

# Effects of Covid-19 on Retention Ability of Students in Tertiary Institutions in Ekiti State

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## **Abstract**

The study was carried out to determine whether covid-19 pandemic would have effect on the retention ability of students and their academic performance of students after covid-19. Descriptive research of the survey type was adopted for the study. The researcher collated student's data from the lecturer handling the general courses. The data before and after covid-19 outbreak were collated for analysis and inventory of students' results are the instruments used for the study. The instrument was validated and the reliability coefficient stands at 0.85. Descriptive research of the survey type was adopted for the study. The population comprised all students of tertiary institutions in Ekiti State, while the sample consisted of 200 students drawn from two tertiary institutions in Ekiti State using simple random sampling technique, Mean and standard deviation was used to analyse the research question while Pearson Product Moment Correlation Coefficient and Analysis of variance were used to test the hypotheses at 0.05 level of significance. Findings from this study revealed that there is a possibility of drop in the student academic performance if such outbreak or similar long shut down of the institutions continued like industrial strike action by the academic staff of the university. The retention ability of students in tertiary institutions was drop as a result of total lockdown of all tertiary institutions due to the outbreak of coronavirus (covid-19). The study further showed that there was statistically significant difference between the academic performance of male and female students before and after the covid-19 pandemic. Recommendations are made to the Federal Government and policy makers to make sure that necessary facilities are available for the institutions to handle alternative instructional teaching delivery outside the traditional method of teaching. Hence, the students during the lockdown would have been kept abreast and continue their teaching through e-learning. Government should avoid any unnecessary closed down of the institutions in the future to further strengthen the retention ability of students

**Keyword:** Effect, COVID-19, Retention Ability, Tertiary Institution, Ekiti State, Nigeria

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## **I. Introduction**

The occurrence of coronavirus (Covid-19) pandemic that has led to total lockdown of major cities globally resulted to the closed down of many institutions in many countries. The impact on learners is unprecedented, on 9th April, 2020, there are over 1,500,000,000 students worldwide from primary to tertiary level who cannot attend school (UNESCO 2020). It is therefore hypothesized that covid-19 may have adverse negative outcome on the performance of students of tertiary institutions especially in Nigeria. The long total shutdown of all tertiary institutions due to coronavirus diseases (COVID-19) is observed to have been affected the cognitive domain of many tertiary institutions student who stayed out of school for almost ten months.

As a result of Coronavirus that ravaged the whole country, the performance of some students after the resumption from the total lockdown seem to have been diminishing and appears not to be impressive. Since the retention and success of students in their studies is the major concern in higher institutions across the world. The most immediate effect is obvious in undergraduates that are at the verge of finishing their academic programmes and aspiring for service year. Covid-19 has affected all level of educational system while many academic program in the University were suspended due to the absence of students within the school.

Nevertheless, most of the students found themselves in a complete new situation and without a clear idea about their previous knowledge in most of their courses. Students situation are worrisome as a result of their vulnerability during covid-19 pandemic which adversely affects their retention ability to more fragile condition (UNESCO, 2020). Unfortunately, educators has not imagine that a complex situation may arise leading teaching and learning to weak retention. Jone, (2008) identifies some reasons why students experienced weak retention such as; course match, lack of commitment, unsatisfactory academic experience, lack of social integration, financial issue and personal circumstances without considering pandemic like Covid-19.

Also, the cessation of face-to-face teaching activity looms as a threat to those lecturers whose major duties focus exclusively on teaching practical classes. Although, teachers with significant experience in their field performed better in adapting alternative route to appropriate digital resources, however do not have much difficulty in their pedagogical activities, in order to transmit knowledge with the capacities to retain course contents. In addition to global, common challenges related to teaching and learning not all academic staff are ready to switch to an online mode of curriculum delivery. This might not be a matter of personal preferences, but an absence of the skills needed and previous related training (Maria-Crina et al, 2002)

