EFFECTIVENESS OF DIGITAL PLATFORMS USED FOR TEACHING AND LEARNING IN PRIMARY SCHOOLS: THE CASE OF VIHIGA COUNTY- KENYA.

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DECLARATION

This research project has not been presented and submitted for award of any degree in any other university and thus it is my original work.

Signature  Date 14th September, 2022

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Approval

This research study has been approved by the supervisor in the University of Nairobi and thus should be presented for examination.

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DEDICATION

The research study is dedicated to Mr. Mohan Masaviru my uncle, who gave me courage and kind advice to move on with this research and throughout my entire postgraduate diploma in education studies who has been my all-time best cheer leader.

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ABSTRACT

The research is concerned with the effectiveness of digital platforms used for teaching and learning in primary schools during COVID-19 epidemic; the case of Vihiga County. The study covered three main objectives that are; to find out the digital tools that were used by primary schools in Vihiga county during the COVID-19 pandemic; to find out the effectiveness of the digital tools used by primary schools in Vihiga County during COVID-19 pandemic and to find out the factors that affected the effectiveness of Digital Learning in Vihiga county during COVID-19 pandemic. The study examined the implication of online education among both private and public schools in Vihiga County and its effect towards Vihiga county education and the national education of the republic of Kenya. The data has been collected through survey, interviews together with secondary data and was analyzed. The study found that there are issues regarding online education and its effect on the quality of education in Vihiga primary schools. The study presents the relevant results of the questionnaire administered to a group of primary school Head teachers and teachers across Vihiga County. Following this research, a series of conclusion would be drawn on the mode delivering content to learners through the e-learning platforms.

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CHAPTER ONE: INTRODUCTION

1.1 Background to the study

As stated by UNESCO (2021) the COVID-19 pandemic affected many schools across the world this resulted to closure of schools by the Kenyan Government in order to contain the surging increase of COVID-19 virus to the learning population. As a result of this closure of school, the education system dramatically changed with the increase in e-learning content thus teaching was to be undertaken remotely in order to protect the young and old generation to COVID-19. This led to unearthing of various challenges and soft bellies in Kenya's education system and Vihiga being one of the second smallest county left exposed to these challenges (Asare, Yap, Truong & Sarpong, 2021).

Inadequate funding by the government to education systems inform of infrastructural developments led to hindrances of digital learning especially in schools with inadequate electricity and internet coverage. Also cost of internet and accessibility to electricity by some learners posed a problem to access digital content (Onyema, Eucheria, Obafemi, Sen, Atonye, Sharma & Alsayed, 2020).

According to Garbe, Ogurlu, Logan & Cook (2020) due to some of the limitation on digital platforms, lack of interest by the learners and teaching staff was evident as the teachers were subjected to half pay even as far total lack of payment due to lack of finance to support the digital programs. Remote learning also had a negative impact on the nutrition of school going children as this child exposed to prolonged hours on digital media which may have resulted to visual impairments and inadequate parental control of the media as some contained negative and irrelevant content for under age learners which might have resulted to negative change of behavior among learner.

Inadequate technical skill by the leaners and the teaching staff was also evident. This resulted to partial and total failure of e-learning. As a result of the challenges posed there was need for government to intervene and address the challenges urgently in order to enhance digital learning. This study thus highlights the major challenges of digital platforms used for teaching and learning during the covid-19 prevalent in Vihiga County and its possible findings and recommendations that may help to improve the delivery of e-learning content to the learners in Vihiga county and Kenya as a country (Treceñe,2022).

Vihiga County is found on the Western part of Kenya. It boarders thee county that is Kisumu, Kakamega and Nandi Counties. Vihiga County has a population of six hundred and eighty eight thousand, seven hundred and seventy seven individual according to the census that was conducted in the year 2019.Vihiga County has five constituencies which are Hamisi, Sabatia,Vihiga ,Luanda and Emuhaya Constituencies (Opimbi,2021).

1.2 Research Problem Statement

In middle of March 2020 Kenya reported the first case of COVID-19 by the Ministry of Health. (Baraza, 2021).This resulted to the President of the republic of Kenya raising an order to close all public gathering, closure of learning institutions remote working and mandatory observations of COVID-19 regulations in order to control the surging spread of the COVID-19 virus. Vihiga County was not spared by the order raised. Physical learning was halted without any further details to when learning will resume (Baraza, 2021).

Some primary schools in Vihiga was left with no option but to embrace remote learning through digital platform in order to assist learners who were in their final year of study be able to utilize their unplanned holiday efficiently at home. This transition to digital learning posed major challenges to leaners especially from unprivileged background to access this digital content due to costly unreliable internet coverage media and inadequate electricity (Kedraka & Kaltsidis, 2020)

Thus there is need to carry out this study in order to find out the factors that affected the effectiveness of digital learning by schools during covid-19 pandemic; a case study of primary schools in Vihiga County.

1.3 Purpose of the Research Study

The study focused about the using e-learning resources in Vihiga county primary school in delivering learning content to learner during the Covid-19 as a result of closure of physical learning.

The study presents the relevant results of the questionnaire administered to a group of primary school Head teachers and teachers across Vihiga County. Following this research, a series of conclusion would be drawn on the mode delivering content to learners through the e –learning platforms.

1.4 The Research Study Objectives

The study covered three major objectives which are;

1. To examine the effectiveness of Zoom Meetings in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.
2. To examine the effectiveness of the Google classroom in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.
3. Examine the effectiveness of the WhatsApp in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.

1.5 Research questions

1. How effective were Zoom Meetings in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.
2. How effective was Google classroom in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.
3. How effective was WhatsApp in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.

1.6 Significance of the study

The study will be significant to Vihiga County teachers and other teachers countrywide because it will share the findings on how COVID-19 has affected teaching and learning and recommend the best approaches so that in case of any such pandemic, they can respond with better digital learning tools in schools.

