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MANAGEMENT

IMPACT OF COVID-19 ON STUDENT ACADEMIC PERFORMANCE:
IN THE CASE OF MILLENNIUM HIGH SCHOOL IN ADDIS ABABA

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**Impact of covid-19 on Student Academic Performance:
In the case of Millennium high school in Addis Ababa**

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Approval

This is to certify that the thesis prepared by Behaylu Taye is entitled "Impact of COVID-19 on student academic performance: in the case of Millennium high school in Addis Ababa". Submitted for partial fulfillment of the requirements for the degree of Masters in Educational Management complies with the regulations of the university and meets the accepted standard with respect to originality and quality.

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DECLARATION

I, Behaylu Taye, declare that this thesis is my original work and that it has not been submitted for any academic award in any other university for a comparable or different degree award.

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DEDICATION

For their steadfast love and encouragement during the length of my thesis, I dedicate this thesis to my dear wife Eleni Ayalnhe as well as my kids Abigiya Behaylu and Heran Behaylu. This work is also dedicated to all of the individual students, parents, and instructors who were severely harmed by the COVID epidemic.

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ABREVIATION

COVID-19 Corona virus Disease 2019

DID Difference in differences

SD Standard deviation

Abstract

After the outbreak of COVID 19, 192 countries took immediate measures by closing school aiming to mitigate the spread. Ethiopian is one of them. During the school closures, Ethiopian Ministry of education along with regional educational bureau was providing distance education. Despite the attempts to keep on formal education; the accessibility, effectiveness, and equity were challenging. Considering that studies in Ethiopia have been conducted by international organization. But the studies miss two important things. First fails to examine the challenge and gap in high school education during school closure times. Second, the impact of COVID on students' math performance has not been well studied. But studies done in European and some African countries shows that there are significant challenges for high school students. High school dropouts, significant educational loss, and mental health problems were among the challenges. In terms of math, there has been a significant decline in math performance. Taking the above facts into account, this thesis examines the impact of COVID on a student's academic performance, taking Grade 12 students at Millennium High School. An exploratory sequential mixed research design is used for studying the impact. In the first phase, qualitative data concerning the impact of COVID on student performance is collected from teachers and the school dean using semi-structured interviews. The collected data from the interview is analyzed using thematic analysis. The result has been used to prepare the questionnaires' that are going to be used to collect data for the quantitative phase. The quantitative phase was studied alone to assess the extent of the impact. Finally, the results of the two phases are integrated and studied. From the study inaccessibility of education, the difficulty of homeschooling, poor assessment, reduction of class hours, and poor learning took was the major theme identified that impacted the academic performance of the student. Concerning math besides the above finding of the nature and difficulty of the subject math by its self-taken identified as a good contributing factor behind the poor academic performance, of students shows in the subject.

CHAPTER ONE

1. INTRODUCTION

1.1. Background of the Study

Academic performance involves meeting the goals, achievements, and objectives set in the program or course that a student attends (Lamas, 2015). However, there is no complete consensus concerning the parameters that measure the academic performance of a student in a school due to its complex nature (Yorke, Travis, Charles, and Susan, 2015). Usually, marks or examination results on the subjects can be taken as an indicator or tool since this data is the most readily available assessment for the institutions (York et al., 2015; Davison, 2017).

An extensive review done by Lamas (2015) shows that the academic performance of students is influenced by educational, socioeconomic, physiological, and behavioral factors. However, in current times, things are getting worse with the outbreak of COVID-19 and its negative impact on student performance, as observed in the review made by Hammerstien (2021).

The outbreak of COVID-19 has caused a severe disruption in all aspects of society around the world. The impact on the education system and outcomes is overwhelming (Garca& Weiss, 2020; Hammerstien, 2021). In response to the outbreak of COVID-19, 192 countries, including Ethiopia, have taken different measures, including closing schools for weeks and months. Despite this act, which has played an important role in mitigating COVID-19 strands, more than 1.6 billion students worldwide have been affected by school closures and have experienced a drop in student performance (Yorke et al., 2020).keep up with formal education, countries have attempted to provide education via an online system. In some cases, TV or radio broadcasting has been taken as a remedy.

In Ethiopia, following confirmation of the first case of COVID-19 on March 13th, 2020, the Ministry of Education announced the suspension of school for days. However, the suspension stayed on till the end of the 2019/20 academic year. Hence, over 26 million students have been affected by the closure of schools. During the school closures, the Ministry of Education, together with the regional education bureaus, provided distance learning through radio, TV, Telegram, and YouTube platforms (Khodr, 2020). By that time, private schools were using

Telegram and Google Classroom platforms. However, the accessibility, quality, and effectiveness of distance education were a challenge. This had a direct negative impact on student academic achievement (Louise et al., 2020).

Due to a lack of electricity and poor internet access, students in rural areas struggled to keep up with their online education. They have to move closer to urban areas to access television and radio. Those students in urban areas who have access to online education have found it difficult to comprehend the subject matter in the absence of a teacher or close family support (Mengstie, 2020). Louise et al. (2020) showed that even teachers lack computer and internet access to contact their students during school closure time whenever students need their support.

Based on the survey conducted by Youth as Researchers (YAR, 2020) on African students from 54 countries, 76% of the participants, that is 3 out of 4 students, did not have access to an appropriate curriculum to facilitate a smooth transition to online learning and research. Although students had an opportunity to interact with their teachers via an online system, 62% reported that their teachers did not have the sufficient knowledge required to effectively deliver online learning.

As per a survey conducted by Human Right Watch (HRW, 2020) in Burkina Faso, Cameroon, the Democratic Republic of Congo, Kenya, Madagascar, Morocco, Nigeria, South Africa, and Zambia, the pandemic COVID-19 had an adverse negative impact on children's (under the age of 17) academic performance. The survey revealed that students found it hard to understand the notes and worksheets forwarded by the schools via social media. In some countries, the survey shows that even the teachers did not have internet access to help their students, despite their willingness to support them. The survey also points out that those female high school students are found liable to be affected since they spend their time supporting their families and some face child marriage. This hurt students' academic performance and even let them drop out of school.

Children and young students in primary and high school learning in developed countries have faced the challenge of understanding online education effectively. The extensive review by Hammerstien (2021) shows that 7 studies conducted on student learning in Germany, the Netherlands, Australia, the USA, Belgium, and China revealed that the COVID-19 pandemic hurts student mathematics results. The absence of close friends, teachers, and family support in

cases where the student is stuck is taken as a reason for lower performance in math subjects. Furthermore, the pandemic is most detrimental to low-achieving students.

As per the review made by Bazaldua (2020), the World Bank simulations predict that a five-month-long school closure can result in an average learning loss of 0.6SD (standard deviation). The average value may be higher in some cases where there is ineffective online education and poor parental support. This study also indicated that in Belgium, the pandemic resulted in a learning loss of 0.19 standard deviations in mathematics. This is due to the challenges students face while perusing online education in the absence of teachers, parental, and peer support.

The pandemic also hurts college students. Based on the extensive review done by the US Department of Education in the USA (ED, 2020), COVID-19 has adversely affected the academic expectations of college students. Students with lower incomes who experience online learning consider dropping classes and delaying graduation more than their higher-income peers. According to an AllAfrican.Com release from 2020, school dropout is more likely to be observed in high school students due to economic constraints imposed on their families by the COVID-19 outbreak.

To summarize, the review of several countries found that COVID-19 had a negative impact on student performance. Despite countries' taking measures in undertaking distance education, challenges in accessibility and effectiveness have been observed. Math performance in both elementary and high school students was found to be detrimental to low-achieving students. Low-income students are also predicted to be school dropouts to finance themselves and their families. Students learning in Ethiopia have faced the impact of COVID (UNICEF, 2020; Yorke et al., 2020; Mengistie, 2020).

1.2. Statement of the Problem

Low academic achievement among students has a negative impact on the country's educational system, technological advancement, economic and cultural development, and even community security (Wahsheh, 2017). Despite the fact that there are numerous physiological, mental, and behavioral issues associated with poor academic performance, the pandemic COVID-19 currently plays a significant role in negatively affecting student achievement. The impact and extent need to be assessed well for corrective action to be taken by stakeholders.

In Ethiopia, despite the government's best efforts to maintain formal education during school closures via TV, radio, and social media, accessibility, effectiveness, and equity were difficult to achieve (Yorke et al., 2020).

Considering the educational impact of COVID-19 on student performance, studies in Ethiopia have been conducted by individual researchers (Yorke et al., 2020; Mengistie, 2020; Khodre, 2020) and international organizations (UNICEF, 2020; UNESCO, 2020; UNHR, 2020). The studies have done well in identifying the disadvantage group and assessing the challenge that students face in following up on distance education. Despite these merits, the studies miss two important elements.

First, the studies emphasize primary and preprimary school students and fail to examine the challenge and gap in high school education during school closure times. As per all African.Com releases, in 2020, school dropout has been observed in high school students due to the economic constraints of their families resulted from the outbreak of COVID 19. A similar review by UNESCO COVID-19 Education response (2020) shows that, as compared to primary school students, preparatory school students have been found at high risk of dropping out of school. Unless something is done, this will have a direct negative impact on student performance.

Furthermore, students learning in high school are found to be highly exposed to anxiety, depression, and mental health degradation as compared to students enrolled in elementary school. Shwarez (2020) conducted a study on 2310 students aged 12 to 18 and discovered that female and adolescent students aged 14-18 reported higher stress indicators in relation to the COVID-19 outbreak than males and younger students aged 12 to 14. Although no clear justification is given for the difference, it is expected to have an impact on the student's mental health and behavior once they return to school.

On the other hand, a study done by Rao, M.E., and Rao, D.M. (2020) shows that high school students have experienced intense stress during COVID. This is mainly accounted for online education. This can be explained by increased homework stress, social isolation or a lack of social interactions, and a lack of support for mental health during school closure time. survey done by Ma (2021) on 836 Chinese high school students, 32.94% of students experienced post-traumatic stress disorder due to the COVID-19 epidemic, and this was found to affect online education. Among the students who suffered stress, 60.82% felt that online education was not

(10.76%) or less effective (50.06%) in terms of gaining knowledge and improving practical and communication skills. The study revealed that the stress appears to be more pronounced in national exam takers.

In developing countries, the effect of COVID 19 on high school students is immense. The study was done by Ukobizaba (2021). Rwanda indicates that school dropout and educational loss have been observed in grade 12 students. Some of them were found to be pregnant while the others engaged in business activities. Some of them were demotivated to study due to the absence of peer and teacher support. As a result, the student spends less time perusing online education. This makes it difficult to effectively understand the science subjects, where deeper engagement with the course is vital.

Second, the impact of COVID on students' math performance has not been well studied. However, a pronounced negative impact has been observed in studies done in other countries. This is despite the fact that studies indicate students' poor achievement in math. For example, the review made by Hammerstein (2021) on high school and elementary school students from Germany, the Netherlands, Australia, the USA, and China shows a large decline in mathematics achievement. Lack of immediate peer, teacher, and family support results in cases where they get stuck, making it hard for the student to follow the online math class by themselves. The problems have been worse for low-achieving students due to their poor academic background.

Based on the study done by Almarashdi & Jarrah (2020), in the United Arab Emirate, of 580 sample high school students, 78.3% have no desire to study math online. In the study, students' responses show that the absence of cooperation with their classmates and the difficulty of obtaining immediate feedback from their teachers makes the online math class hard to follow. A study conducted by Learning, R. (2020) on 5 million elementary school students from 50 states in the United States discovered that lower math performance was observed more frequently than expected after the school reopened.

Despite the challenge of COVID being observed in high school students, its impact is pronounced in grade 12 students. These account for a number of reasons, which can be stated in terms of challenges in knowledge gaps and mental health. In Ethiopia's context, first due to the long break and the number of postponed national exam dates, students are likely to engage

themselves in business activities, which deter them from perusing distance education. Second, due to school closure, students miss the support from peers and teachers. This brings a challenge in understanding the subject matter. Third, even though the school has been reopened, students will attend only three days per week. Hence, the teacher also has adequate time to cover all the portions unless the student attempts it by themselves. The above three reasons result in a knowledge gap unless corrective action is taken ahead of university class time. Despite the fact that there is no available literature in Ethiopia concerning this situation, the problem has been observed in Zambia as per the study by Sintema (2020).

Furthermore, since these students are national exam takers, the stress is pronounced by the outbreak of COVID, unlike the previous time and students are unable to focus on their studies. Social isolation, fear of being binge infected, along with preparation for a national exam, may result in mental health problems. Here again, despite there being no available literature in Ethiopia concerning this situation, the problem has been observed in Rawanda as per the study. Despite there being no available literature in Ethiopia concerning this situation, the problem has been observed in Rwanda as per the study by Ukobizaba (2021).

In spite of the impact of COVID being observed in higher secondary schools (UNESCO COVID 19 Education Response in 2020), there are few studies done in Ethiopia. Among high school seniors, those who take national exams will experience profound mental health problems (Rao, M.E., & Rao, D.M. 2020). Furthermore, in Ethiopia, multiple exam data postponements will have their own impact on exam preparation and some may engage in business.