Research suggests that online learning has been shown to increase retention of course content, and take less time, meaning the changes coronavirus have caused might be here to stay (Mohamed, 2020). Indeed, education has changed dramatically, with the distinctive rise of e-learning, whereby teaching is undertaken remotely and on digital platforms. Therefore, this is a critical moment to reflect how the current choices educational institutions are making might affect with Covid-19 education and retention ability. Ogunlade, Bahago and Ogunmodede (2021) affirmed that online and computer-assisted teaching strategy was more effective than the traditional BASIC program language learning

The processes of memory and learning are interrelated and are usually considered the same. However, psychologists have identified it as two different processes. Basri, Amin, Umiyati, Mukhlis, Irviani and Rita (2020) posited that learning can be defined as the acquisition of knowledge gained through experience or learning, which can change behavior. Memory can be defined as the ability to remember previous experiences. Memory is essential for learning new information, because it can serve as a site for storing and retrieving learned knowledge. Two types of long-term memory are used when learning. The first is procedural: operational procedures, and the second is declarative: specific information that can be recalled and reported

There are many ways to keep information in memory. The acquisition and retention of new knowledge depends on the formation of the associations created in the memory. Memories depend on the creation of associations, just as the creation of associations depends on coding and retention of new material. The retention and retrieval of information in the memory requires that the information be firmly embedded in the neural network. This can be achieved through traditional methods of repetition and linking new information with old information. Smith (1995) opined that the process of repetition promotes the process of strengthening connections within the brain. When learning new information, the brain tries to associate this material with previously stored knowledge through assimilation. *Ali (2013) asserted that* when we learn new things, our brain creates new neural pathways. Therefore, repetition during learning is important to keep this information in long-term storage.

Due to the long total lockdown, many students observed to have forgotten what they have learnt before going for covid-19 total lockdown and this may base on the memory storage systems of each individual students. Students with short-term store may likely forget easily while students with long-term store may probably remember long happening event or learning activities. Richard Atkinson and Richard Shiffrin (1968) proved a theory that the memory process begins when our sense organs obtain information from the environment. This information will then travel through the nervous system and reach the brain for evaluation. Sensory information must remain in the nervous system for a short duration, about less than a second, in order for the brain to be able to interpret it. This stage is called sensory storage. Then this information is passed on to the short-term store where it is held for about 30 seconds. Some of the information reaching short-term memory is processed by being rehearsed-that is, having attention focused on it, being repeated over and over, and this is a conscious activity. It is observed that any unprocessed information may be lost. Ultimately, the drilled information can then be passed on to long-term storage. After that, the information will be stored for a long time and be identified as categories that may exist for days, months, years, or lifetimes. It is assumed that this long-term storage has almost unlimited storage capacity. Therefore, the information stored in encoded form in the long-term storage will be transmitted back to the short-term storage, where it is decoded and used in response to the commands of the brain through the motor nerves

In the same vein, for a student to remember easily and retrieved information quickly, the information needs to be well processed and more emphasis must be on such information for better retention. Some students who are given instructions to learn seem not ready to learn better. Therefore, the nature of learning process may consequently be exposed by comparing performances under learn instructions against performance of incidental tasks with various combinations.

The theory of Craik and Lokhart (1972) suggested that ability to remember depends upon the depth of information processing. If the information is processed in a superficial and shallow level, the forgetting will be more, and on the other hand, if the information is processed deeply, it will remain in memory for long time and helps us to remember when needed.

Better retention needs deep thinking during and after the learning has taken place. If students can manage to have a critical thinking, such students will find it easier to retain the information and be able to recall it back easily. In actual sense, distancing from academic activities for long period of time may result to low retention and poor memory recall. The findings of UKEssays (2018) shows that deeper semantic processing yields superior retention. Memory is enhanced when deeper processing of the stimulus is required at learning.