The findings will also be significant to the board of County government of Vihiga because it will share findings and recommendations on how their digital learning tools impacted on the overall performance on teaching and learning of the county with recommendations on effective digital learning tools as well as budgetary allocation to education sector in times of financial difficulties.

The study will also be significant to the county executive board on the best strategies that worked effectively and inform policy makers on digital learning.

The findings of the study will also be significant to policy makers both at the county and the national level because it will share findings and provide recommendations on how the COVID-19 affected teaching and learning as well as the move to digital learning in schools.

1.7 The Research study Assumptions.

The study above makes an assumption that Vihiga County is one of the counties in Kenya that have suffered the effects of COVID-19. The number of COVID-19 cases in Vihiga has continued to rise and the County government implemented measures that could have likely affected the performance of schools during the COVID-19 pandemic.

It's also assumed that no study has been officially done to access the factors that affected the effectiveness of digital learning by schools during COVID-19 pandemic in primary schools in Vihiga County.

1.8 Delimitation of the Study.

The research will be carried out at the Vihiga County and it will only focus on the Factors that Affected the Effectiveness of Digital Learning by Schools during COVID-19 Pandemic a Case Study of Primary Schools in Vihiga County and nothing else. The scope will be primary schools in Vihiga County and will focus on digital learning tools used, how effective digital learning tools were and factors that affected the effectiveness of digital learning tools used.

1.9 Limitation of the Study

Although this study was successful, there were possible shortcomings that hindered a hundred percent achievement of the intended objectives. Some of the challenges were not limited to limited timeline allocated given to the researcher to conduct interviews and collet the questionnaire to a large group of respondents. The cost implication was also a factor since there was no budget allocation by the University to facilitate disbursement and collection of questionnaires' for analysis as most schools had been closed thus tutors conducting learning on remote areas far away from the school premises.

1.10 Definition of Significant Terms Used.

Digital platform-an environment in which a piece of software is executed.

Wi.Fi- is referred to us wireless fidelity technology that can be used to connect computers, phone, tablets and so on to an internet on a specific radius.

Google classroom-a free blended online learning platform developed for both educational and meeting where members are given link to participate in any scheduled event.

Zoom meeting-a video conferencing meeting that is hosted using zoom.

WhatsApp-a free instant messaging service that allows users to send message, video call and record voice.

Telegram-a message that is sent electronically.

Firefly-an app that enables teacher, pupils and parents to do homework and mark.

Class dojo-this is an online behavior management system which intends to foster positive student behavior and classroom culture by enabling learners to respond to questions and answers.

1.11 The study Organization.

This research study is organized in five main chapters. The research is concerned with Factors that Affected the Effectiveness of Digital Learning by Schools during Covid-19 Pandemic a Case Study of Primary Schools in Vihiga County.

The study has three objectives that are; to find out the digital tools that were used by primary schools in Vihiga county during the COVID-19 pandemic to examine the effectiveness of the digital tools used by primary schools in Vihiga County during COVID-19 pandemic and lastly to find out the factors that affected the effectiveness of Digital Learning in Vihiga county during COVID-19 pandemic.

Chapter two reviews the literature related to this study with an aim of developing a conceptual framework for the research problem. The selected literature is based objectives of the study and previous studies and research that are relevant to help in this current study

Chapter three gives the glimpse of research design to be used in the research study that is the exact location of the research study and the targeted population for the study. The chapter also gives the sampling techniques to be used in order to collect data from the field in addition to stating the sample size picked during the study. In the end, the chapter discusses the research instrument to be used, ethical consideration and data analysis plan and procedure to be undertaken during the research study.

In Chapter four the data collected based on the research questions is analyzed and interpreted. Chapter five gives summary of key findings in the study, discussions, recommendations, relevant conclusions and summary.

CHAPTER TWO: LITERATURE REVIEW OF THE STUDY

2.1 Introduction

This chapter reviews the literature related to research study on the effectiveness of digital platforms used for teaching and learning during the covid-19 with an aim of coming up and developing analytical tool having a variety of changes and contexts which can be applied at different categories for the research problem. The chosen literature is based objectives of the study and previous studies and research that are most important most important to help in this current study on the effectiveness of digital platforms used for teaching and learning during COVID-19 pandemic. A case of primary schools in Vihiga County.

2.2 Effectiveness of Digital platforms in teaching and learning

Based on Oxford Dictionary digital learning simply refers to learning which takes place through electronic medium which is typically taking place on the internet. It may also be defined as a type of learning that makes use of electronic technology to access educational curriculum (eLearning, 2020).

Digital learning platform may be considered as an assembly of software or application designed in such a way to hugely offer assistance during the learning process. There are a wide range of choices which are accessible based on the needs of an educational requirement.

Due to the emergence of wide ranges of technological advancement, there has been an abrupt increase in use of digital platforms used to deliver learning content on an online medium. Due to increased access to computer and smart phones has faced out the analogue way of delivering education content to the learners. There has been also easy access to these digital platforms among the learners as the government introduced computer class in the syllabus. This has led to increased access to learning resources available all over the world thus bringing positive results in the education sector.

Majority of learners who access this digital content have showed a positive result as compared to the physical learning means that as e-learning is more interesting and more entertaining to many learners due to incorporation of good display and sound. Learners have also been able to interact with their tutor's one on one and being able to receive response on the given assignment and questions, monitored during assessment more efficiently as well as attending to their assignment much easy and less costly compared to physical learning.

Digital learning can take place in two major forms where a teacher is leading the class and the learners are involved by giving their responses in a digital platform which may allow raising their hands, making screen notations and side chat. This mode of interactions enhances mode of interaction with their respective teachers. Digital learning can also take place in a mode of e-learning where learners are capable to compete given tasks among themselves without engaging on live online classes and submit the given assignment for assessment and award.