Considering the above facts into account, this study examines the impact of COVID-19 on academic and math performance on grade 12 students and also assesses its extent.

1.3. Objectives

The general objective of this study is to assess the Impact of COVID-19 Pandemic on students' academic performances, in Millennium high school.

1.4. Research Question

- ✓ How does the outbreak of COVID impact the academic performance of grade 12 students?
- ✓ How does the outbreak of COVID impact the math's performance of grade 12 students?

1.5. Significance of the Study

The outbreak of COVID-19 has resulted in a severe disruption in all aspects of society around the world. The impact on the education system and its outcome is overwhelming (Garca & Weiss, 2020). Learning loss and a decline in student performance were observed during closure time. This will have a direct negative impact on the country's educational, technological, and economic advancement unless corrective action is taken (Clark et al., 2020). Assessing the impact and extent of COVID-19 on student performance is essential for designing effective and appropriate action.

This study also helps us to see the extent of the knowledge gap created during school closure time. For the stakeholders, this helps to take corrective action to fill the educational gap created during pandemic time. Besides this, it also helps to control the problem if such things keep on for the future.

1.6. Scope of the Study

This study focuses on examining the impact of COVID-19 in the case of a selected government school, Millennium High School, which is located in Addis Ababa, Addis Ketema sub-city. The study will look at how the COVID affects the student's academic and math performance. It assesses the difficulties that arise during school closures from the perspectives of students and teachers. This will be done by studying the responses of students, school teachers, and principals taken by questionnaires and interviews.

For this study, grade 12 student learning at Millennium high school (located in Addis Ababa, Adiss Ketema sub-city) has been selected. The school and grade have been selected taking the following prominent factors into account.

First, it is a government school. This is where it's likely to see the impact of COVID-19 to a great extent as compared to the private. A study by Begna (2014) shows that students learning at government schools have poor access to better educational services and facilities and show lower academic performance in numerical subjects as compared to private ones. The study also shows that the families of private school students have higher academic qualifications as compared to the families of government school students. Having a poor academic background and a lack of parental academic support makes government school students much more

vulnerable to the adverse effect of COVID since they find it hard to follow online instruction and lecture notes sent through social media on their own (Hammerstien, 2020).

Furthermore, students learning at government schools are mostly from families having poor economic status. This makes the student likely to engage in paid labor to support the family and fulfill their basic needs. This adversely affects the academic performance of the student.

Besides the above factors, the location of the school is near to the researcher's working site. This makes it easy to collect adequate information via questionnaires' and interviews with less effort, time and cost.

Finally, the class has minimized to grade 12. This is considering a number of factors into account. First, because of the long break, students are more likely to engage in business activities that divert their attention away from online education. Due to the absence of close support from teachers and peers, students face a challenge in preparing for the national exam and mastering the science subject. Third, unless corrective action is taken for the educational loss, this will affect their performance at the campus, resulting in less output as compared to the one expected. Because the fourth student only learned three days per week, the burden of covering the material and understanding the concept falls on them because the teacher has limited time to explain everything in depth. Anxieties about being infected with COVID, as well as the National Exam, have a negative impact on their mental health.

Furthermore, considering higher secondary school will be vital since little research has been done to investigate this student, despite the effect having been observed in a number of countries (UNESCO COVID 19 Education Response 2020).

1.7. Limitation of the study

The researcher of this thesis did not undergo a comprehensive assessment of the student exam results before and after the school year. Rather, the opinions of the school principal, instructors, and students' responses are considered when studying the impact of COVID. And only government schools are investigated here. However, if private schools are included in the study and the discrepancy is assessed, the study will be more comprehensive. From the study, the response rate of the questionnaires' was 82%, though it's difficult to get 100%, this may have a slight impact on the thesis final output.

CHAPTER TWO

2. LITERATURE REVIEW

1.1. Academic Performance

Many researcher agreed that academic performance as the result of learning and prompted by teaching activities (Lams, 2015), however giving a precise definition is challenging due to its complex and broad nature. Most attempt to define academic performance in relation to the aggregate or cumulative average mark that the student got in the subject or course he took (York 2015). For Dennis (2014) academic success is a function of both personal and social characteristic such as mental ability, academic skills, motivation, and goals, and the characteristics of the environment, which can be conceptualized as a system of nested interdependent structures.

York (2015) defined academic performance in terms of students' persistence, which can be understood as progression of the students on academic grounds, to attain completion of degree, regardless of institution related contexts and issues. For Callbero as quoted (Lams, 2015), Academic performance involves meeting the goals, achievements and objectives set in the program or course that a student attends .In all of the above definition one can deduce that academic performance comprise various dimension, that can be inferred in the mark he got, the skill he developed and emotional intelligence he showed to attain certain qualification.

Beyond defining academic performance measuring it also challenging since student performance is the product of socio-economic, psychological and environmental factors. In spite of that, most often mark or examination result on the subjects can be taken as indicator or tool since this data are the most readily available assessments for the institutions (York, 2015; Davison, 2017).

2.1. Factors Affecting Academic Performance

Beside the argument in conceptualization, defining and measuring academic performance; there is no ambiguity regarding the relevance of student academic performance on countries social, economic and technological development. Thus, the need for assessing the factors affecting the student performance is crucial. Considering that a numbers of researchers, educators and trainers study to explore the factors that hinder the academic performance of the

student .Here in this section review on previous studies is done. For this thesis the review will contribute a lot to identify in which aspect COVID could impact the student performance.

In thesis the factors affecting the student performance are grouped in to four; these are personal factor, school factor, parental factor and threat of national health.

2.1.1. Parental factors

These comprises the influence resulted due to socioeconomic status, educational background and occupation of parents or guardians on student performance.

The study done by Farooq (2014) indicates that socioeconomic status and academic background of parents has a significant impact on student performance but the parent occupation found to have no significant effect. The result of the survey done on grade 10 students revealed that, students who belong from parents with high socioeconomic status were found to perform better in academic achievement, math's and English performance. The study quoted, student from low socioeconomic status parents perform low since there parent does not have enough income to support them in gaining access to the source and resource needed for learning. The study further indicate, parental education has an effect on student performance .The impact on high school students founds to be more in the case where parents has bachelor and master's degree. Based on this study the occupation of the parent's has found insignificant effect on student performance.

Muraina (2011) also studied the impact of parent's education and occupation on student performance. The study indicates that students from educated parents perform well in mathematics than student from uneducated parents. The study attempt to connect the influence of parent's education on student performance in two aspects. First students from educated family are likely to follow their parent's foot step. Second educated family predicted to have higher socioeconomic status than the literate one this makes them easy to fulfill the resource for child care, book and learning facilities. This in turn will affect the student academic achievement.

Furthermore Muraina (2011) provide an evidence that student whose parents belongs to high ranking occupational status are found to be perform well in the mathematics than student whose parents belongs to low ranking profession. The study assert that parents with high ranking occupational status have enough income which can be used to provide the necessary

material and support demanded by their child. This will arouse their interest in mathematics and pave the way for better performance. However if the socioeconomic impact is controlled, the effect of parent's occupation found to be less as compared to parent's educational background similar to the study done by Frooq (2014).

Atolagbe (2019), exhaustively study the impact of parental occupation type on student academic performance. According to the study parents whose occupation are in school setting or office and get early home have better chance of monitoring children's academic activities. Hence student from these family have shown better performance than self-employed parents and or parents whose world entails long journey from home.

Li (2018), attempt to compare the influence of socioeconomic status and educational backgrounds of parents on the student academic performance by examining one factor at time. The study indicates that the impact of educational background of parents on student performance is lower than socioeconomic status of family. Student from parents with high socioeconomic status have a chance to access quality school, access better educational service and resources. On the other hand educated parents can provide educational support and guidance to enhance children's study habit. This will have direct positive impact on student performance.

2.1.2. Student factors

Here these factors comprise the behavior, capability, effort and desire that the student shows towards the academics.

Extensive review done by Dogo (2016) indicates that, English proficiency and vocabulary skill has significant impact on student performance in science and math's subjects. The study shows that student with poor capability in English and vocabulary have suffered a lot in understanding the concept appear in maths, chemistry, physics and biology since they did not know well the vocabularies used in these subjects. Thus student failed to perform well in these subjects.

Similar study done by Mushtaq (2012) shows that there is high degree of association between English communication skill with student performance. The study also investigates the impact of family guidance and the learning facility on student performance. As per the study

strong communication skill and grip on English increase the student performance. But the study made little attempt to show how communication skill can enhance the student performance.

Extensive review done Wentzel (1998) shows that, by Students' motivation is crucial to their school success. Students who persist under challenging condition, who choose to continue to focus on academic activities and who display socially appropriate behavior are more likely to succeed in school. Indeed student motivation is found to be influenced by two factors grouped in academic and social domains or self and social efficacy. Student with belief that he/she is able to compete and perform well in the course they took and expect better in their result are the part of self-efficacy.

But this is not the only one that measures the student motivation for deep work and achievement in the academics. Student performance also is affected by the acceptance they got from peers, teachers and societies. Thus student who show academic success are the one having a quality to face challenges related with subject matter and social influence.

Similar study by Ampofo (2015) shows that the student ambition and effort have significant and direct effect on the performance of math's and English subjects. The study revealed that compared to student ambition and effort; parent's educational status has been found to insignificant and did not directly involve predicting student's academic performance.

2.1.3. School factors

These factors comprise the influence of school physical facility, educational service and environment on student academic performance. Earthman (2002) exhaustively reviewed the impact of condition, overcrowding and age the school building on student achievement reviewed. Based on the review, if the socioeconomic impact taken as controlled variable; student learning in modern and above standard building perform higher than the student learning at substandard school by 5-17 percentile points. But the study fails to mention specifically on the merits obtained from standardized buildings. Overcrowding or enrollment of many students that the school can accommodate result decline student of performance. This can be explained by lower student teachers interaction and difficulty in managing student behavior.

Studies done by Frooq (2015) and Muarin (2015) shows that school facility have positive impact on the student performance. As per Frooq (2017), student who access basic school

facilities like school library, computer lab get motivate to work hard and show high academic performance. Maganga, (2016) further elaborate inaccessibility of sufficient school facility hinder student preparation for exam; this will have direct consequence on their performance. The study done by Singh (2016) on 200 management student from Haryan. Indian state shows that school facilities has major factor in affecting student performance as compared to communication and family guidance.

Astin (1984) present a theory on what matter most in determining student academic and personal development .The theory identified that student involvement in academic work, extracurricular activity and interaction with faculty and other personnel is a deterministic factor in predicting the student development. However the quality and quantity of energy that the student invests in their academic life is affected by the teaching method, the role played by school personals, administrator and teachers. The study recommends that teacher needs to focus less on teaching technique and pedagogy content and emphasis has to be given towards motivating student to devote their time and energy on learning process. Metzler (2012) examines teachers subject matter knowledge has bigger influence on the student achievement much larger than effect of pedagogical skills, student effort and ability, parental choice of schools and classrooms, and student placements into classrooms . Finding of the study on math's and reading performance of 6th grade student shows that teacher subject knowledge raises student achievement by about 10 percent of a standard deviation. And the result has unaffected by considering between-subject differences in teaching hours, teaching methods, and student motivation despite these all have found to be have effect on student performance . However the study conducted considering only two subjects, one grade level and limiting the effect of teacher's characteristics variables.

The impact of teaching method on student performance has been studied by Ganyaupfu (2013). The study undertakes comparative assessment on the impact of student center, teacher centered and teacher student interactive method on student test score. The result indicated that teacher student interactive founds to be superior over the other two.

Bonny (2015) made comparative analysis on the effectiveness of teaching methods based on the interest of student. The finding of the result shows that student center interaction has been found preferable as compared to the traditional teacher's method. The study reviewed the

significance of discussion and demonstration (which is under student center method) in terms of; motivating students, saving time, accessing immediate feedback, and gaining skill while participating in real life situation concerns.

2.1.4. The impact of national health treat on student performance

Ahead of the outbreak of COVID the world experiences a national infectious disease like Ebola, H1NI which left critical impact on student performance in various aspect. Understanding how national disease affect the student performance, examine it extent and reviewing the effectiveness of the mitigation plan will have significance for COVID crisis. These can berestated in terms predicting the impacts of COVID and taking a lesson in mitigation. Here in this section review on the impact of Ebola done.

Ebola first appeared in 1976 in Sudan and Republic of Congo since then it outbreak 24 times. In those times many loss their life and found themselves in harsh health condition. However this was direct and immediate impact, a severe and last long impact has been observed not Ebola itself rather by its consequence. The healthy, education and economic system has been disputed greatly after the outbreak of Ebola The divers' impact of Ebola has been studied by ACAPS, (2016). Here in this review emphasis on education system has been given.

The report has presents the problems and challenges of Ebola on education system .For the thesis review the model used by Hallgarten (2017) is adopted for its clarity, concise expression and well illustration. Further statistical justification is also presented in the study. Here the emphasis is given for only the problem and impact.