Lecturers also has a role to play on the information process for the students. There is need for a lecturer to synthesis all the information sending to the students in other to have deep retention in a particular teaching. Craik and Lokhart (1972) postulated that the ability to remember depends upon the depth of information processing. In the same vein, if the information is processed deeply, it will remain in memory for long time and helps students to remember when needed. Not every students that present in the class decode what they were thought but it is observed that some students why in the class may also been carried away from the present situation in the class and cease to go along with others in the class. This will result to loss of information during the teaching and learning.

There are many explanations for why student forget learned information. A well-known explanation to explain why this happens is the ineffective encoding of material. This is when material appears to have been forgotten over time, however it is very likely that this material was never encoded into memory stores properly in the first place. This is also referred to as pseudo-forgetting, and it is usually attributable to distractions, or a lack of attention when engaging in learning that lead to ineffective encoding. Neural pathways and memory codes may still have been formed, however subsequent forgetting of learned information implies that it was ineffectively encoded within these pathways (Weiten, 2013).

Another explanation for why we forget learned information is the decay of information. This concept determines the impermanence of memory storage as an explanation for forgetting. Decay theory posited that the process of forgetting is due to the inevitable fading of memory traces over time. For this theory, the length of time that the information has been retained within memory stores is important. Essentially, the memories held in long-term stores start to fade as time passes, particularly if the memories haven't been re-visited (Spear, 2014).

Students that is observed to have responded poorly in the class during the teaching and learning may need to be encouraged on different strategies to use to improve their thinking faculty, imagination and abstract thinking. Ali (2013) revealed various methods of improving memory and ability to retain more information when engaging in learning. Chunking is a well-known method of improving memory and retention. In order to effectively chunk information together, connections and relations between the different items must be made. In combination, associating groups of items with things held in memory stores can make this more memorable, and can improve retention (Ali, 2013). When students are able to break down information received, it is observed that such students will be able to have deep assimilation and better understanding of such information.

In cognitive psychology, chunking is a process by which individual pieces of an information set are broken down and then grouped together in a meaningful whole. The chunks by which the information is grouped is meant to improve short-term retention of the material, thus bypassing the limited capacity of working memory and allowing the working memory to be more efficient. A chunk is a collection of basic familiar units that have been grouped together and stored in a person's memory. These chunks are able to be retrieved more easily due to their coherent familiarity. It is believed that individuals create higher order cognitive representations of the items within the chunk. The items are more easily remembered as a group than as the individual items themselves. These chunks can be highly subjective because they rely on an individual's perceptions and past experiences, that are able to be linked to the information set. The size of the chunks generally ranges anywhere from two to six items, but often differs based on language and culture (Wikipedia, 2021).

Another method for improving memory and retention is through imagination and abstract thinking. Using imagination and thinking abstractly. Dykes (2009) affirmed that imagination creates stronger visuals and connections, which can lead to significant improvement in memory and retention. The VAI memory principle: Visualization, Association and Imagination, improves memory and retention when learning considerably (Ali, 2013). This principle combines different methods of improving memory and retention to create one comprehensive method for engaging in successful learning.

Furthermore, students needs to pay more attention with all their sense organ in other to have good retention. Other methods of maximizing ability to learn and retain new material is to use as many human senses as possible. These include: sight, touch, smell and hearing. All of these senses should be engaged when learning new information. Research has shown that when engaging as many senses as possible at once, retention of information improves the most (Wikipedia, 2021)

Many universities around the world have minimized gatherings while suspending or canceling all campus activities including classroom teaching to decrease the rapid spread of the virus. Consequently, several colleges and universities worldwide switch to the online teaching for undergraduate and postgraduate students to minimize either contact between the students and lecturers and themselves. Covid-19 according to Nicola, Alsafi , Sohrabi, Kerwan, Al-Jabir and Iosifidis (2020) has affected all levels of the education system. Educational institutions around the world (in 192 countries) have either temporarily closed or implemented localized closures affecting about 1.7 billion of student population worldwide. Many universities around the world either postponed or canceled all campus activities to minimize gatherings and hence decrease the transmission of virus.