Digital learning platforms have a major merit to learners as it fully allows learners to have a wide access to large volume of learning material accessed online. Most educational organizations are no longer restricting learning only to the available resources available in their learning institutions. Instead, Learners can access wide range of materials and content available on the internet which exposes them to wider knowledge at any time of their own convenience and location.

Digital learning is be grouped into two major categories that is synchronous and asynchronous mode of learning. Gillet (2017) reported that technological efficiency poses a major challenge for both the tutor and the learners. Tutors and learners can get frustrated

especially a community where their technology capacity is little in areas with limited coverage and poor infrastructural development. It has also been established that some digital platforms have limited functionality that do not or partially are restricted to certain functionalities while others have slow interactions between the tutor, learners and the community.

2. 2.1 Effectiveness of Zoom Meetings in teaching and learning

Zoom enables participants to video conference. The service can be used to virtually meet with others on an online platform provided the users have an access to the link or have the login credentials such as meeting identity and access codes. The meeting maybe in form of video or audio-only or both. User can interact through live chats and more so it allows one to record information relayed to view later for the members who are unable to access the meeting and those who need to make a reference on the information relayed. Zoom can also allow one on one chat sessions which can lead to group calls, training session's webinars and meetings for internal and external audiences. Meeting taking place globally can also be achieved with up to over a thousand participants and as many as forty nine on-screen videos and images shared on the same platform. The free tier allows unlimited one-on-one meetings but it may limit group sessions to forty minutes and a hundred participants (Masaviru, 2020).

Zoom thus enhanced Teaching via videoconferencing feature. Thus zoom is best suited for use by students for lectures and meetings where learners can engage one on one remotely to discuss issues of common interest without being in one central location. Learners only need to click on a link and they are admitted in a class after being prompted to download application software or simply join via their browser. Students don't need zoom account to join any class, the application is configured in a way that it allows users to join in any meeting with their logged in active email address or account. The application also allows learners who join in late the class to proceed with the class and the learned concept can be retrieved by saving the video. Students joining late for classes can stay in a waiting room during presentation to enable them seek permission and prepare to login the meeting. This helps in reduced interruptions on an ongoing meeting. The learners who are late are can as well obtain the content relayed earlier on the zoom as it allows frequent saving of recorded media inform of a video. (Halpin & Lockwood, 2019).

Zoom contains features that do help in effective teaching and learning while online. The features include the following according to Fink (2020). One of the features is whiteboard. This is an efficient feature which allows learners to note important information as the learning goes on without interrupting learning process. The tutor is able to see the notation and is able to incorporate the needs of the learners as learning is taking place without interruption. Raise hands feature which enables students who wish to pose a question or seek clarification on the information relayed can raise their hand so that tutors can have class control. The feature is enabled by a point or region below the window on the right side of the user screen. The student clicking on that particular region quickly lets the tutor get a gauge on the classroom. Raising hands is also accompanied by reaction use, students can as well use "reactions" relay their feelings and emotions this can help the tutor to get the general feeling and attitude of the learners about the lesson. The reaction may disappear after five seconds or stay longer depending on the user's account setting and preferences. Assign breakout rooms allows teachers who need to separate learners best on his own preference can use Breakout Rooms where learners with similar preferences are in group. These rooms may be used to group class sessions into groups with similar or shared characteristics. Classroom sitting arrangement; Zoom has a new feature which allows one to arrange the custom gallery as "classroom seating" this enable the tutor to monitor classroom activity as well as supervise online exam. This also helps the tutor to identify learners who might have exited the class with no consent as well as monitor the class going on. Multi-Pin feature any user may "pin" up to nine other participants on-screen in their custom personal view. This enables the user to control the preference view of screen where only members taking place in a discussion are the only one pinned on the screen. (Mukhtar, Javed, & Sethi, 2020)

Merits of Zoom for online learning and teaching

During zoom meeting, the tutor may have a piece of information on his personal computer that can be shared on screen. Learners can access this information on a central point without sharing the same individually hence reducing time required to relay information. Since zoom requires no password to login only require tutors only need to schedule Zoom sessions. Learner do not need to have zoom account or sign up to access the class the only requirement is a link and active internet connectivity. Zoom has a whiteboard function that learners and tutors can activate during online lesson. The whiteboard on zoom offers users the with basic text field where learners can input text information. Gallery view in zoom is enhanced even to a large group. This feature on Zoom enables the user to toggle between the active speaker

and gallery view. Interruption on an ongoing class as a result of new members joining has been greatly controlled by this feature. We have all had students who interrupt and speak out of turn in lessons the tutor has the option to mute hence increasing concentration in an ongoing class. Ongoing meeting in zoom can be also rescheduled in case there is limited attendance or quorum. (Ramsook & Thomas, 2019)

2.2.2 Google classroom Effectiveness in teaching and learning

Google Classroom may be defined is a free connected service that lets tutors and learners to easily share files among each other. Teachers are able to publish the assignments to be done by the students, complete and then give assessment report back all without having to provide a hard copy of the same. Google classroom can also serve as a way of communication among the learners and their tutors. Teachers are capable of putting the announcements and upcoming assignments on the goggle classroom and as well email the announcements both to students and their parents without physically meeting or interacting. (Iftakhar, 2016).

Google classroom relies highly on the use of Google Drive which is a free cloud based file sharing and storage program that is enabled in smart phones and personal computers that is capable of Auto Saving data. The application lets teachers and tutors to use Google Documents, Google Forms, and other Google services which creates and stores assignments even in a large format. Google classroom give students the ability to adjust the setting for the convenience of learning. The default setting are not always contusive for special needs learners thus there is need to adjust sound for hearing impaired learners and contrast adjustment for learners with eyesight problems. Google classroom enables the learners to stay up to date by scheduling the events on the calendar which is available on the application software. This assists tutors to supervise list of tasks for students is needed through regular notices and reminders. (Goetsch &Ozon, 2019).