Causes of Problem	Problem	Secondary Impacts	Outcome
<input type="checkbox"/> School closures <input type="checkbox"/> Diversion of resources and teachers <input type="checkbox"/> Lack of at-home educational materials	Reduction in availability of education services	<input checked="" type="checkbox"/> School drop outs <input checked="" type="checkbox"/> Children at higher risk of abuse <input checked="" type="checkbox"/> Loss of confidence and self-esteem <input checked="" type="checkbox"/> Loss of quality teaching and learning	SLOWER PROGRESS OR REDUCTION IN LEARNING OUTCOMES
<input type="checkbox"/> Restriction of movements <input type="checkbox"/> Reduced financial resources	Reduction in access to education services		
<input type="checkbox"/> Lack of reliable information on progress of disease and school reopenings <input type="checkbox"/> Fear of school return and emotional stress caused by outbreak <input type="checkbox"/> New financial hardships leading to difficulties with paying school fees, or children taking up employment <input type="checkbox"/> Stigmatisation of those affected (including pregnant girls and new mothers)	Reduction in utilisation of schools		
<input type="checkbox"/> Lack of maintenance of schools <input type="checkbox"/> Lack of teacher training during crisis	Lack of quality appropriate education		

Figure2. 1. Impact of Ebola on student learning outcome, (Hallgarten, 2017)

Hallgarten (2017) presents that, during and after the outbreak, more than 7000 teachers were engage in social mobilization health awareness workshop. Following the outbreak school has been closed for 7 months hence they were learning less .Social isolation following the outbreak result negative impact on children mental and physical health. The review also indicates that In West Africa, the closure of schools after Ebola outbreak exposed girls to sexual exploitation and violence hence school dropout due to pregnancy likely to happen. To sum up Ebola crises will adversely contributing in affecting the student performance.

2.1.5. The impact of COVID on student performance

After reviewing the impact of school, parental, personal and health treat factor on student performance, now I will proceed to COVID crisis. There are numbers of researches done concerning how COVID could impact the academic performance of the student. Here in this section I reviewed the previous literatures and present their finding, and methods used while studying the impact of COVID. But while selecting the literatures, five important considerations are taken in to account so as to be helpful for this thesis. Here are the considerations:

- ✓ The literature needs to have a clear focus on the impact of COVID on academic performance. The impact can be direct or indirect.

- ✓ The study is has to focus on high school and primary with emphasis on high school
- ✓ The study focus on the impact of COVID on student maths performance
- ✓ The literature present clear and detailed methodology and findings
- ✓ A literature that uses student achievement or test score as an indicator for measuring student performance

Louse (2021) examine the impact of COVID on the education while examining the challenge change in the accessibility of the online education, the economic impact of COVID on household, parental and teachers engagement in helping student. In the study both qualitative and quantitative data's are examined to assess the impact of COVID. Data from parents, teachers were collected using phone survey .The response of the interview studied and used for the quantitative analysis.

The result of the study identified that lack of internet and electricity access impeded the student to pursue the online education. The economical challenge let the student to look for business activity to support their family. Those of whom access the distance education found challenging to understand in the absence of peer and family support. The study also examines the challenge that teachers face while they attempt to support their family. However besides stating the challenge that student face the resulted educational loss is not presented.

Clark (2020) studied the impact of COVID on student performance on secondary school students. The examine the effect of online education during the COVID times on the performance student in math's, English , politics of taking three schools with different online educational service .

Andrew (2020) studies the impact of online education which is during COVID time, on the on grade 9 student performances in maths, English, politics and history subjects. The study was undertaken on three schools providing different online education service. During the school closure the first school did not provide online , the second did provide online education and it was managed by the school teachers and the last school provide high quality online using high ranked teachers.

The performance measured on the student measured based on mark on 1st examination after the school is reopened. To examine the effect of online education on student achievement DiD(difference in difference) regression implemented in which the student past examination result is considered. After the school reopened all student from the school took the same

examination. Hence the performance can be easily compared. The DiD regression result on 1835 student exam result indicate that students from school who provided better online education perform higher in maths, English, politics and history subjects by 0.22SD than the student who did not get the access. The result of revealed low achieving student and girls are most disadvantaged. The finding of the result indicates the challenge of the accessing effective online education on student performance during school closure.

Khufied (2020) compare the student maths performance before and after the outbreak of COVID. The approach used for the studying is examining the impact of class absent during summer time on student performance. Understanding the educational loss and gain in summer time and correlating with the number of day used to predict the impact of COVID on student. For this sake exam result before after the summer has been studied.

In the study more than the performance of 7 million elementary school students who belong to various race and socioeconomic status are considered. The result of the study predicted a learning loss of 0.25-0.35SD in mathematics with different value for different race. The quoted that African American student show poor performance for their lower economic status. Despite of the extensive study, the predicting impact of COVID from summer school closure loss will underestimate the result. It's due to health, socioeconomic and physiological impact of COVID couldn't not be considered in summer loss as the level they need to be.

Eze (2017) investigated the challenges posed by, and the impacts of COVID-19 on Education in Nigeria. For this study a sequential exploratory mixed method design was adopted. Here first administration education stakeholders, including education policymakers and primary and secondary school heads are interviewed to examine how could impact the student performance. From the response of the interview the following theme are identified; loss of academic session, poor learning loss, difficulty in home schooling, poor knowledge and skill on behalf of parents and teachers etc.

The response of the interview are categorized and analyzed in the qualitative phase and used prepare questionnaires for the quantitative phase. The questionnaires are yes or no type and distributed to 5385 participants who were parent and teachers, teachers. The response of the questionnaires studied quantitatively.

CHAPTER THREE

3. REASERCH METHODOLOGY

3.1. Introduction

Research methodology is a procedural plan that is adopted by the researcher to answer questions validly, objectively, accurately and economically. It helps us to decide what study design or method we are going to use; how you are going to collect information from your respondents; how you are going to select your respondents; how the information you are going to collect is to be analyzed; and how you are going to communicate your findings. It assists us in identifying research methods, selecting data type and source, establishing data collection instruments, sampling, and data analysis.

This chapter focused on the methodology that was used in the study. It dealt with research design, location of the study, target population, sampling techniques and sample size, research instruments, validity of instruments, reliability of instruments, data collection procedures, and ethical considerations.

3.2. Research method

Research methods are all those methods or techniques that are used for the conduction of research. There are about three research methods; qualitative, quantitative, and mixed research methods. Qualitative research involves collecting, analyzing, and interpreting non-numerical data to understand and answer questions raised by the research problem. It is most often used to answer questions about experience, meaning, opinions, and perspective from the standpoint of the participant or observed event. Whereas the quantitative research method involves collecting and analyzing quantifiable data from participants. It can be used to find patterns and averages, make predictions, test causal relationships, and generalize results to wider populations (Kumar, R., 2004).

In mixed research, both qualitative and quantitative methods are utilized. This method is preferred whenever using either of the qualitative or quantitative methods will not provide the required understanding for answering the research problem. In other cases, a mixed method is used in a situation where a research question does not get an answer in a single phase, which is

the case where the quantitative phase depends on the qualitative result or vice versa (Kumar, R., 2004).

There are different types of mixed research design methods; one of them is the exploratory sequential mixed method. In this method, first the qualitative data will be collected and analyzed. This will be used in the subsequent quantitative phase. This method is important whenever the quantitative data and analysis is based on, affected by, or supported by the qualitative phase output (Kothair, C.R., 2004).

In this thesis, a mixed research method is used to investigate and assess the impact of COVID on student performance. This method was selected since it provides a complete understanding of the problem. Since the method comprises both qualitative and quantitative methods, qualitative methods will assist us in examining how COVID impacts student performance. Whereas, the quantitative method helps us to assess the extent of the impact. The two methods in conjunction provide a comprehensive answer to the research question. This is impossible if either of the two methods is utilized.

Among the mixed research design methods, here in this thesis, an exploratory sequential design method is selected. This method was selected since the quantitative phase analysis used in this study was dependent on the output qualitative study. In the qualitative phase, how COVID could impact student performance will be studied from the responses of teachers and students via structured interviews. From the result of the semi-structured interview, yes or no type questionnaires will be prepared and given to the student. The responses will be collected and analyzed quantitatively. Finally, the relationship between the qualitative and quantitative phase output will be investigated to determine the study's findings.

Research Question for the study

RQ1: How COVID 19 impact the academic performance of grade 12 students.

RQ2: How COVID 19 impact the math's performance of grade 12 students.

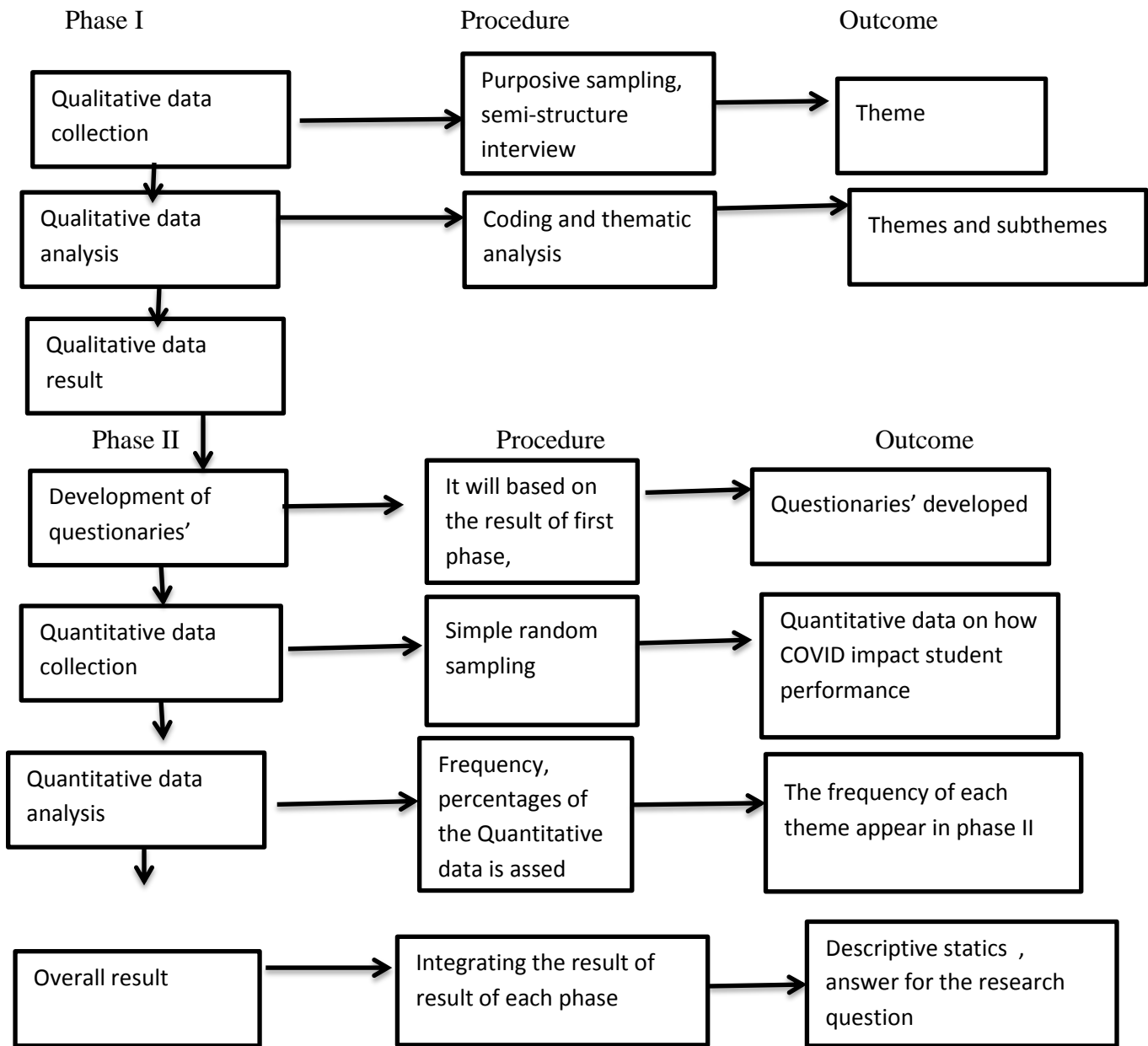


Figure 3. 1 Mixed-method procedure used for this thesis

3.4. Participants

In given research participants needs to be selected so come up with the with detailed answer for research inquiry with lesser effort. Hence having a potential participant is crucial and their consent to participate to the research is also vital. Considering the above facts into consideration in this thesis; school principal, grade 12 teachers and students at millennium high school (where the study is going to conducted) been found a potential source since they are close observance of the impact of COVID on student performance.

3.4. Sampling techniques

Sampling is the process of selecting a few (a sample) from a bigger group (the sampling population) to become the basis for estimating or predicting the prevalence of an unknown piece of information, situation, or outcome regarding the bigger group. A sample is a subgroup of the population you are interested in.

