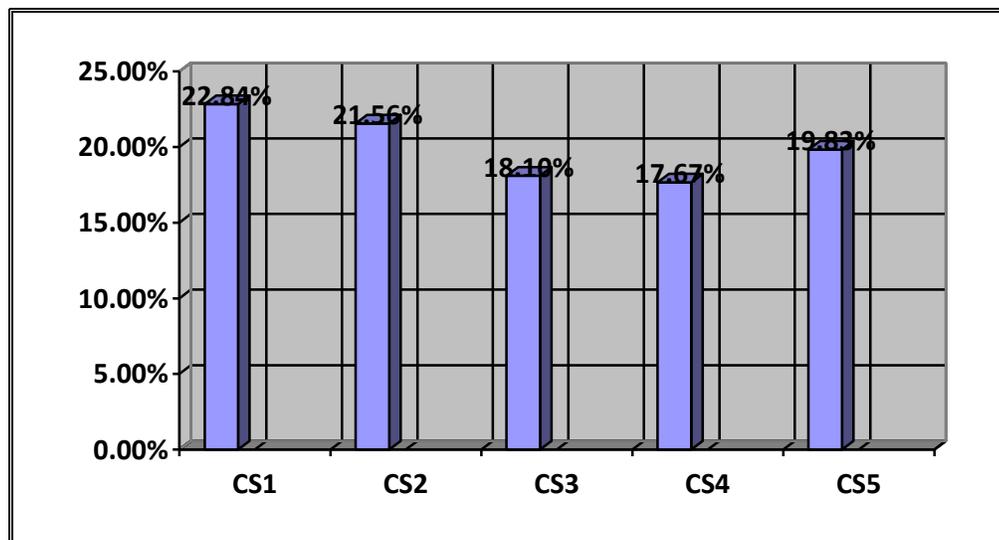


Figure 5: Students' Responses on Coping Strategies They Came Up With

*(Source: Self)*

The results in figure 7 show that 53 respondents who formed 22.84% had no option but to avoid crowded places as they were seen as places one could easily contract the disease while 50 respondents who formed 21.56% were to ensure they put on masks as directed by ministry of health officials. These are strategies that were in the past never regarded as important health measures that could help control the spread of a contagious disease by citizens. It is a behavior that was only seen in medical practitioners and especially when performing surgical procedures in hospitals. The study also observed that 18% of the respondents who were 42 in the number indicated that they employed the 'Stay at Home' strategy as a way of preventing oneself from contracting the virus while 41 forming 17.67% avoided going to places of worship and had to receive church services online. Respondents' studying behavior was not spared either as they had to change from taking classes at the centers physically to taking them online. These and many other strategies made the lives of respondents and the lives of many Kenyans across the country change significantly.

## **9. Conclusion**

In conclusion, the survey established that 88 students who formed 37.9% continued with their studies by reading textbooks and digital materials while 71 of them (30.6%) relied on the notes they had been given by their lecturers. Respondents who were 27 (11.6%) in the number reported that over 50% of the content contained in the syllabus had been covered by lecturers while some of them forming 66.8% confirmed that they on several occasions missed their online lessons due to lack of knowledge on how they were to access them, poor network coverage in places where they were staying, lack of network bundles, power blackouts and also due to lack of required tools like Laptops and smartphones. Out of 232 respondents, 103 (44.4%) had no separate study rooms.

The survey further concludes by observing that, the majority of the students who formed (85.8%) used their smartphones to attend to online learning while 14.2% of the students used their laptops or desktop computers. Use of digital platforms to ensure learning continued in the University of Nairobi by lecturers as opposed to no learning in other universities during this time, ensured continuity in teaching and learning to all undergraduate students in those critical situations. Concerning study-related problems during cessation of movement and lockdowns, the survey established that most students who went through

stress, were greatly depressed while others forming 42.0% of the participant population experienced anxiety.

The survey observed that contextual factors which impact the quality of experience between learners and their lecturers should not be ignored. Limited access to technology and internet unreliability is a reality in Kenya and will in the future continue to be a reality that the recent lockdowns and adoption of remote learning have exacerbated if not checked in good time as noted by Borba, et. al. 2018 and Mumford, & Dikilitaş, 2020. These have significantly affected the normal development of learning practices, and also have revealed challenges of digital inequality emanating from access to technology as well as differences in digital literacy that are deeply embedded in the social, economic, and cultural context of learners as observed by Beaunoyer, et. al. 2020.

## **10. Study Recommendations**

Based on the findings, the survey recommended that university management needed to come up with a uniform academic plan which would be applied strictly to all students learning on all campuses. Besides, the University of Nairobi needed to put in place a proper Education Continuity Plan (ECP) which would ensure a continuous learning process during an outbreak of any pandemic. Secondly, the university was tasked to consider putting in place infrastructural facilities that conform to the Ministry of Health's set standards so as to contain virus infections in the future when students get back to their campuses.

The survey further recommended that the government of Kenya needed to provide funds that would be used to improve the university education system and to provide capacity training sessions to stakeholders of all higher education institutions. The survey further recommended that intervention measures be initiated through a targeted approach which would bring about the creation of suitable and affordable housing facilities to be used for studying among students hailing from vulnerable regions of the country and which would meet all sanitation standards set by the Ministry of Health as a mitigation measure that would ensure the safety and health security of all learners during an outbreak of similar characteristics as COVID-19 pandemic.

## **11. Further Research and Limitations**

The researcher recognizes that some areas of research deserve further attention by other researchers, especially on areas that were not adequately covered by this survey such as practical learning areas like learning design as observed by Best, Macgregor, 2017. Despite the survey having focused on online learning, design elements that were likely to lead to teaching and learning impact were not the focus of the studies examined by the researcher. He, therefore, recommends that further research be done focusing on pedagogical underlying issues which lead to cognitive gains. Due to constraints in terms of word limitation, this paper has only looked into the most recurrent themes or aspects that the researcher considered most relevant for this paper and has therefore not included other important issues such as online tools like podcasts, MOOC, virtual worlds, and their affordances and constraints. Research into these areas will therefore be highly appreciated.

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