Students are capable of checking their assignments and work originality by subjecting it to scanning it and comparing to billions of website pages available all over millions books which checks the originality and similarities checks. This reduces plagiarism on web best content hence encouraging innovation. Students can as well take image of their assignments and store it on Google classroom folder which can be accessed by the classroom members and teachers. The stored work can as well be used for future reference and comparison. The google classroom can be accessed through many available internet browsers such as Opera mini,Mozilla fireox Google chrome among many others. (Mathew, 2018).

Google classroom exposes learners to an online learning where learners are more exposed to lots of information and peers which enhances their learning capabilities and environment. Google classroom has limited interaction with paperwork which has a positive impact on cost of learning compared to the ancient tedious mode of learning which relied on excessive

negative impact on the environment and dumping. There is also enhanced way of storing data on an online platform compared to filing work which is not convenient and highly costly. Learners can easily access the assignment online by simply enrolling on a Goggle classroom without physical interaction with the tutors. The assignments done by students can also be submitted online with a monitored time limit which helps to keep track on students' progress (Mathew, 2018).

Google Classroom helps in saving time and resources; work saved on Google can be accessed easily by learners and anywhere at any time. This helps teachers to have more time to prepare other learning materials for learners as well asses their progress. Google classroom is easily accessible by both learners and tutors through common available mobile phones and enabled computers where Teachers and students can share their feed back in form of emails, post to the stream, send private comments on assignments as well as provide their feedback on the work. Teachers may take control of student comments and posts whereby teachers can restrict learners to post or edit given assignment or other given details. Tutors can as well communicate with parents' directly through individual emails or through Classroom email summaries which include class announcements and due dates without seeking consent from learners (Mathew, 2018).

Google classroom enables teachers to give learners different instructions and assignments based on their capabilities. Assignements and lessons can be arranged and determined whether it will be done by the whole class, individual students or groups of students which Provides a meaningful feedback to the tutor. Teachers are able to send feedback to each student on assessed assignments by using a grading toot .There is also a space to give a comment bank for future reference (Mathew, 2018).

2.2.3 Effectiveness of WhatsApp in teaching and learning

What Sapp Messenger is American software that is offered at no cost that is available for downloading at selected devices under a centralized instant messaging, video calling and voice service owned by Facebook Inc. WhatsApp. WhatsApp is identical to the common messaging application developed by the mobile developers but its main difference is that it allows users to know if the message has been delivered, read or not sent. This helps to serve as an evidence for passing out information among the learners and tutors. This is very important in monitoring the flow of information among the parties involved. WhatsApp is

also able to run identically on different platforms such as windows and Ios Operating systems. (Barkley & Major 2020).

WhatsApp has the following core features which include;

WhatsApp offers video calls, this enables learner to interact with their tutor one on one despite of different location. The tutor is able to monitor the concentration of learners while delivering education content. Add call function can allow up to eight participants on one call where learners can pause a question and the response be given by the same learners this enhances peer learning among the learners. The video call is enhanced in a way that parties can be able to see each other and be able to monitor their concentration level and ability to respond to given tasks without them being in one closed location. (Hasan & Khan, 2020).

Voice messaging enable learners and tutors to record and send voice messages which can be shared to individual or group members as a single message this saves more time to type and share large piece information with ease. The information recorded can as well be used to serve as an evidence or point of references when revising. WhatsApp has enabled end-to-end encryption where communication is safely secured with high standard where only the people involved in chat are capable of reading and accessing the information conveyed unless one parties allows to share with other. This helps increased efficiency and privacy of the information communicated. Photos and video can be shared without having to worry images will be separated or not being downloaded which can sometimes happen across short message service messages between different mobile platforms and other carriers. Educational content thus can be exchanged via WhatsApp more accurately without interfering with the source information at low cost and more conveniently. WhatsApp lets users to send all kinds of documents not limited to portable document format spreadsheet and slideshows without the struggle of email or separating the document. This helps to minimize amount of space and reduce the size of the document and data to be shared among the learners and tutors. What Sapp offers windows and mac personal computers users to access learning content. This allows users to interact on a wide screen of a personal computer especially when the mobile phone is charging working without a phone nearby. The large display enables learner to interact and learn efficiently without struggling to access the information conveyed. WhatsApp business account is designed in a way that the entrepreneurs can market their products and connect with high number of customers available on social platform. That's convenient and familiar way this type of messaging configured in a way that the

business people can give instant replies to customer's inquiry without necessarily responding physically to clients' request. The platform is designed in a way that clients are able to access products as well as seller being able to market and sell their products conveniently. (Mashiah, 2021).

WhatsApp in Teaching and Learning

According to Ngalambo (2020) learning management system is software application with common feature across all platforms which can be used to monitor online learning activities. Online learning has enabled me get gain deeper knowledge of basic information and communication technology skills necessary for personal growth and exposure to the major worldwide issues of concern especially in the education sector. Knowledge has been able to be transferred fast and easily across the world without the struggle of moving from one place to the other which is costly.

Ngalambo (2020) an integrated system has impacted learning in a positive way as it is more efficient and convenient to learners as well as the tutor. For instance, WhatsApp can allow content in image and portable document file formats to be shared among users hence enabling learner who might have not been well engaged on online teaching and learning to get the information relayed. Large size video files of over twenty megabytes can be converted into smaller multiple videos and shared via WhatsApp group as well. This enables learners to get a full detailed learning content without worrying about the size of the data.

WhatsApp can also allow students to get in touch with their course instructors irrespective of time and location differences or office working hours and which helps in reducing delays in giving responses. Learners engaging in WhatsApp enrich the learning experience as it allows motoring of the information relayed convenient as it has features which enable us to make our own judgment and conclusion on the information.

Majority of teachers across the world consider using WhatsApp various different ways among the learners. Use of WhatsApp has enhanced learning in the following ways.