Here, in this thesis, both qualitative and quantitative or mixed research methods are used; hence different considerations need to be implemented while selecting a sample. In the quantitative phase, you attempt to select a sample in such a way that it is unbiased and represents the population from where it is selected. In qualitative research, sample selection will be biased, with the consideration being how easy it is to access potential respondents and the respondent's extensive knowledge on the response the thesis requires, rather than representing the entire population.

3.4.1. Sampling technique for qualitative phase

In qualitative research, there are various sampling techniques that you can use when recruiting participants. Purposive, convenience, snowball and quota sampling are among them. The qualitative researchers used the purposive method to recruit participants who could provide in-depth and detailed information about the phenomenon under investigation. It is highly subjective and determined by the qualitative researcher generating the qualifying criteria each participant must meet to be considered for the research study.

In convenience sampling, qualitative researchers use this technique to recruit participants who are easily accessible and can share adequate information with lesser effort. Often times, this may include utilizing geographic locations and resources that make participant recruitment convenient. Whereas snowball sampling is the process of selecting a sample using networks.

To start with, a few individuals in a group or organization are selected and the required information is collected from them. They are then asked to identify other people in the group or organization, and the people selected by them become a part of the sample. Information is collected from them, and then these people are asked to identify other members of the group, and, in turn, those identified become the basis for further data collection. This process is

continued until the required number or a saturation point has been reached, in terms of the information being sought.

In this thesis, one school dean, four department heads, and four math teachers (including one as department head) have been selected using a purposive sampling technique. They were chosen considering they are very close to observing the impact of COVID on student performance and examining the impact of school closures during COVID times. Hence, sufficient information can be obtained with less effort.

3.4.1. Sampling technique for the quantitative phase

For quantitative research, we do have random, non-random, and mixed sampling techniques. In random sampling, each element in the population has a certain probability and an independent chance of selection in the sample. The choice is not influenced by other considerations such as personal preference. Hence, in random sampling, the sample can represent the target population and thus eliminate sampling bias. This minimizes the error associated with biased data. Despite its merits, random sampling has difficulty being implemented in terms of time and cost.

There are four types of random sampling, but among them, simple random sampling is most often used for homogenous populations for its simplicity and accuracy. For this thesis, in the quantitative phase sample are taken from teachers and student from millennium high school. Simple random sampling techniques were chosen to select sample students. Since the students are all from the same class, the need for stratification or quota is unnecessary. The selection of simple random method also minimizes sampling error besides of its simplicity.

At Millennium High School, where the current thesis is implemented, there are 42 school teachers. It's difficult and time-consuming to pick a potential respondent for this thesis since few details are known by the researcher of this thesis about their knowledge related to the impact of COVID, years of experience in teaching, engagement with the student, and consent to actively participate in the research experience. However, because some of the experienced teachers in the school were also part-time co-workers with the researcher of this thesis, they were used to identify candidate teachers who are willing and capable of sharing the necessary information demanded by the thesis inquiry.

3.5. Sampling size

For the qualitative phase, there is no rule concerning the number of samples to be taken. Here, what matters most is having a potential sample with in-depth knowledge of the research rather than representing the population. The number of samples is decided by the researcher. As long as there is saturation in the information needed, the number of samples can be reduced before further data collection.

However, for the quantitative case, an adequate sample size that represents the population needs to be taken. Having a large sample size will minimize the sampling error, but it has its own challenges in terms of time and cost. The accuracy of the research and the challenge of implementation have to be considered in parallel in setting the sample size. In general, these are the considerations that need to be taken while setting the sample size for the qualitative study.

The above considerations make it a bit hard to set the sample size. Some literature sets the recommended sample size at 10–20% for descriptive studies (Martínez-Mesa, J., González-Chica, D. A., Bastos, J. L., Bonamigo, R. R., & Duquia, R. P. , 2014). Mathematically, the sample size can also be determined while making some prior decision on precision. This mathematical method is most frequently used because of its simplicity. However, this does not take into consideration the cost incurred in collecting data. Still, there are other methods where the sample size is taken while considering both the accuracy and cost, but it's complicated to implement (Kothair, C.R., 2004). In this study, the 20% recommendation was chosen as the setting for its simplicity and limited availability of data for making a decision.

3.6 Data source

In research, we do have two types of data sources; these are primary and secondary data sources. The primary data are those that are collected for the first time and thus have a unique character. Types of data are collected through observation, interviews, and questionnaires. It is mostly used when the data needs to be collected for the first time and with the intention of accessing the view of the target group directly without the need for an intermediate source or statistical analysis. Secondary data, on the other hand, are those that have already been collected by someone else and have gone through the statistical process.

For this study, we use primary data sources, where the data is collected from students, teachers, and school principals via interviews and questionnaires. This helps us to have reliable and detailed data from the target group, which the research demands.

3.7. Data collection instrument

Are the methods that are used for collecting data. Several methods can be used to collect primary data. Observation, interview and inquiries are the major one. The choice any of the three methods is matter of purpose of the study, availability of resource and skill of researcher. Among the three data collection methods for this thesis, structure interview and questionnaires' has been selected for this thesis. As it has been inferred above, the following consideration has been taken in account while choosing the data collection method;

- ✓ suitability for the scope, nature and objective of the inquiry raised in the research
- ✓ Availability of fund, skilled manpower and time
- ✓ Effectiveness of the method in answering the research inquiry

3.7.1. Interview

Interviewing is a commonly used method of collecting information from people. In this method the interviewer attempt to elicit information, personal opinions from the interviewed. Interview is most relevant in terms of

- ✓ Accessing detailed and in-depth information from few individuals
- ✓ Give a chance for explain the questions thus miss interpretation concerning the question is avoided specially in unstructured interview.
- ✓ Can be done again and the possibility of non-response is very low
- ✓ Possibility for accessing supplement information about the respondent personal information.

We do have two types of interview these are structured and unstructured interview. In structured interview the interviewed persons may experience predetermined set of questions, having the same wording and order of questions as has been prepared ahead. This type of interview methods is advantageous in providing uniform information this makes it easy to make a comparison of one response with the other person. Furthermore this simplifies the time and effort needed for analyzing collected data's. However this type of method is lack advantage of

freedom in ordering the sequence of the question or changing the wording used in question. Thus question needs to be clear at the beginning.

The other type of interview method is known as unstructured interview, here in this type of interview the interviewer is free to alter the sequence and wording used of the question whenever explanation is needed. Despite this helps to have detailed information it makes it difficult to analyse and compare one response with the other.

The purpose of this thesis is to assess how the COVID could impact the academic and math's performance of student. In this regard thick and detailed qualitative explanation of teachers and school principals along lesser effort and time requirement for analysis and comparative assessment is crucial. Since the number persons involved is few, selecting interview will let us to access detailed and in-depth qualitative information, and having lower chance of un-response answer. Being semi structured, minimize the effort and time needed for the analysis and comparison of interview response.

3.7.2. Questionnaires'

Is a written list of questions, the answers to which are recorded by respondents. In a questionnaire, respondents read the questions, interpret what is expected, and then write down the answers. Unlike the interview here in questionnaires, there is no one to explain the question to the respondent. Questionnaires' can be administered using email or at a place where groups of individuals are aggregated, or they can be in public.

In mailed administration, the questionnaires are forwarded via email. This makes it simple, but the chance of having a response is low. Furthermore, it only considers those who have the account and access to use the email. In collective administration, the questionnaires are disseminated through collected individuals at a specific site. These can be students at school or classroom, participants attending a programme. This method of questioning ensures a very high response rate and gives the researcher a chance to contact the respondent and explain the purpose and relevance of the study. The last method is administration in public places. Questionnaires are distributed in public places such as shopping malls and health centers using this method. Despite its advantage in accessing many individuals, it is time-consuming and somehow it is challenging to explain the questionnaires. It is also time-consuming.

As compared to interviews, questionnaires are less expensive, and it's possible to execute them with fewer time, financial, and human resources. It is applicable for collecting data from large areas where interviews seem challenging to undertake in terms of time and cost. However, they do have some limitations in regards to the challenge in lack of explaining the question, higher chance of no response, and being difficult to use for illiterate, very young, and very old people who cannot understand the questions.

For this thesis, questionnaires have been selected to collect data from grade 12 students and teachers. Since the number of students and teachers is very large, it is preferable to collect data with less effort and time using questionnaires as compared to interviews. The site will also be within the school. This will reduce the time spent on distributing and collecting the questionnaires once the students have consented to give the response. Furthermore, since all are literate, if the questions are prepared with the required clarity and ethics, the chance of having no response can be minimized.

3.8. Ethical Concern

Before data collection, the researcher prepared the consent forms for participants, describing the aim of the study and asking for participants to sign and ensure their voluntary participation in the study. Besides, letters requesting permission to interview teachers, students, and principals. The teachers and principal needed to receive the interview protocols before the interview itself to allow them to prepare in advance since some interview questions require data from archives.

In addition, care must be taken to identify and nullify any actual or perceived issues where power between the researcher and participant could be abused. Anonymity must be maintained during data analysis, and the data must be kept for a reasonable period of time. The question needs to be ethical and free from bias or stigmatism.

CHAPTER FOUR

4. DATA PRESENTATION AND ANALYSIS

4.1. Introduction

In this chapter, the data collected from the interview and questionnaires' are presented along with their respective analysis in two phases. In the first phase, the interview responses are presented, and the data is analyzed using thematic analysis. In the second phase, the response to the questionnaires from teachers and students is presented and studied. Finally, the result of phase I and phase II is integrated and studied to find to come up with the answer for the research question.

4.2. Phase I Qualitative Data and its Analysis

The selection of types of qualitative analysis relies on the capability of the in meeting the research objectives. Here the objective this thesis to examine the impact of COVID 19 on student academic and math's performance, that's based on the response of the student , teachers and academic deans. In this regards thematic analysis founds to be preferable for the qualitative phase since it helps to realize the research objective through examining the word or opinions raised by the respondent. For the quantitative phase of the study descriptive statics taking frequency and percentage value of response founds to be good for easy and effeteness in predicting the extent of COVID impact on student performance

Here, in the first phase, qualitative data is collected from the semi-structured interview with the 7 teachers and 1 school principal. All are from Millennium high school, where this study was conducted. The data is collected and presented, taking the quotes from the interview. The theme or finding from the interview is also presented along with the response in the table shown below.

4.2.1. Thematic analysis

I. Impact of COVID on student academic performance during school closure time

Research question 1 :- How does the outbreak of COVID could impact the academic performance of grade 12 student ?

Table 1 Thematic analysis of qualitative data from department head teacher’s interview responses, Part I

Teachers response	Sub theme	Major theme
<p>Due to lack of internet access and technological barrier only a few of them have the access to the materials shared by the school.</p> <p>Some of them were unable to access the lesson broadcast by TV since they are forwarded by satellites.</p>	<ul style="list-style-type: none"> ▪ School attempt to online education ▪ Challenges in internet and technological access 	<p>Inaccessibility of education</p>
<p>Only a few students have the access to receive the material sent by the school via telegram. Even for those who have access, the economic constrain were a great barrier to frequently seeing the online material.</p> <p>Furthermore, it’s also difficult for the student to understand the lecture material in the absence of teachers and peer support.</p>	<ul style="list-style-type: none"> ▪ Fewer student enrollment ▪ Economic challenge to online education ▪ challenge in understanding the lecture material 	<ul style="list-style-type: none"> ▪ Inaccessibility of education ▪ Difficulty of home schooling
<p>Due to the outbreak of COVID, students were simply promoted to the next class while leaving some chapters unlearned. Since</p>	<ul style="list-style-type: none"> ▪ Poor assessment for promotion 	<p>Academic loss/ knowledge gap</p>

the subjects by themselves have plenty of interrelated and prerequisite topics, missing previous lesson have a direct negative consequence on their current performance	and its impact	
Some of the students engage in business to support their family and few get married	<ul style="list-style-type: none"> ▪ Economic and social challenge 	<ul style="list-style-type: none"> ▪ School dropout/ educational loss

II. Impact of COVID on student academic performance after the school reopened

Research question 1 :- How does the outbreak of COVID could impact the academic performance of grade 12 student ?