Meanwhile, the implication of total lockdown has advert effect on the economy and education throughout the country. Nicola et. Al (2020) however, supported that these measures lead to higher economical, medical, and social implications on both undergraduate and postgraduate communities.

Due to the total lockdown on pandemic, many institutions switched to online teaching where many students received their lecture virtually, this measure was put in place to reduce the infection of covid-19 among students and lecturers. However, it is observed that many students had no access to online teaching due to various barriers like poor internet connection, non-availability of smartphone and other digital devices that can be used to learn, also financial constraint to purchase all needed facilities for teaching and learning (Czerniewicz, 2020). Iyer, Aziz, Ojcius (2020) affirmed that many students have no access to online teaching due to lack of either the means or the instrument due to economic problem.

Meanwhile, this is a time to gear up learning management systems and networking. Universities and individuals should reach out to partners and collaborators, strengthen established partnerships, and develop new ones. More affluent and better prepared universities (and countries) are encouraged to make their online resources available to universities, regions, and countries which are less well prepared. Such academic partnerships and networks should receive dedicated support on the national level. Beyond an immediate crisis response, the partnerships might prove helpful and inspiring beyond the crisis (Teleskola, 2020)

In addition, long vacation from school seem to have affected students academically and their performance at the post-covid may not be encouraging. Edgar, (2020) stressed that lockdowns affect students in multiple ways, reinforcing inequalities and putting them under psychological stress leading to apprehension in academic performance. Parents and custodians are affected too, and many of them come to realize, perhaps for the first time, the main purpose of the educational system and its power to structure everyday life.

In other word, after the pandemic, we need to focus on how to help institutions cope with post-traumatic stress and other mental health problems, and to reestablish relationships and routines otherwise sustaining retention ability of the students. Recently, European Commission guidance has provided flexible pathways and support for students in higher institution to create pragmatic possible way to help student achieve expected outcomes indicated in their learning, regardless of the students' geographical location.

Broughan and Prinsloo (2019) note that interactions with data are strongly shaped by the question who is allowed to use and interact with data and analytics and in what roles. For example, when usage of data is focused on assessment and evaluation of students, and to administrative processes, students are treated as 'data objects' (Koopman, 2019). This reduces student agency with their data and potentials for using data in support of their learning. Therefore, Broughan and Prinsloo (2019) argue that it would be more beneficial to reframe students as 'data owners' and partners in discussions about what data is collected, who will use collected data, and for what purposes. Also others have made attempts to reframe the use of data and analytics to promote student agency and educational equity (Tsai et al. 2019).

## **Research Questions**

What is the academic performance of students before and after covid-19 in the tertiary institutions in Ekiti State?

## **Research Hypotheses**

1. There is no significant difference between the academic performance of students before and after covid-19 in the tertiary institutions in Ekiti State.
2. Gender has no significant influence on students' academic performance before and after covid-19 in the tertiary institutions in Ekiti State.

## **II. Methodology**

The study employed descriptive research design of survey type. The population for the study consisted of all the students of tertiary institution in Ekiti State. The sample of the study consisted of 200 students. Simple random sampling technique was adopted to select two universities from others. Multi stage and purposive random sampling technique was used to select 100 students from each universities. The research instrument for the study was an inventory, self-designed questionnaire and the scores of students in GST course in 2019/2020 academic section. Face and content validity of the instrument were ensure by expert in Test, measurement and

evaluation. After administering the questionnaire to the pilot group twice within an interval of two weeks, data collected were analysed with Pearson Product Moment Correlation and reliability coefficient of 0.85 was obtained, which was considered high enough for the study. Data for the main study were analysed using mean and standard deviation. The hypothesis was tested using Person Product Moment Correlation and Analysis of Variance at 0.05 level of significance.

### III. Results

**Research Question 1:** What is the performance of students before and after covid-19 in the tertiary institutions in Ekiti State?