WhatsApp encourages cooperation among learners thus cooperative tasks can yield higher positive results compared to individual learning although highly time-consuming if not well managed .They are as well known that group learning takes more time and costly. Students are encouraged to cooperate in groups outside either within the class time as it is the most efficient way to ensure a common goal and activity is learned is one way as well as

encouraging peer learning. Although it is an efficient way it also needs close monitoring and organization to ensure that the learner's consistently cooperate and work together where every member participates in handling tasks as a group may be used to create more space that allows everyone who is added in the group at any time thus allowing easier communication and exchange of materials among the learners and tutors. Students are used to interacting with each more conveniently and with more fun as it allows sharing attitudes and feeling in a digital media form through this WhatsApp is also familiar with the idea of sharing materials via screenshots and forwarding exact media including images and portable document format as received. Students benefit from having their own personal time to undertake learning without interruptions and as a result learners do not as left behind as they might in a very large class size member where several factor determine the level of understanding per single learner. Also in a large class there is limited access to available resources and physical resources which otherwise are equally accessed by the learners on WhatsApp.

WhatsApp can also allow Extended learning time. This occurs in instances where teachers often finding they are working under limited time and content to be covered within a given period of time especially physical classroom where there is guided schedule and bell. Ateacher from Iran Known as Mojtaba Jahanshahi help to come up with a solution for extending learnint time by using WhatsApp to extend his classroom. It is well known that the information conveyed in an audio form is more efficient that one conveyed in a long writing pages.Motjaba thus recorded a piece of information in an audio form and was able share with learners on a WhatsApp platform. Learners were able to refer to the information relayed at their own time and be able to capture the content as well make reference to it in case of difficulty. Learner is also able to record audio and send back to the tutor in case of any difficulty. They were familiar with, and in ways for which the school timetable had not allowed sufficient time (Ngalambo, 2020).

WhatsApp may be used to manage large class sizes which may not be practical in a physical space. Yassir El Hajel Sheikh, 2017 Pearson Teacher Award People's Choice for Africa and in the Middle East. Yassir had a large class which could not be managed in a physical classroom with a single teacher. The class was to be managed by at least two teachers but Yassir managed the large group by introducing group on WhatsApp through WhatsApp the learners are able to interact with the tutor one on one without having to engage in physical barriers and hindrance contained in physical learning such as accessibility to learners, destructions and general control of the class due to the large class size. Learners were able to

receive messages through the group once sent by the tutor and were also capable of sending feedback for assessment and clarification where need is required. Learners could help in solving problems together thereby assisting unprivileged learners to understand a particular concept relayed in class. As result of this group work, Yassir class was therefore able to share information conveniently as well as the feedback on the learning process (Ngalambo, 2020).

WhatsApp is has a great advantage to tutors as it enables teachers to conduct teaching faster. Neusa Pretzel, who is a a teacher in Brazil, shared links of videos and education content to learners. This links contains learning instructions and can be used to access a large volume of learning instruction in few hours that may take a whole term to cover and handle in the physical classroom. These videos

Learners can take few minutes of their time to watch and understand the concept faster than physical classroom since the learner can access the easily and anytime within limited time and cost. The videos could also be downloaded and viewed later by the learners which could also act as a point of reference. Due to limited time required to watch thus large volume of work is accessed by learners within a short period of time hence enabling the learners get more content .(Ngalambo, 2020).

Learners are also capable of building confidence while learning. Mauricio Vidal Gheiler, who is also a teacher in Peru, established that learners who are always shy in a normal physical class were portrayed to be very active communicators when they were interacted through WhatsApp and other social media which are capable of conducting teaching and learning compared to physical classroom teaching and engagements. The confidence the learners gained by using WhatsApp had high impact since many students are more comfortable with interacting with their tutors and other learners on social media. This type of interactions also helped learners to build their own confidence with their tutors and have a positive impact on their attitude towards learning and teachers in general (Ngalambo, 2020).

Some of the benefits of using WhatsApp for teaching and learning include;

WhatsApp also enhances online discussions and cooperation from school or home as learners are able to discuss concepts among themselves in their groups without involving the tutors. This encourages peer learning. The WhatsApp tool enables the creation of a class publication where learners can engage in modification of an article to suit the best requirements without changing the information relayed. This is enhanced since all the learners are engaged in the

platform for necessary changes and agreement. (Baguma, Bagarukayo, Namubiru,Brown & Mayisela. 2019).

Learners are also capable of making comments and inserting text on the lesson conveyed on face to face learning which may help to improve the content and enhance better understanding of incase of a difficulty in a physical classroom. WhatsApp learning technologies enables learners to attach images, audio clips as well as podcasts which may act as evidence or point of reference especially where misunderstanding or misinterpretation occurs. (Dailey-Hebert, 2018).

2.3 Theoretical Framework

2.3.1 Learning Communities and Activity Theory

A community may be defined as an association of learners or students who can partner and work together to participate in an activity(s). The major important objective of these members with similar interest to cooperate and move way forward in manifesting determination in the development and sharing of common knowledge knowledge between the peer learners through working together and learning activities (Bielaczyc & Collins, 1999). Learners who get involved in cooperating together always believe that their needs can be met through working as a group and collaborating as a community (Rovai, 2002). Activity theory may be seen as a framework that focuses on planning and analyzing the inter-activity among members of a group and discover the components influencing their engagement in online discussion. Thus the activity theory assists the researcher to determine the positive impact of human and computer interaction as well as the negative side of these interactions (Nardi, 1996).