Table 2 Thematic analysis of qualitative data from department head teacher’s interview responses, Part II

On behalf of the teachers, there was a challenge in covering the portion since there was less time left for them. Hence most of the teachers were in hurry just to cover the portion while leaving the details to the student	<ul style="list-style-type: none"> ▪ Reduction of class hour ▪ Difficulty of portion coverage 	<ul style="list-style-type: none"> ▪ Poor learning
<p>Before the onset of the new academic class, revision for the uncovered portion is done this will have a positive role to bring back students to the academic after a long break.</p> <p>However, there was some challenge in terms of effectiveness since students were not psychologically ready to learn and only a few of them were attending.</p>	<ul style="list-style-type: none"> ▪ Attempt for revision and its challenge 	<ul style="list-style-type: none"> ▪ Knowledge gap/ Academic loss

<p>Students show poor academic performance since they stay out of learning for a long time they forgot what they have already learned. Some of them show behavioral change and forgot how to behave in school.</p> <p>Some of the student were drop out due to economic constrain</p>	<ul style="list-style-type: none"> ▪ Impact of prolong home staying ▪ Economic challenge on student 	<ul style="list-style-type: none"> ▪ Academic loss/ knowledge gap ▪ School dropout
<p>The student did not properly use the time in study when they stay home and they totally forgot what they already learned.</p>	<ul style="list-style-type: none"> • Poor time management 	<ul style="list-style-type: none"> • Academic loss
<p>It reduces the class hour time and the class is focused on giving summarized concepts rather than explaining the details. It was difficult to have tutorial class on weekends since it was a class day. Lab and computers class were abandoned to mitigate the spread of COVID</p>	<ul style="list-style-type: none"> • Fewer class time and its impact • Absence of IT and lab 	<ul style="list-style-type: none"> • Poor learning
<p>Since the class hours were reduced, teachers were focused on covering the portion rather than explaining the details. Hence more left for the student to read by themselves</p> <p>There was a fewer time that teachers give class work, homework,, and solving worksheet this have a direct negative impact on student academic achievement.</p>	<ul style="list-style-type: none"> • Fewer class time and its impact • Fewer class room assessment 	<ul style="list-style-type: none"> • Poor learning

III. Impact of COVID on student math’s performance during school closure time

Research Question 2:- How does the outbreak of COVID could impact the academic performance of grade 12 student in maths subject?

Table 3 Thematic analysis of qualitative data from math’s teacher interview response I

Teachers response	Sub theme	Major theme
<p>Due to technological and economic constrain only fewer students to attend the education via telegram. Even for those students who have access, it was difficult for teachers to assist and evaluate all students' work due to the limitation of time, internet access, and lack of skill on how to do it.</p>	<ul style="list-style-type: none"> ▪ Fewer class room enrollment ▪ Impact of technology and internet on distance education 	<p>Inaccessibility of education</p> <p>Difficulty of home schooling</p>
<p>I was engaged in preparing worksheets and short notes sent via telegram. But it was with some challenges since there is no way to give feedback whenever the students face difficulties while reading the notes.</p>	<p>Difficulty in having feedback</p>	<p>Difficulty of home schooling</p>
<p>I was preparing lecture material that will be forwarded via telegram and also advising teachers who engage in ‘temhretbebeto broadcast’.</p> <p>But there was some challenge in providing close assistance to the student this account for lack of internet access unless I got to</p>	<ul style="list-style-type: none"> ▪ Teachers role and limitation in distance education ▪ 	<p>Difficulty of home schooling</p>

school or an internet café		
The nature of the subject by itself hard requires closer teachers' assistance much beyond sharing video lectures and providing lecture notes. The outbreak of COVID impedes these	Difficulty of the subject nature for online education.	Difficulty of home schooling
The subject maths by itself is difficult to teach via distance since it needs face-to-face interaction of the student with teachers. A student needs immediate feedback whenever they got stuck but it is difficult to have this in distance education	Difficulty of the subject nature for online education.	Difficulty of home schooling
Since the student is forced to read alone this makes it hard to study and understand the content in the subject matter. Some may get demotivated since there is no one else to help them in case they need support.	Difficulty of online education Lack of motivation to study	Difficulty of home schooling
Students face anxiety, stress, and fear of the outbreak of COVID. This will have a direct negative impact on student performance since it will distract them from actively engaging in their lesson.	Mental health Problem	Knowledge gap

IV. Impact of COVID on student math’s performance during school reopen time

Research Question 2:- How does the outbreak of COVID could impact the academic performance of grade 12 student in maths subject?

Table 4 Thematic analysis of qualitative data from math’s teachers interview responses, Part I

Teachers response	Sub theme	Major theme
<p>After the school reopened, the number of class hours was reduced. Hence, the teachers were in a hurry to cover the portion. Much of the lesson is not far better than the highlight. Hence, the student had to work hard to understand the course matter.</p> <p>Their inability to understand the current lesson will have its own negative impact on their future performance since the subjects have plenty of interrelated portions.</p>	<p>Reduction of class hours Challenge in portion coverage Difficulty of learning</p>	<p>Poor learning</p>
<p>In the beginning, there were some challenges like;the students' behavior changed abruptly since they spent most of the time out of school; they forgot how to behave and dress in school; the students forgot what they already learned and some chapters from the previous grade were left unlearned;</p> <p>To mitigate the problem, schools were providing psychological and academic support like tutors and revision classes before they started the new grade.</p>	<p>Impact of prolong home staying School attempt psychological support</p>	<p>Educational loss</p>
<p>Some students dropped out of school due to marriage. Some faced physiological and mental health problems.</p>	<p>Economic, social and health challenge</p>	<p>School dropout</p>
<p>Unlike the other subject, students’ needs to do practice a lot to understand what are there in the lecture material. However it’s difficult to do since there is fewer available time</p>	<p>Fewer classroom assessment</p>	<p>Poor learning.</p>

Measures taken by the school to mitigate the impact of COVID on student

In addition to identifying the impact of COVID on the student, this thesis investigates how the school attempted to mitigate the problem. This will help us to make an assessment of the depth of the impact that COVID has had on student performance.

Table 5 Thematic analysis of qualitative data from department head teachers interview responses, Part II

Teachers response	Theme or Findings
The school was providing short notes, and worksheets via telegram. When a student completes their work, they return it to the school via telegram or, in some cases, in person.	Distance education via telegram
Short notes and worksheets were forwarded to the students via telegram on the school channel. The answer to the question will also be posted on the channel. For those who have access to a personal computer, the school was sharing plasma videos.	Distance education via telegram
The students were away from school for a prolonged time and were promoted simply without covering the previous grades completely. Taking this into account, the school holds a revision class that stays for one month. To mitigate the spread of COVID, the school was also providing masks and sanitizers	Mental preparation Assuring safety of students
The school was providing COVID protection kits, alcohol, sanitizers, Wi-Fi, and desktop computers for each of the teachers to work on while staying in school	Service and material support
Because the school provides Wi-Fi for teachers, teachers can prepare lecture materials to share via Telegram.	Service and material support
The schools were providing <ul style="list-style-type: none"> • Free internet access for teachers • Sanitizing material and masks were handled to the teacher's An incentive for teachers is given to those who engage in tutoring.	Service and material support

4.3. Phase II Quantitative Data and its Analysis

Here in the second phase qualitative data is collected from the questionnaires on 100 grade twelve students and 10 teachers'. The response rate was 82%. This questionnaire developed from the basic themes of the interview obtained from the first phase. They measure the perceptions of the participants in two scales of "Yes" or "No". Hence the participants were required to pick one option, as it may be appropriate in their opinion. The quantitative data is studied using descriptive statics taking percentage frequency

Table 6 Descriptive statistics for student response in the questionnaires’

How COVID could impact the performance of the students (part I , Impact of COVID during school closure time)	Yes		NO		Non.R
	N.R	N.R%	N.R	N.R%	
1. During COVID times, did your school provide worksheets, short notes or other educational material through telegram or on other platforms or in hardcopy?	22	26.83	60.00	73.17	0
2. Does the educational material forwarded by the school were clear and sufficient to understand without the need for additional support from peers or teachers?	31	37.80	50.00	60.98	1
3. During school closure time, did your school provide assignments or tests and gives you feedback and correction?	19	23.17	62.00	75.61	1
4. While you are at home , did you have a chance to frequently contact your teacher for support you inquire related to the lesson	16	19.51	65.00	79.27	1
5. While you are at home, did you have a chance to frequently contact your teacher for the support you inquire related to the lesson	13	15.85	68.00	82.93	1
6. Did you think that school closure in COVID time gives you a good opportunity to read and discover more in your academic?	34	41.46	44.00	53.66	4
7. During school closure time, have you ever engaged in business activity and found yourself having lower time to spend on the academic?	25	30.49	51.00	62.20	6
How COVID could impact the performance of the students (part II , after the school reopened)					
8. Have you experienced any close friends who dropout as a result of marriage or engaging in business activities	42	51.22	39.00	47.56	1
9. While the school reopened, have you found the revision class adequate in covering the missed portion?	46	56.10	35.00	42.68	1
10. Did the reduction of class days after the school reopened negatively affect your performance?	47	57.32	32.00	39.02	3
11. Did the absence of lab and practical IT classes affect your performance in the related subjects?	52	63.41	30.00	36.59	0
12. Did your school provide psychological support, guidance and advice to help you succeed in your academics after the school reopened?	38	46.34	40.00	48.78	4
13. Lack of peer support brought challenges in effectively understanding the maths subject?	49	59.76	28.00	34.15	5
14. Did you think learning maths in the time of COVID is difficult as compared to the other subject?	52	63.41	30.00	36.59	0
15. Anxiety, stress, and mental health problem resulting from the outbreaks of COVID affects you from studying effectively and preparing for the exams?	44	53.66	36.00	43.90	2
16. Did you attend the tutorial class provided by your school after the school was opened?	47	57.32	35.00	42.68	0

NR=number of response, Non.R= Number of non-response

Table 7 Descriptive statistics for teacher's response in the questionnaires'

How COVID could impact the performance of the students (Part I, during school closure by the outbreak of COVID)	Yes		NO	
	N.R	% NR	N.R	% NR
Did your school provide an educational resource to the student while they stay home?	6	75	2	25
Did your school provides assessments and gives feedback and correction to the student?	3	37.5	5	62.5
Did you think lack of internet access and technological facilities will be a problem for the student in accessing the lecture material provided by your school?	7	87.5	1	12.5
Have you tried to contact your student online and help them during the school closure?	3	37.5	5	62.5
Poor skills and competence in using technologies bring a challenge to providing online education to your students?	5	62.5	3	37.5
Lack of internet and electricity brings challenges to providing online education to your student?	6	75	2	25
During the time of homeschooling, did the lack of peer support due to social distancing decline the student's academic performance	7	87.5	1	12.5
In your opinion, did you think that distance education was effective in terms of helping the student to gain adequate knowledge in your subject of teaching?	1	12.5	7	87.5
How COVID could impact the performance of the students. (Part II after the school reopened)				
Did you think that reduction of school days would negatively affect student performance?	8	100	0	0
In your school, have you experienced students who dropped out class by the outbreak of COVID?	6	75	2	25
Did the outbreak of COVID result in poor academic achievement or mass failure in exams in the subject you teach?	7	87.5	1	12.5
After the school reopened, did you observe students lose what they had already learned before COVID?	8	100	0	0
Did you believe that the student got proper revision for the missed chapters before starting the new academic session?	4	50	4	50
Did your school attempt to provide psychological support to students to mitigate anxiety, stress and mental health problems related to the outbreak of COVID?	3	37.5	5	62.5

4.4. COVID's Impact on students' Academic Performance

4.4.1. Inaccessibility of education

Even though schools were sending out short notes and exercises through telegram, only 27% of student received them. They didn't have access to the school's shared materials in 73% of cases. Inaccessibility could be attributed to a lack of internet and technology access, as well as

economic constraints, as stated in the interview. This is demonstrated by a quote from the interview.

During the school's closing period, the school attempts to maintain formal education through telegram lecture notes and worksheet. However, because of lack of internet connectivity and technological limitations, it was not as effective as it could have been. Only a few of them had access to the school's common materials. Beside that television lectures were transmitted via. Satellite hence some people were unable to access them.

Students found it difficult to contact their teachers online and ask for support, in addition to having problems accessing school teaching materials. In addition, 65 percent of students said they did not have the opportunity to contact their teacher for help on a regular basis. One issue could be a lack of internet and technological access by students or teachers. Seventy-five percent of teachers say they don't have access to the internet or technology. As a result, COVID makes it difficult for Students to obtain education from their professors and schools.

According to a study by Louise et al. (2020), the accessibility, quality, and efficiency of remote education in Ethiopia were hampered by a lack of internet connectivity and a lack of assistance at home. According to a survey performed by Youth as Researchers (YAR, 2020) on African students from 54 countries, 76 percent of the participants, or three out of four students, did not have access to an adequate curriculum to help them transition smoothly to online learning and research.

Access to online education was also hampered by financial constraints during the COVID era. Teachers say in the interview that just a few students have access to the school's telegram materials.

Only a few students have access to receive the materials sent by the school via telegram. Even for those who have access, the economic constraints are a great barrier to frequently seeing the online material.

As a result, it's safe to assume that Students without technology or internet access, as well as those from low-income families, were out of education during the closure time since the school was unable to support them. Students who are absent from school for an extended period of time are more prone to forget what they have learnt previously. They have a loss of

knowledge. Learning loss is a general loss of information and abilities, as well as reversals in academic progress, that occurs most often as a result of extended gaps or discontinuities in a student's education. Students who have been out of school for an extended period of time have a poorer mental preparedness to study, according to Engzell, Frey, &Verhagen. (2020).