**Table 1: Performance of tertiary institution students in General course before and after covid-19**

Variable	N	Mean	Std. Deviation
Before	200	57.83	24.910
After	200	41.53	12.706
Mean difference		16.30	

Due to long vacation by the students, the result shows that the mean scores of students before the covid-19 was higher than that of mean scores after covid-19. The mean score before is 57.83 while the mean score after covid-19 is 41.53 and the mean differences of 16.30.

#### Hypotheses Testing

**Hypothesis 1:** There is no significant difference between the performance of students before and after covid-19

**Table 2: Significant difference between the performances of students in General courses before and after covid-19**

Variables	N	Mean	SD	Df	t <sub>cal</sub>	P <sub>value</sub>	Remarks
Before	200	57.83	24.910				
After	200	41.53	12.706	199	13.394	0.000	Significant
Mean difference		16.3					

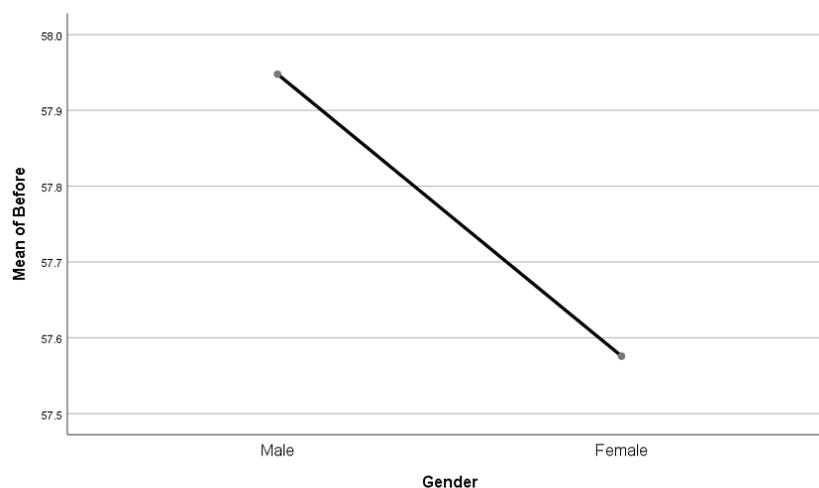
The result shows that there is statistically significant difference between the performances of students in general course before and after covid-19 in Ekiti State Tertiary Institutions. Since the p-value is less than the 0.05 level of significance, the null hypothesis is therefore rejected. Students therefore perform better before covid-19 than after covid-19. And this may be due to many factors experienced during the covid-19 total lockdown.

**Hypothesis 2:** Gender has no significant influence on students' performance before and after covid-19

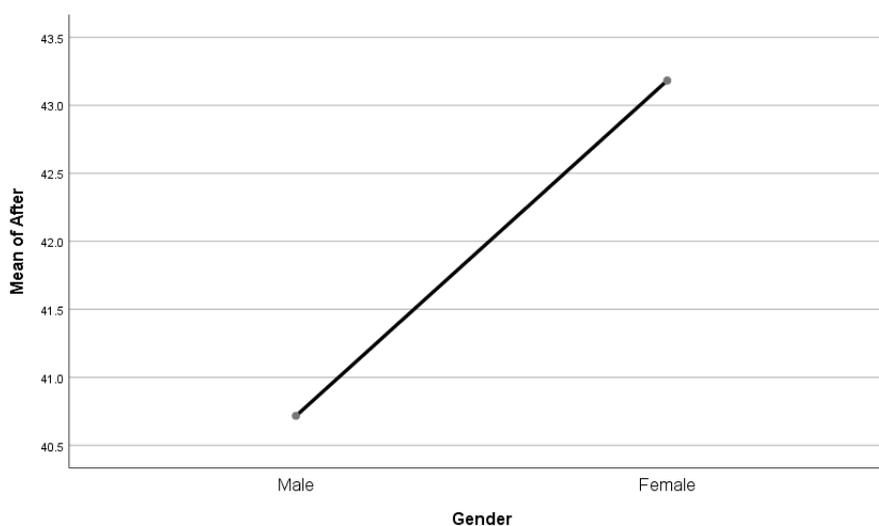
**Table 3: Analysis of Variance showing influence of gender on the performance of students in general courses before and after the covid-19 in Tertiary institutions in Ekiti**