Heap (2017) reports that digital teaching and E-Learning can allow the learners to have a more flexible schedule and environment since learners are able to choose their own learning environment based on their own preference compared to a restricted learning where they are confined in a class day in day out. Heap also argues that digital learning has really saved on time and cost as it can undertake remotely that learners and tutors do not require traveling to engage in learning activities. The learners have also been able to be self-discipline without the supervision of teachers as they require allocating special time for learning by themselves without close monitoring. Self-motivation is also evident as this learners are able to encourage each other on digital learning hence are able to discover new concepts about the

online platform by themselves. (De Lange, Moutsianas, LeeLamb, Luo, Kennedy, & Barrett, 2017)

Researchers can use activity theory as a reference of representation of a relationship in the field of information technology for providing information in the development of digital learning platforms in order to accommodate whole learners and tutors irrespective of their social, economic background. The factors which may hinder the digital platforms can also be addressed and a suitable mechanism put in place to counter effect the challenges paused as a result of digital learning. Through the study activity theory, researchers can therefore be able to come up with an improved version of digital learning platforms which are more users friendly and accommodative to all. (Shum & Ferguson, 2012)

Activity theory may be based on six principles which are: The principal of the orienteers of the object in the system. That is the objective of the activity theory system has a social and cultural properties in the system, which include partnership or interactive learning in an online digital platform medium. Thus for learning to take place there must be availability of an online platform which can allow social interaction among the learners and their tutors at ease and more efficiently. The Subjects are participants who are get involved in learning activities. Learners are engaged in interactive learning with their tutor where they are allowed to ask question, seek clarification by making screen notation as the learning takes place. Community is considered as a tool for social interaction by the members who share a common need or interest thus all learners are engaged in the activity system which can be a group of learners engaged in learning based on their social interaction among them and their tutors. The main mode of learning transmission is the technological tools. Thus in the community learning system, communication between communities is transmitted in the medium which transmit social knowledge from the tutors to the learners. These tools are not limited to the artifacts used by learners who participate in the system. The tools may as well influence knowledge transmission to learners as they are influenced by so many factors and attitude among the learners. The division of labor and specialization put into consideration in the activity theory as the subjects are grouped and tasks distributed based on the skills and knowledge contained by the actors which act better in specific areas and those who are talented in specific are also identified. Rules are the common standards and regulation controlling the undertakings of the learners such as time to interrupt, mode of interruption and the way learners address their peers. How to interrupt and so on. This helps to build up a

healthy argument as learners don’t feel harshly offended or challenged. (Liljeström, Enkenberg & Pöllänen, 2013).

CHAPTER THREE: RESEARCH METHODOLOGY

3.1 Introduction to research methodology.

Research design to be used in the study explained in this chapter, the location of the research study and the target population for the study. The chapter will also give the sampling techniques to be used in order to collect data from the field in addition to stating the sample size picked during the study. In the end, the chapter discusses the research instrument to be used, ethical consideration and data analysis plan and procedure to be used during the research study.

3.2 Research design

The research study is designed to use descriptive research. Descriptive research design preferably used because the data collected is in form of information about people's perceptions, attitudes and opinions on any given social issues that yield quantitative data (Kothari, 2004 Mugenda &Mugenda, 2013, Orodho, 2009). This design is highly preferred because it measures the current status of respondents' perceptions towards a given social issue such as perception of teachers (Mugenda & Mugenda, 2013).

3.3 Population of the Research Study

The research study population will be current and exited teachers in primary schools in Vihiga County. Vihiga County has a population of 398 primary schools and 116 secondary schools with a population of 3901 teachers (Vihiga County Fact Sheet, 2018).

3.4 Target Population

The study will be carried out in Vihiga County primary schools because it is the accessible population that the researcher targets and will provide the units of analysis (teachers) for the study as supported by Mugenda and Mugenda (2013) in relation to accessible population.

3.5 Sample Size

A sample is sub set of cases of the target population that is studied in order to draw conclusions and generalizations about the entire population (Mugenda & Mugenda, 2013).

A relatively simple situation is finding the total number of observations which meet standard criteria in the chosen sample.

The estimator of a proportion $\hat{p} = X/n$ which binomial distribution is where *X* represents the number of success observations while n gives the sample size and p the probability. The maximum variance of this distribution should be 0.25, which usually occur when the true parameter of p is equivalent to 0.5.

In reality *p* is usually unknown thus the maximum variance is normally applied for sample size assessments. Suppose a reasonable estimate for p (1- *p*) is known the quantity may be used in place of 0.25.

For sufficiently large size sample size n, the distribution will be closely approximated by a distribution. Applying this distribution and the Wald method for the binomial distribution yields a confidence interval of the form where Z is a standard Z-score for the desired level of confidence (1.96 for a 95% confidence interval).

$$\left(\hat{p} - Z\sqrt{\frac{0.25}{n}}, \quad \hat{p} + Z\sqrt{\frac{0.25}{n}}\right)$$

In case of confidence interval *W* units total in width therefore;

$Z\sqrt{\frac{0.25}{n}} = W/2$ $n=\frac{Z^2}{W^2}$, yielding the sample size sample sizes for binomial proportions given different confidence levels and margins of error, *(thus W/2 = margin of error.)*

$$n = \frac{4Z^2 p(1-p)}{W^2}$$

$$Z\sqrt{\frac{p(1-p)}{n}} = W/2$$

Simple random sampling will ensure that all respondents (teachers) will have an equal chance of taking part in the study. Simple random sampling was used to ensure that all schools within Vihiga County are part of the sample size.

3.5 Data Collection Instrument

The research will use a self-administered questionnaire to meet the objectives of the study. Questionnaire has the strength of giving the respondents adequate time to give well thought out answers and collects a lot of information (Kothari, 2004). The self – administered

questionnaire will contain closed-ended questions and will use Likert scale. The likert scale with three response categories will be used to rate the perception and attitude of teachers and students on the effects of parental divorce on school-going children's wellness. The response categories will be: 1 = disagree, 2 = neutral, 3 = agree. The questionnaire will also collect data on demographics of the respondents such duration of working in the teaching profession.