All of the teachers that replied to the questionnaires said that the student had forgotten what they had learnt. Teachers previously stated in an interview

The students had low academic performance in tests because they have been out of school for a long period. They had forgotten what they had already learn

One of the signs of learning loss among millennium high school student is the teacher's response. Despite the school's efforts to provide revising classes, there have been significant difficulties. Psychological help and coaching are critical in reuniting the learner with his or her past. In the interview, the teacher stated that

Revision for the uncovered component is completed before to the start of the new academic class. This will help the student to return to school after a long break. However, efficacy was hampered since students were not mentally prepared to learn and just a few of them were actually there. As a result, we might claim that COVID makes it difficult to obtain an education.

Hence lack of internet connectivity, technical access, and financial challenges, students were unable to continue their study during the school shutdown period. Ineffective revision classes, as described in the prior interview, are unable to close the knowledge gap. This gap in knowledge has a direct negative impact on the student's performance in the promoted class.

4.4.2. Difficulty of homeschooling

Following the COVID outbreak, the school was closed and students were sent home. One of the school's remedies was to continue formal education by telegram while the students were at home. Although home learning may help in the mitigation of COVID, it has a negative impact on students.

In the absence of peer and teacher help, 61 percent of those who had access to the school's shared materials stated it was difficult to grasp what they were given. Students find it challenging to read and understand on their own due to the lack of student-teacher interaction.

Only 19% of Students said they ask their lecturers for feedback and corrections. 63 percent of teachers also admitted to not supporting their students since they lack technological abilities and expertise in assisting students online. In addition, 75% of the teachers claimed that their inability to assist students online is due to a lack of internet access. During the interview, one of the teacher stated,

I was engaged in preparing worksheets and short notes sent via telegram. But it was with some challenges since there is no way to give feedback whenever the students face difficulties while reading the notes.

During the interview, the teachers indicated that the school was publishing assignment corrections. However, 76% of students reported the school did not give worksheet comments or corrections. The student's response might signal that the feedback was not provided on time or was inadequate.

According to teachers in the interview, students' collaboration in class work and assignments has a substantial impact on their performance. Homeschooled students, on the other hand, are deprived of this chance. A majority of students (60 percent) stated that their math performance was harmed by a lack of peer support. A lack of peer support, according to 88 percent of teachers, has an influence on students' success in their fields.

Besides that, in homeschooling, students were not engaged seriously, though they had plenty of time. From the questionnaires, only 44% of them answered that school closure gives the chance to read more. 54% of the students did not use their time effectively to read and learn more in school. 15% of the students have said that they engage in business activity during school closure, indicating poor engagement. These findings may lead us to believe that students were not making effective use of homeschooling. One of the possible causes might be students' lack of motivation to study. One of the teachers said in the interview,

Since the student is forced to read alone, this makes it hard to study and understand the content of the subject matter. Some may get demotivated since there is no one else to help them in case they need support.

Louise et al (2020) also showed that even the teachers lack computer and internet access to contact their students during school closure time whenever students need their support.

According to Mengstie (2020), among those students in urban areas who have access to online education, they find it difficult to comprehend the subject matter in the absence of a teacher or close family support.

Almarashdi & Jarrah et.al (2020) conducted a similar investigation. 78.3% of the 580 high school students surveyed said they had no interest to learn math online. Students' comments in the survey suggest that the online math class is difficult to follow due to a lack of collaboration with their peers and the difficulties of receiving rapid feedback from their lecturers.

According to research, students who are intrinsically motivated learn better and more creatively. This intrinsic motivation lasts just as long as students believe they are capable of completing their schoolwork. Teachers' close help is critical in this aspect. Students become more involved in their studies and have higher learning results when teachers appear to be encouraging.

During a school lockdown, student-teacher communication is critical for students' motivation, competency, and learning progress. This will have a direct influence on the academic success of the student. The absence of close help, on the other hand, leads to disengagement, frustration, and poor learning outcomes. These are the difficulties that the students confront while they are homeschooled.

The lack of teacher assistance during homeschooling has a psychological impact on students, who are at risk of isolation and anxiety. This may have a negative impact on student academic engagement and learning performance.

4.4.3. Impact on school assessment and transition

One of the difficulties in establishing homeschooling in COVID time is the absence of evaluation and testing (UNESCO, 2020). During school shutdown time at Millennium High School, where this thesis was written, there are no evaluations or examinations. As a result, all students are promoted without having to take an exam. Some chapters were also left unstudied. All of these factors contribute to the knowledge gap and have an influence on the student while in the promoted class. According to one of the teachers interviewees,

Due to the COVID outbreak, students were simply advanced to the next class without completing an exam, leaving several chapters untaught.

Even after the school reopened, the amount of classwork and homework was greatly reduced since there was little available time for teachers to focus on covering the portion alone. One teacher in the interview responded that

Because there was less time once school reopened, teachers gave fewer class assignments and homework assignments, and they were unable to accomplish worksheets. This has a direct detrimental influence on academic achievement amongst students.

A lot of scholars have looked at the impact of classroom assessments on academics. According to Wiliam (2002) , classroom evaluation allows teachers to learn what their Students know and can do. Where are Students still having difficulties? What does this imply about what Students may need to learn in order to progress? It's also a means for teachers to engage with their students. Aside from that, classroom evaluation allows students to analyze themselves in order to choose what they should do next (Kellert, S. R., Mehta, J. N., Ebbin, S. A., & Lichtenfeld, L. L. (2000).). As a result, making the correct conclusion on the above issue is extremely difficult in the absence of assessment.

Assessment serves a variety of functions, including providing relevant information to decision-makers, teachers, and students. It may also be utilized to assist Students in improving their grades. Despite the fact that most students connect tests and assessments with negative connotations, evaluation has a substantial influence on student motivation and self-esteem, which are both necessary for learning. Students are intrinsically driven to learn when learning is linked to punishment and rewards. Students are encouraged to participate in their studies and study hard since there will be consequences if they do not. The more effort you put in, the better the outcome.

As a consequence of the foregoing, we may deduce that a lack of evaluation makes it harder for teachers to learn what students know and can do. This will have a direct detrimental influence on the student's ability to comprehend and learn. Students are less motivated to study since there are no consequences, punishments, or rewards associated with learning unless they are self-motivated. Furthermore, students are unable to trace their academic progress due to a lack of evaluation.

According to the responses to the teacher questionnaires, 100% of teachers believe that students forget what they have already learned, and 54% of students are not engaged in their

studies. One probable cause is a lack of evaluation. This may occur after the school reopens owing to a reduction in in-class hours. The reduction in class hours has been perceived as having a negative influence on students' performance by 57% of Students. One of the issues may be the lack of classroom assessments. Students' grasp and mastery of the material will suffer as a result of less classwork and homework.

4.4.4. Reduction of class hours

Since students were taught in shifts three days a week when the school reopened, the number of class hours was lowered. This harmed students' grasp of the subject matter and their ability to complete classwork and participate in extracurricular activities. By the time COVID broke out, the focus of class time had shifted to covering the material rather than discussing the specifics. More left for the student to read on their own. Teachers react in the interview

Covering the section after the school reopened was a difficulty for teachers because there was less time left for them. As a result, most teachers were rushing to cover the material while leaving the specifics to the students,,,,,

The number of class hours was lowered once the school reopened. As a result, the teachers were in a rush to finish the lesson. The majority of the lesson comes up short of the highlight. As a result, the student had to put in a lot of effort to grasp the course material. Because the topics have so many interconnected parts, their inability to grasp the present lesson will have a detrimental influence on their future performance.

Teachers allotted less time for classwork, homework, and worksheet completion. During the interview, the math instructor stated that

Students in math, unlike other courses, must practice extensively in order to comprehend the lecture information. However, because there is less time it was difficult to implement this

They may have short notes through telegram on days when the student stays at home, but they are ineffective in terms of allowing the student to retain the content of the lesson in the absence of instructor support.

According to the surveys, 57 percent of students believe that the reduction in class hours has an impact on their performance. In the surveys, all of the teachers agreed that the impact was significant. The teaching and learning process suffers as a result of the class's concentration on

covering the section rather than discussing the subtleties, performing more class work, homework, assignments, or extracurricular activities. All of this has a direct impact on the student's competency and learning outcome.

4.4.5. Poor learning

One of the challenges that COVID brought to academics is poor learning. Students did not know what they needed to know. In COVID times, this may be attributed to several reasons. Distance education is inaccessible and ineffective; there are fewer in-class hours; there is a lack of psychological support and guidance; there are fewer assessments, insufficient psychological assistance, and there were economic and social challenges to school dropouts.

In the questionnaires, 88% of the teachers responded that students showed poor results in the exam after the class reopened. 50% of teachers said the revisions were adequate, and 56% of students agreed with the presence of revision class. In the interview, all of the teachers said that the school had made revisions. However, in some states, fewer students were attending the classes. From the above, one can deduce that the school has revised. The problem might be due to students' lack of mental readiness to start school after a prolonged stay at home.

Before the onset of the new academic class, revision for the uncovered portion is done. This will have a positive role in bringing students back to the academic after a long break. However, there was some difficulty in terms of effectiveness because students were not psychologically prepared to learn and only a few of them attended.

All of the teachers have seen that the children forget what they have already learned, as previously stated. Educational loss might be caused by a lack of evaluation, as well as inadequate and inaccessible educational and mental health issues.

Following the reopening of the school, an attempt was made to give psychiatric counseling and assistance. The teacher and the student, however, were both concerned about the level of effectiveness. According to the surveys, 63% of instructors and 49% of students think that school does not give appropriate psychological support, while 46% of students believe it does.

Female and adolescent Students aged 14–18 showed greater stress indicators about the COVID-19 epidemic than males and younger students aged 12–14, according to Shwarcz (2020).

In contrast, a research by Rao, M.E., and Rao, D.M. (2020) found that high school Students were under a lot of stress during COVID. Online education accounts for the majority of this. Increased academic stress, social isolation or a lack of social engagements, and a lack of mental health care during school closure time can all contribute to this.

In a comparable survey of 836 Chinese high school students conducted by Ma (2021), 32.94 percent of students reported experiencing post-traumatic stress disorder as a result of the COVID-19 outbreak, which was shown to impair online education. In terms of learning information and increasing practice and communication skills, 60.82 percent of students who experienced stress said that online education was either not (10.76 percent) or less successful (50.06 percent).

According to surveys, 51% of students and 75% of teachers reported they had students who dropped out of school due to marriage or a business commitment. They also stated this in the interview. This will have major ramifications for the student's future life, family, and work prospects, as well as a loss of educational chances.

To conclude, poor learning occurred both before and after the school reopened. Prior to COVID, distance education was both inaccessible and unproductive. Following the reopening of the school, teaching hours were decreased, and the emphasis was placed only on covering the section. Despite the fact that the student had been out of school for a long time, the school's physiological support and advice were insufficient to assuage the fear. One of the difficulties is educational loss. Hence the student's performance will be affected immediately and directly as a result of this.

4.5. COVID's impact on Student math performance

Based on data acquired through interviews and surveys, I identified some of the COVID issues faced by students in this thesis. They were also identified in the study by Chan, Sabena, and Wagner et al. (2021)

- Difficulty of online education's accessibility
- The difficulty of seeking help from teachers and peers
- The absence of or a reduction in the number of assessments
- The subject's difficulty on its own

4.5.1. Difficulty of online education's accessibility

Due to a lack of technology and internet connectivity, students find distance education challenging to obtain. Only 27% of Students received them, as mentioned earlier. In 73 percent of situations, they were unable to access the school's shared materials. 75% of instructors report they don't have internet or technological access. Despite the schools' supply of WiFi and computers, teachers found it difficult to attend classes during COVID hours. As a result, instructors' responsibilities are reduced to preparing lecture notes and activities for the school to share.

Fewer students are able to attend telegram classes because to technological and financial restrictions. Due to time constraints, internet access, and a lack of knowledge on how to do it, it was impossible for teachers to help and assess all students' work.

Access to education is difficult, which leads to a loss of knowledge. This will have a direct impact on the student's performance because math is a subject with many interconnected subjects.

4.5.2. The difficulty of seeking help from teachers and peers

During COVID, when the schools were closed, teachers found it difficult to provide immediate feedback in the same manner they did while teaching face-to-face. Teachers provide feedback while assessing students' work prior to the COVID epidemic. As a result, they can quickly clarify any misunderstanding or problem that the learner may be experiencing. Unless the teacher holds a video conference with their student, this is tough to do with COVID. Due to a lack of internet access and sporadic connectivity, this is challenging. According to one of the interviewees,

I was preparing teaching materials to be sent through telegram, as well as giving advice to teachers who participated in "temhretbebetto broadcast." However, due to a lack of internet connectivity unless I went to school or an internet café, giving close support to the student account was a hardship.

Only 19% of students claimed they contact their instructor regularly for feedback and corrections, according to the survey. As a result, the majority of students were required to read

the course materials alone. This will be challenging since, in the absence of instructor assistance, the topic is difficult to comprehend on its own.