		Sum of Squares	Df	Mean Square	F	Sig.
<b>Before</b>	<b>Between Groups</b>	6.119	1	6.119	.010	.921
	<b>Within Groups</b>	123470.756	198	623.590		
	<b>Total</b>	123476.875	199			
<b>After</b>	<b>Between Groups</b>	268.778	1	268.778	1.670	.198
	<b>Within Groups</b>	31859.042	198	160.904		
	<b>Total</b>	32127.820	199			

The hypothesis shows that gender has a significant difference on the academic performance of students in general courses in tertiary institutions in Ekiti State before covid-19 while there is no significant difference in the academic performance of students in general courses after covid-19 lockdown. Therefore, the null hypothesis was rejected. The table shows a significant level of (F=0.010, p=0.921), and (F=0.010<0.05) while gender has no significant difference between the academic performance of male and female students in general courses after the covid-19 in Ekiti State Tertiary Institutions. (F=1.670>0.05) the null hypothesis was not rejected. The result of students' performance before the covid-19 establishes that gender statistically has significant influence on the academic performance of male compare to that of female. From the result, it can be concluded that male perform better than female before the covid-19



**Mean plot before Covid-19 Pandemic**



**Mean plot after Covid-19 Pandemic**

#### **IV. Discussion**

The result revealed that the performance of students after they have resume from long time lockdown was not impressive probably due to the fact that many students have been away for a very long time. The mean score of students before the covid-19 was apparently higher than the mean score of students after covid-19. This shows that the retention ability of student's general course in tertiary institutions was very low because of the vacuum created during the covid-19 total lockdown. This is supported by the findings of Edgar (2020) that most of the participant believed that covid-19 pandemic lockdown will have adverse effect on the academic performance of students with varying degrees.

The study also revealed that there is a significant difference between the performance of students before and after lockdown. The retention ability of students was low as the mean differences between the performances of students before and after was obviously low. The findings of Maria-Crina Carol, Eugen, Vlad-Andrei and Cristea (2020) revealed that students cheat in the exam after the resumption from the total lockdown. García and Weiss (2017) affirmed that it is apparently clear that children's academic performance is deteriorating during the pandemic, along with their progress on other developmental skills. Covid-19 has affected learning and educational outcomes, educational inequities are growing. As a consequence, many of the children who struggle the hardest to learn effectively and thrive in school under normal circumstances are now finding it difficult, even impossible in some cases, to receive effective instruction, and they are experiencing interruptions in their learning that will need to be made up for.

#### **V. Conclusion**

The study revealed that there is statistically significant difference between the performance of students during and after covid-19. The intellectual ability of students after covid-19 lock down was diminished. Many

students have forgotten what they have learnt while many have low level of assimilation to cope with their examinations. However, one can already see that the pandemic-induced crisis is affecting education in the shape of new contingency measures. It is likely that digital education platforms will be increasingly acquired and implemented due to their affordances for educational management of retention ability and to keep educational institutions running even in a moment of crisis. García, and Elaine. (2020) observed that online learning may help students retain up to 60% more material compared to around 10% in the classroom, it will not be as effective for students who do not have access to the latest technology or who lack conducive environments at home.

## VI. Recommendations

- 1) Federal Government and policy makers should make sure that necessary facilities are available for the institutions to handle alternative instructional teaching delivery outside the conventional method of teaching.
- 2) Government should avoid any unnecessary closed down of the institutions in the future to further strengthen the retention ability of students
- 3) Government should build tertiary institutions to prepare and cope with the future situation that may want to arise. And policy maker should seize the opportunity to address structural problems in the educational system and invest new and different approaches.

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