3.6 Data Collection Procedure

The researcher will seek permission from school management/head teacher to carry out the study among the teachers in the sampled school. The questionnaires will be distributed to the teachers in the staffroom and he or she will be given time to give response to the questionnaire. For students, the research will use the class teachers to distribute the questionnaire and collect them. The completed questionnaire will be collected from the class teachers. This will be done after a training session with the class teachers in each school and use snowballing and purposive sampling in getting the respondents.

The morning time was chosen because the researcher believes to be the best time to get the respondents a bit relaxed. After the data is collected, it will be examined for completeness, comprehensibility, consistency and reliability. Afterwards, data will be cleaned up, coded and entered into excel spreadsheets for analysis and presentation.

3.7 Pilot of Study

According to Orodho (2009) pre testing is the most important stage in designing the questionnaire to be used in data collection. The designed questionnaire should be piloted with a group that is identical and representative of the target population (Mugenda&Mugenda, 2003; Orodho, 2009).

Pre testing the questionnaire will ensure that it measures what it is supposed to measure and make sure inconsistencies are avoided which will ensure reliability of the questionnaire. As supported by Carole, Kimberlin and Almut (2008), pre testing a questionnaire or pilot testing it allows for the identification of sources of errors and this is followed by refinement of the instrument to reduce the measurement errors.

The researcher will use a pretest sample of 1% - 10% of the sample size. As supported by Mugenda and Mugenda (2013) the pretest sample should not be too large. Therefore, a pretest sample of respondents will be used to foresee any inconsistencies in the questionnaire. Therefore, pretest sample will be 10 teachers.

3.8 Data Analysis Plan

The accurately filled and completed questionnaires from teachers will be assessed for completeness. This will deliberately be done to ensure that anomalies portrayed are examined and corrected. The data will also be cleaned, checked for correctness and coded and classified (Baxter & Babbie, 2004; Kothari, 2004) before entering into spreadsheets. Classification of data will be followed by data entry to allow for the process of summarizing data through tabulation. For qualitative data the study will use codes to analyze the trends in the responses. The classification into codes will be analyzed separately.

3.9 Ethical Considerations

The research will seek permission from school management. Before undertaking the research an informed consent will be obtained from the respondents, allowing them to participate voluntarily in the study. The researcher will issue an informed consent for students who would want to take part in the research. The informed will be signed by the parent or the guardian of the school-going child before data collection. Respondents will also be informed that the information they will give about students will only be used for research purposes. The above measures will ensure confidentiality and privacy of respondents by protecting information collected from them. To ensure privacy and confidentiality, written consent will sign before filling the questionnaire and they will remain anonymous because their identity will be protected by not writing names on the questionnaire.

CHAPTER FOUR: DATA ANALYSIS PLAN, DATA PRESENTATION AND DATA INTERPRETATION

4.1 Introduction

The researcher presented the data collected in this chapter based on the research questions. The research aimed at answering three objectives:

- To find out the effectiveness of Zoom Meetings in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.
- To examine the effectiveness of the Google classroom in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.
- To determine the effectiveness of the WhatsApp in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.

4.2 Questionnaire Return rate

After distributing the questionnaires about 86 percent questionnaires were returned and of which only 77 percent questionnaires were used in analysis. This is because 8 were rejected as they were either incomplete or wrongly filled.

4.3. Demographic characteristics

4.3.1 Introduction

The main demographic characteristics sought were based on gender where we only had two genders either male or female. The frequencies were also noted and their percentage. Number of years in teaching profession was also noted position of the respondent in school effectiveness of the media used and so on.

The respondents gander was sought and presented in table 4.1

4.3.2 Gender of respondents

The table below represents the gender of respondents, frequency and their percentages.

Table 4.1 Gender of Respondents

Gender	**Frequency**	**Percentage**
Male	39	53.4
Female	34	46.6
Total	71	100

According to Table 4.1, many of the respondents were male (53.4%) while the female respondents were 46.6%. Therefore, we can report that majority of the respondents in the study were male teachers proffessionals..

4.3.3 Total Number of years in teaching

The table below introduces the frequency of respondents and the number of years of teachers who have been in teaching proffession.

Table 4.2 Number of years in teaching profession.

	Frequency	**Percentage**
Below 5 years	15	20.5
6 - 10 years	18	24.7
11 - 20years	23	31.5
21 years and above	17	23.3
Total	73	100

According to table 4.2 20.5% of the respondents had teachimg experinece of below 5 years as compared to 24.7% of the respondents who had teaching experience of 6-10 years. Many of the respondents (31.5%) had taught for 11-20 yaers as compared to 23.3% of the respondenst who had tuaght for 21 years and above. Therefore it can be concluded to mean that majoarity of the respondents had a teaching experience of above 10 years.

4.3.4 Position in school

The table below shows the frequency of respondents and their rank in school under studies.

Table 4.3: Position in school

Position	**Frequency**	**Percentage**
Head teacher	3	4.1
Deputy Head teacher	7	9.6
Senior Teacher	17	23.3
Teacher	46	63.0
Total	73	100

According to table 4.3 about 4.1% of the respondents were teachers heading the school i.e. head teachers while 9.6% were teachers deputizing the head teachers. This can be compared to 23.3% of the respondents who were senior teachers while 63.0% of the respondents were teachers. This clearly shows that majority of the respondents in the study were teachers.

4.3.5 Teaching online

The table below shows the frequency of respondents and their response on conducting teaching on an online platform

Table 4.4 Teaching Online

Response	**Frequency**	**Percentage**
Yes	61	83.6
No	12	16.4
Total	73	100

According to table 4.4 a huge number of respondents 83.6% reported that they taught online when COVID-19 forced the closure of schools as compared to a small number of respondents (16.4%) who reported that they did not teach online.

4.3.6 Commonly used digital platforms

The table below shows the frequency of respondents and their response on conducting teaching on a digital platform.