Math is a difficult subject to teach via the internet since it requires face-to-face interaction between the student and the teacher. When a student gets stuck, they need immediate feedback, but this is difficult to come by in distance education.

Because the learner is compelled to read alone, it is difficult to study and comprehend the subject matter's substance. Some people may become demotivated since there is no one else to help them if they require assistance.....

Beyond sharing video lectures and supplying lecture notes, the nature of the subject necessitates strong instructor collaboration. COVID has hampered their efforts.

Students also have a hard time finding peer support. This had a detrimental influence on the student's ability to comprehend the material. A lack of peer support impairs students' math performance, according to 60% of students.

4.5.3. The absence of or a reduction in the number of assessments

Exams are difficult to undertake during homeschooling time for a variety of reasons. There was an attempt at Millennium High school to distribute a worksheet as a way for students to evaluate their progress. However, deciding what questions to ask the student is challenging because there is no way of knowing whether or not the student has understood the lecture materials. Aside from that, the learner has no method of getting feedback for any clarification they require.

Short notes and worksheets were provided to students through Telegram on the school channel, according to the school admin in an interview. The solution to the question will be shown on the channel as well. But the correction or answers were either not on time or not in the way students demanded or not accessible. That's why 62% of the students do not feel they received a correction for the worksheet.

After the school reopened, there were fewer classroom examinations. Due to time constraints, teachers focus on presenting the essentials while leaving the details to the students.

The number of class hours was lowered once the school reopened. As a result, the teachers were in a rush to finish the lesson. The majority of the lesson falls short of the highlight. As a result, the student had to put in a lot of effort to grasp the course material. Because the topics have so many interconnected parts, their inability to grasp the present lesson will have a detrimental influence on their future performance.

4.5.4. The subject's difficulty on its own

The subject is tough for most Students on its own. Missing class will have a substantial influence on students' future performance because it covers a wide variety of interrelated topics. Students must practice a lot and take a number of classroom tests to grasp and master the subject content. Because schooling is unavailable, it is harder to seek instructors' and peer support, and there are fewer assessments, the COVID epidemic has wreaked havoc on the situation.

When compared to other disciplines, 64 % believed that studying math during the COVID period was tough. His presence is due to the difficulties of the issue. That was also agreed upon by the interviewers.

Unlike in other subjects, students need to practice a lot to understand what is in the lecture material. However, it's difficult to do this in COVID times.

The student had to work hard to understand the course material. Their inability to understand the current lesson will hurt their future performance since the subjects have plenty of interrelated portions

CHAPTER FIVE

5. SUMMARY, CONCLUSION AND RECOMMENDATION

5.1. Summary

This study aimed to explore the impact of COVID-19 on the academic and maths performance of grade 12 students learning at Millennium High School. To come up with the answer to the research question, I used the exploratory sequential mixed research design. This is the method selected since it allows us to examine how COVID could impact student performance and assess its extent. In the first phase, qualitative data concerning the impact of COVID on student performance is collected from teachers and the school dean at Millennium High School using semi-structured interviews. The collected data from the interview is analyzed using thematic analysis. The result has been used to prepare the questionnaires' that are going to be used to collect data for the quantitative phase. The quantitative phase was studied alone to assess the extent of the impact. Finally, the results of the two phases are integrated and studied.

For the first phase, 1 school dean, 4 department heads, and 4 math teachers (including one as department head) have been selected using a purposive sampling technique. In the second phase, questionnaires are distributed to teachers and students at the millennium high school. Since the researcher of this study has little knowledge about the school teachers related to the impact of COVID, years of experience in teaching, engagement with the students, and consent to actively participate in the research experience, quota sampling is used. The number of sample teachers was 9. For the case of students, simple random sampling is used for its simplicity and to minimize sampling error.

5.2. Summary of findings

The objective of the thesis was to come up with the answer for the two research question; how does the outbreak of COVID impact the academic performance of grade 12 students? how does the outbreak of COVID impact the math's performance of grade 12 students?

How does the outbreak of COVID impact the academic performance of grade 12 students?

The result of the study shows that the outbreak of COVID brings many challenges that directly impact the student's performance. Inaccessibility of education, the difficulty of homeschooling, lack of assessment, impact on poor assessment and transition, reduction of class hours, and poor learning are the impacts of COVID identified in the study.

Even though schools were sending out short notes and exercises through telegram, only 27% of students received them. They didn't have access to the school's shared materials in 73% of cases. Inaccessibility could be attributed to a lack of internet and technological access as well as economic constraints, as discussed in the interview. Only 75% of the teachers did not have technological or internet access to help their students. Hence, the majority of students were not learning during the six-month school closure time. There will be an educational loss. Students also forget what they have learned, as all of the teachers polled and interviewed agreed. This educational and learning loss has its impact while they are attending their promoted class unless it gets fixed and corrected by proper revision. But the interview result shows that the revision was not effective as intended since only a few were attending and the students were not mentally ready.

After the schools were closed, one of the remedies taken was to continue formal education by telegram while the students stayed at home. However, homeschooling has brought difficulties for the student. In the absence of peer and teacher help, 61 percent of those who had access to the school's shared materials stated it was difficult to grasp what they were given. Students find it challenging to read and understand on their own due to the lack of student-teacher interaction. Only 19% of students said they ask their lecturers for feedback and corrections. Due to a lack of technical abilities and expertise, 63 percent of teachers admitted to not assisting their students online. In addition, 75% of the teachers claimed that their inability to assist students online is due to a lack of internet access.

Besides that, in homeschooling, students were not engaged seriously, though they had plenty of time. From the questionnaires, only 44% of them answered that school closure gives the chance to read more. 54% of the students did not use their time effectively to read and learn more in school. 15% of the students have said that they engage in business activity during school

closure, indicating poor engagement. These findings may lead us to believe that students were not making effective use of homeschooling. One of the possible causes might be students' lack of motivation to study.

During school shutdown time at Millennium High School, where this thesis was written, there are no evaluations or examinations. As a result, all students are promoted without having to take an exam. Some chapters were also left unstudied. Even after the school reopened, the amount of classwork and homework was greatly reduced since there was little available time for teachers to focus on covering the portion alone. Even though most students connect tests and assessments with negative connotations, evaluation has a substantial influence on student motivation and self-esteem to devote to their studies. 54% of students are not engaged in their studies during school closure time. One probable cause might be a lack of evaluation. Students' grasp and mastery of the material will suffer as a result of less classwork and homework. All of these factors contribute to the knowledge gap and influence the student performance while in the promoted class.

By the time the school reopened, students were taught in shifts three days a week, so the number of class hours was lowered. According to the surveys, 57 percent of students believe that the reduction in class hours has an impact on their performance. In the surveys, all of the teachers agreed that the impact was significant. The teaching and learning process suffers as a result of the class's emphasis on covering the section rather than discussing the subtleties or performing more class work, homework, assignments, or extracurricular activities. There is still more for the students to read on their own. All of this has a direct impact on the student's competency and learning outcome.

One of the challenges that COVID brought to academics is poor learning. Students did not know what they needed to know. In COVID times, this may be attributed to several reasons. Distance education is inaccessible and ineffective; there are fewer in-class hours; there is a lack of psychological support and guidance; there are fewer assessments, and there are economic and social challenges to school dropouts.

In the questionnaires, 88% of the teachers responded that students showed poor results in the exam after the class reopened. 50% of teachers said the revisions were adequate, and 56% of students agreed with the presence of revision class. In the interview, all of the teachers said that

the school had made revisions. However, in some states, fewer students were attending the classes. From the above, one can deduce that the school has revised. The problem might be due to students' lack of mental readiness to start school after a prolonged stay at home.

All of the teachers have seen that the students forget what they have already learned, as previously stated. The educational loss might be caused by a lack of evaluation, as well as inadequate and inaccessible educational and mental health issues.

Following the reopening of the school, an attempt was made to give psychiatric counseling and assistance. The teacher and the student, however, were both concerned about the level of effectiveness. According to the surveys, 63% of instructors and 49% of students think that school does not provide appropriate psychological support, while 46% of students believe it does. According to surveys, 51% of students and 75% of teachers reported having students who dropped out of school due to marriage or a business commitment.

Hence, all the above facts show that inaccessibility of education, the difficulty of homeschooling, lack of assessment, impact on poor assessment and transition, reduction of class hours, and insufficient psychological assistance all lead to poor learning. Hence, the student's performance can be affected immediately and directly as a result of this.

How does the outbreak of COVID impact the maths performance of grade 12 students?

Based on data acquired through interviews and surveys, the following impacts have been identified: the difficulty of online education's accessibility, reduction of class hours, the difficulty of seeking help from teachers and peers, the absence of or a reduction in the number of assessments, and the subject's difficulty on its own.

Due to a lack of technology and internet connectivity, students find distance education challenging to obtain. As mentioned earlier, only 27% of students received them. In 73 percent of situations, they were unable to access the school's shared materials. 75% of instructors report they don't have internet or technological access. Despite the schools' supply of Wi-Fi and computers, teachers found it difficult to attend classes during COVID hours. As a result, instructors' responsibilities are limited to preparing lecture notes and worksheets for the school to use.

When the schools were closed, maths teachers found it difficult to provide immediate feedback in the same manner they did while teaching face-to-face. Teachers provide feedback while assessing students' work before the COVID epidemic. As a result, they can quickly clarify any misunderstanding or problems that the learner may be experiencing. Unless the teacher holds a video conference with their student, this is tough to do with COVID. Due to a lack of internet access and sporadic connectivity, this makes challenging to study math's.

According to the survey, only 19% of students claimed they contact their instructor regularly for feedback and corrections. As a result, the majority of students were required to read the course materials including maths alone. This will be challenging since, in the absence of instructor assistance, the maths topic is difficult to comprehend on its own.

Maths exams are difficult to undertake during homeschooling time for a variety of reasons. There was an attempt at Millennium High School to distribute a worksheet as a way for students to evaluate their progress. However, deciding what questions to ask the student is challenging because there is no way of knowing whether or not the student has understood the lecture materials. Aside from that, the learner has no method of getting feedback for any clarification they require.

The maths subject is tough for most students on its own. Missing class will have a substantial influence on students' future performance because it covers a wide variety of interrelated topics. Students must practice a lot and take several classroom tests to grasp and master the subject content. Because schooling is unavailable, it is harder to seek instructors' and peer support, and there are fewer assessments, the COVID epidemic has wreaked havoc on the situation.

5.3. Conclusion

This paper has attempted to examine the impact of COVID on students' academic and maths performance in the case of a selected school in Addis Ababa. To evaluate the impact of COVID, administrators, teachers, and students were interviewed and questioned. The response is studied using an exploratory sequential mixed research design.

The study was undertaken in two phases. In the first phase, qualitative data concerning the impact of COVID on student performance is collected from teachers and the school dean at Millennium High School using semi-structured interviews. The collected data from the interview is analyzed using thematic analysis. The result has been used to prepare the questionnaires that are going to be used to collect data for the quantitative phase. The quantitative phase was studied using descriptive static alone to assess the extent of the impact. Finally, the results of the two phases are integrated and studied.

The study found that education inaccessibility, the difficulty of homeschooling; poor assessment, class hour reductions, and poor learning outcomes were the major themes that impacted the students' academic performance. Concerning math, besides the above finding of the nature and difficulty of the subject, math by itself is identified as a major contributing factor behind the poor academic performance of students in the subject. Even though there is no statistical comparison of exam results before and after COVID, the findings above indicate that COVID brings its own educational loss, knowledge gaps, and poor academic achievement.

5.4. Recommendation

Student low academic achievement has a negative impact on the countries' educational system, technological advancement, economical, and cultural development even the security of the community .Thus the impact and extent needs to assess well for corrective action to be taken by stakeholders. In this regard this study also helps us to see the extent of impact of COVID on student academic performance in homeschooling time and after the school reopen. For the stake holders this help to take corrective action to fill the educational gap created during pandemic time. Beside this it also helps to control the problem if such things keep-on for future.

The result of the study inform , if other condition like COVID appear in near future ; the government has to think revolutionizing the information and communication technology for

better , equitable and accessible online learning . Schools also introduce blended learning system where both online and conventional learning goes along with the existing school Infrastructure. This mitigate the confusion that may happen when student suddenly switch to the online system. Teachers needed to trained and fanatically so to equip themselves with the current technology. This will be vital role for effective online class. Schools needs also provide assistance for those students who fail to learn homeschooling or drop out due to economical constrain.

For the educational loss, resulted by poor learning, lack or fewer assessment, mental health issue or poor learning; concerned state holder needs to find a means where the post problem could be minimized. The subjects like math's with the plenty interrelated topics; concerned stake holder need to implement a strategy where post impact can be minimized. School also needs to have psychological support center so they can support their whenever the students were not mentally fine.

References

- A., &Sevilla, A. (2020). Learning during the lockdown: Real-time data on children's
- ACAPS, (2016). Beyond a public health emergency: Potential secondary humanitarian impacts of a large-scale ebola outbreak. Report
- Almarashdi, H.&Jarrah, A. M. (2020).**Mathematics Distance Learning amid the COVID-19 Pandemic in the UAE: High School Students' Perspectives: *International Journal of Learning, Teaching and Educational Research, Vol. 20, 292-307*
- Almarashdi, H.&Jarrah, A. M. (2020).Mathematics Distance Learning amid the COVID-19 Pandemic in the UAE: High School Students' Perspectives: *International Journal of Learning, Teaching and Educational Research, Vol. 20, 292-307*
- Ampofo, Eric TWUM, and B. Osei-Owusu, (2015). Students' academic performance as mediated by students' academic ambition and effort in the public senior high schools in
- Andrew, A., Cattan, S., Costa-Dias, M., Farquharson, C., Kraftman, L., Krutikova, S., Phimister, Ashanti Mampong Municipality of Ghana." *International Journal of Academic Research and Reflection* 3.5
- Astin, A. W. (1984). Student involvement: A developmental theory for higher education. *Journal of college student personnel*, 25(4), 297-308.
- Bazaldua, D.L., Levin, V. &Lieberman, J. (2020). Guidance note on using learning assessment in the process of school reopening: *Learning assessment platform*.
- Bazaldua, D.L., Levin, V. &Lieberman, J. (2020). Guidance note on using learning assessment in the process of school reopening: *Learning assessment platform*.
- Begna, T.N. (2017). Public schools and private schools in Ethiopia: Partners in national development: *International Journal of Humanities Social Sciences and Education*, 4(2), 100-111.
- Bonney, K. M. (2015). Case study teaching method improves student performance and perceptions of learning gains. *Journal of microbiology & biology education*, 16(1), 21-28.

- Clark, A.E., Nong,H., Zhu.H., &Zhu.R., (2020).Compensating for Academic Loss: Online learning and student performance during the covid-19 pandemic: *HAL open science*
- Creswell, J.W., (2011). Research design methodology: Qualitative, quantitative and mixed method approaches: SAGE Publications
- Davison, B.C. Dustova, G. (2020). A quantitative assessment of student performance and examination format: *Journal of Instructional Pedagogies, Vol 18.*
- Dennis, M., Phinney, J.S., &Chuateco, I., (2015). The role of motivation, parental support, and peer support in the academic success of ethnic minority first-generation college students: *Journal of College Student Development, Volume 46, 223-236 (Article)*
- Dogo, P. (2016). Effects of English language on students' performance in teaching and learning of mathematical modelling at junior secondary school level in Bauchi State, Nigeria (Doctoral thesis, PhD thesis.
- Earthman, G., (2002). School Facility Conditions and Student Academic Achievement: *Williams Watch Series: Investigating the Claims of Williams v. State of California*
- experiences during home learning.
- Eze, U. N., Sefotho, M. M., Onyishi, C. N., &Eseadi, C. (2021). Impact of COVID-19 pandemic on Education in Nigeria: Implications for Policy and Practice of e-learning. Library Philosophy and Practice.
- Farooq, Chaudhry, Shafiq&Berhanu, (2011).: Factors affecting students' quality of academic performance: a case of secondary school level
- Ganyaupfu, E. M. (2013). Teaching methods and students' academic performance.*International Journal of Humanities and Social Science Invention, 2(9)*
- García, E., & Weiss, E. (2020). COVID 19 and student performance, equity, and U.S. education policy : Lessons from pre-pandemic research to inform relief, recovery, and rebuilding
- García, E., & Weiss, E. (2020).Covid 19 and student performance, equity, and U.S. education policy : Lessons from pre-pandemic research to inform relief, recovery, and rebuilding
- Hallgarten, J. (2020). Evidence on efforts to mitigate the negative educational impact of past disease outbreaks.

- Hammerstien, K. (2020). Effects of COVID-19 related school closures on student achievement: A Systematic Review
- Human right watch, (2020). Impact of Covid-19 on children's education in Africa.
- Kerry Earl, & David Giles, (2011). other Look at Assessment: Assessment in Learning New Zealand Journal of Teachers' Work, Volume 8, Issue 1, 11-20, 2011
- Khodr, A., (2020). The case for safely reopening schools in Ethiopia
- Kothair, C.R., (2004). Research methodology; methods and techniques (3rded). New edge limited
- Kuhfeld, M., Soland, J., Tarasawa, B., Johnson, A., Ruzek, E., & Liu, J. (2020). Projecting the
- Kumar, R., (2004). Research methodology; a step by step guide for beginners (3rded). SAGE Publications Ltd
- Lamas, H. (2015). School performance: Propósitos y Representaciones, 3(1), 313-386.
- Li, Z., & Qiu, Z. (2018). How does family background affect children's educational achievement? Evidence from Contemporary China. *The Journal of Chinese Sociology*, 5(1), 1-21.
- Ma, Z., Ma, W., Idris, I., Pan, Q., Baloch, Z. (2020). COVID-19 impact on high school student's education and mental health: A cohort survey in China
- Ma, Z., Ma, W., Idris, I., Pan, Q., Baloch, Z. (2020). COVID-19 impact on high school student's education and mental health: A cohort survey in China
- Maganga, J. H. (2016). Factors Affecting Students' Academic Performance: A Case of Public Secondary Schools in Ilala District, Dar es Salaam (*Doctoral thesis, The Open University of Tanzania*)
- Martínez-Mesa, J., González-Chica, D. A., Bastos, J. L., Bonamigo, R. R., & Duquia, R. P. (2014). Sample size: how many participants do I need in my research?. *Anais brasileiros de dermatologia*, 89, 609-615.
- Mengistie, T.A. (2020). Impacts of COVID-19 on the Ethiopian Education system. *SciInsigtEdu Front*, 6(1), 569-578.

- Mengistie, T.A. (2020). Impacts of COVID-19 on the Ethiopian Education system. *SciInsigtEdu Front*, 6(1), 569-578.
- Metzler, J., & Woessmann, L. (2012). The impact of teacher subject knowledge on student achievement: Evidence from within-teacher within-student variation. *Journal of development economics*, 99(2), 486-496.
- Per Engzell, Arun Frey, & Mark Verhagen. (2020). Supplementary Information for learning loss due to school closures during the COVID-19 pandemic
Potential impact of COVID-19 school closures on academic achievement. *Educational*
- Rao, M.E., & Rao, D.M. (2021). The mental health of high school students during the covid-19 pandemic: *Frontiers in education*
- Rao, M.E., & Rao, D.M. (2021). The mental health of high school students during the covid-19 pandemic: *Frontiers in education*
- Learning, R. (2020). How kids are performing: Tracking the impact of COVID-19 on reading and mathematics achievement (Special report series Fall 2020 Edition).
- Schwartz, K.D., Cortens, D.E., McMorris, C.A., Makarenko, E., Arnold, P., Bavel, M.B., Williams, S., & Canfield, R., (2020). COVID-19 and Student Well-Being: Stress and mental health during return-to-school
- Schwartz, K.D., Cortens, D.E., McMorris, C.A., Makarenko, E., Arnold, P., Bavel, M.B., Williams, S., & Canfield, R., (2020). COVID-19 and Student Well-Being: Stress and mental health during return-to-school
- Sintema, E. J. (2020). Effect of COVID-19 on the performance of grade 12 students: Implications for STEM education. *Eurasia Journal of Mathematics, Science and Technology Education*, 16(7), em1851
- Ukobizaba, F., & Nizeyimana, G. (2021). Facing the effects of COVID-19 on Grade-12 students' education: A focus on science and mathematics instructions. *African Journal of Educational Studies in Mathematics and Sciences*, 17(1), 101-111.
- UNESCO. (2020). How many student are at risk of not returning school.
- UNICEF. (2020). the impact of covid-19 on children in Addis Ababa, Ethiopia

United Nation Human Right, 2020. Rapid gender assessment (rga) on the impact of covid-19 on women and men in Ethiopia

United States of America Department of Education , (2020).Education in a Pandemic: The Disparate Impacts of COVID-19 on America's Students

William, D. (2011). Formative assessment: Definitions and relationships. *Studies in Educational Evaluation*, 37(1), 3-14.

York, Travis, T.Y., Charles, G. & Susan, R. (2015). Defining and Measuring Academic Success: *Practical Assessment, Research, and Evaluation: Vol. 20, Article 5*

Yorke, L., Rose, P., Hagos, B. and Woldehanna, T. (2020). The effects of COVID-19 on primary education in Ethiopia: Perspectives of school principals and teachers. Research and Policy Paper No. 20/10. REAL Centre, University of Cambridge

Youth As Researchers, 2020. Exploring the impact of COVID-19 in learning in Africa

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APPENDIX

Appendix 1:

Interview question for School administrator and department heads

Question 1: How do you think the outbreak of COVID-19 could impact the academic performance of grade 12 students?

Question 2: During school closure time, what strategies did your school employ to support students in their academics?

Question 3: In your opinion, do you think the strategies employed were effective and implemented well? If not, what were the challenges?

Question 4: While the school reopened, how did the school handle the challenges related to student performance, school dropout, and mental health problems as a consequence of the outbreak of COVID and the coming national examination?

Question 5: After the school reopened, the class session days were reduced. Does this have an impact on the students' performance? If so, how did you handle the situation?

Question 6: Did the school provide any support or resources demanded by the teachers to assist their students? If so, what kind of support?

Appendix 2: Interview question for math's teachers

Question 1:How do you think the outbreak of COVID-19 can affect the performance of the student in math's?

Question 2:As compared to the other subjects, do you think implementing distance education is more challenging to teach and learn math's? If your answer is yes, then what do you think was the reason?

Question 3: How did you think lack of peer and teachers support might affect the student performance?

Question 4:As math's teachers, do you believe the strategies used by the school or department during school closure time were effective in assisting students to learn math's on their own? if not what did you think was the reason?

Question 5: During COVID school closure time, did you engage yourself in helping students in math's? if your answer is yes

A. How did you perform it? What challenge did you face

If your answer is no

B. Why did you fail to do so

Appendix 3: Questionaries' for teachers

How the outbreak of COVID could impact the performance of the students (Part I, during school closure by the outbreak of COVID)	Yes	No
1. Did your school provide an educational resource to the student while they stay home?		
2. Did your school provides assessments and gives feedback and correction to the student?		
3. Did you think lack of internet access and technological facilities will be a problem for the student in accessing the lecture material provided by your school?		
4. Have you tried to contact your student online and help them during the school closure?		
5. Poor skills and competence in using technologies bring a challenge to providing online education to your students?		
6. Lack of internet and electricity brings challenges to providing online education to your student?		
7. During the time of homeschooling, did the lack of peer support due to social distancing decline the student's academic performance		
8. In your opinion, did you think that distance education was effective in terms of helping the student to gain adequate knowledge in your subject of teaching?		
How the outbreak of COVID could impact the performance of the students. (Part II after the school reopened)	Yes	No
9. Did you think that reduction of school days would negatively affect student performance?		
10. In your school, have you experienced students who dropped out class by the outbreak of COVID?		
11. Did the outbreak of COVID result in poor academic achievement or mass failure in exams in the subject you teach?		
12. After the school reopened, did you observe students lose what they had already learned before COVID?		
13. Did you believe that the student got proper revision for the missed chapters before starting the new academic session?		
14. Did your school attempt to provide psychological support to students to mitigate anxiety, stress and mental health problems related to the outbreak of COVID?		
15. The absence of IT class and Lab affect the academic performance of student in your subject?		

Appendix 4: Questionnaires' for students

How COVID could impact the performance of the students (Impact of COVID during school closure time)	Yes	No
1. During COVID times, did your school provide worksheets, short notes or other educational material through telegram or on other platforms or in hardcopy?		
2. Does the educational material forwarded by the school were clear and sufficient to understand without the need for additional support from peers or teachers?		
3. During school closure time, did your school provide assignments or tests and gives you feedback and correction?		
4. While you are at home , did you have a chance to frequently contact your teacher for support you inquire related to the lesson		
5. While you are at home, did you have a chance to frequently contact your teacher for the support you inquire related to the lesson		
6. Did you think that school closure in COVID time gives you a good opportunity to read and discover more in your academic?		
7. During school closure time, have you ever engaged in business activity and found yourself having lower time to spend on the academic?		
How COVID could impact the performance of the students (part II , after the school reopened)	Yes	No
8. Have you experienced any close friends who dropout as a result of marriage or engaging in business activities		
9. While the school reopened, have you found the revision class adequate in covering the missed portion?		
10. Did the reduction of class days after the school reopened negatively affect your performance?		
11. Did the absence of lab and practical IT classes affect your performance in the related subjects?		
12. Did your school provide psychological support, guidance and advice to help you succeed in your academics after the school reopened?		
13. Lack of peer support brought challenges in effectively understanding the maths subject?		
14. Did you think learning maths in the time of COVID is difficult as compared to the other subject?		
15. Anxiety, stress, and mental health problem resulting from the outbreaks of COVID affects you from studying effectively and preparing for the exams?		
16. Did you attend the tutorial class provided by your school after the school was opened?		