Table 4.5 Digital platforms

Platform	**Frequency**	**Percentage**
WhatsApp	45	61.6
Google Classroom	35	47.9
Zoom	47	64.4

According to table 4.5, a good number of respondents reported to know What Sapp (61.6%), Google classroom (47.9%) and zoom (64.4%) while a very small number reported to use others (2.7%). It can be concluded that majority of the respondents used WhatsApp, Zoom or Google classroom during the online teaching.

4.4 Effectiveness of WhatsApp.

The table below represents statements and responses on the use of WhatsApp. The respondents were to either Disagree, Agree or remain neutral.

Table 4.6 Effective of WhatsApp

Statement	**1 Disagree**	**2 Neutral**	**3 Agree**
• Learners were able to understand the concepts taught	51%	27%	22%
• Testing and assessment was done easily	20%	58%	22%
• Providing feedback was faster	37%	40%	23%
• Marking of submitted work was not easy	12%	10%	78%
• Not all concepts were well taught	6%	5%	89%
• Students could not acquire all the necessary skills	6%	9%	85%
• It worked well because of good internet connection	71%	9%	20%
• Students loved the content taught because of animations	23%	12%	65%
• All work planned was covered effectively	71%	8%	21%

According to table 4.7, a good number of respondents (51%) disagreed that when using WhatsApp learners were able to understand while 37% disagreed that giving feedback was done easily. The table also shows that a big number of respondents (78%) agreed that WhatsApp made it hard for them to submit marked students work as compared to a good number of respondents (89%) who reported that not all concepts were taught well during the use of WhatsApp. The table also shows that a good number of respondents (85%) reported that students could not acquire all the necessary skills when using Whatsapp. This is comparable to a good number of respondents (71%) who disagreed that internet connection

was good when using WhatsApp on the other hand a huge number of respondents (71%) reported to disagree that all planned work was covered effectively when using WhatsApp. Therefore, it can be concluded that What Sapp as a digital platform was not effective for teachers in Vihiga County a huge number of respondents reported that it was not effective because of several reasons as noted in table 7.

4.5 Effectiveness of Zoom

The table below represents statements and responses on the use of Google classroom. The respondents were to either Disagree, Agree or remain neutral.

Table 4.8 Effectiveness of Zoom

Statement	**1 Disagree**	**2 Neutral**	**3 Agree**
• Learners were able to understand the concepts taught	53%	27%	20%
• Testing and assessment was done easily	22%	57%	21%
• Providing feedback was faster	40%	35%	25%
• Marking of submitted work was not easy	10%	11%	79%
• Not all concepts were well taught	5%	4%	91%
• Students could not acquire all the necessary skills	5%	9%	86%
• It worked well because of good internet connection	69%	9%	21%
• Students loved the content taught because of animations	12%	23%	65%
• All work planned was covered effectively	67%	16%	17%

According to table 4.8, a good number of respondents (53%) disagreed that when using Zoom learners were able to understand while 22% disagreed that giving feedback was done easily. The table also shows that a big number of respondents (79%) agreed that Zoom made it hard for them to submit marked students work as compared to a good number of respondents (91%) who reported that not all concepts were taught well during the use of Zoom. The table also shows that a good number of respondents (86%) reported that students could not acquire

all the necessary skills when using Zoom. This is comparable to a good number of respondents (69%) who disagreed that internet connection was good when using Zoom on the other hand a huge number of respondents (67%) reported to disagree that all planned work was covered effectively when using Zoom. Therefore, it can be concluded that Zoom as a digital platform was not effective for teachers in Vihiga County a huge number of respondents reported that it was not effective because of several reasons as noted in table 8.

4.6 Effectiveness of Google Classroom

The table below represents statements and responses on the effectiveness of Google classroom. The respondents were to either Disagree, Agree or remain neutral.

Table 4.9 Effectiveness of Google Classroom

Statement	1 Disagree	2 Neutral	3 Agree
• Learners were able to understand the concepts taught	55%	24%	21%
• Testing and assessment was done easily	12%	67%	21%
• Providing feedback was faster	43%	31%	26%
• Marking of submitted work was not easy	8%	9%	83%
• Not all concepts were well taught	5%	10%	85%
• Students could not acquire all the necessary skills	5%	9%	86%
• It worked well because of good internet connection	68%	12%	20%
• Students loved the content taught because of animations	15%	18%	67%
• All work planned was covered effectively	72%	16%	12%

According to table 4.9, a good number of respondents (55%) disagreed that when using Google Classroom learners were able to understand while 43% disagreed that giving feedback was done easily. The table also shows that a big number of respondents (83%) agreed that Google Classroom made it hard for them to submit marked students work as compared to a good number of respondents (85%) who reported that not all concepts were taught well during the use of Google Classroom. The table also shows that a good number of

respondents (86%) reported that students could not acquire all the necessary skills when using Google Classroom. This is comparable to a good number of respondents (68%) who disagreed that internet connection was good when using Google Classroom on the other hand a huge number of respondents (72%) reported to disagree that all planned work was covered effectively when using Google Classroom. Therefore, it can be concluded that v as a digital platform was not effective for teachers in Vihiga County a huge number of respondents reported that it was not effective because of several reasons as noted in table 9.

CHAPTER FIVE: SUMMARY OF STUDY FINDINGS, RECOMMENDATIONS AND CONCLUSIONS.

5.1 Introduction

This research study was guided by three objectives

i. To examine the effectiveness of Zoom Meetings in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.
ii. To examine the effectiveness of the Google classroom in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.
iii. To determine the effectiveness of the WhatsApp in teaching and learning among schools in Vihiga County during the COVID-19 pandemic.

5.1 Summary of key findings

The research study can report that majority teachers who gave responses in the study were male teachers the study also found out that most of the respondents had a teaching experience of above 10 years. In addition, that study found out that majority of the respondents in the study were teachers The study found out that a huge number of respondents 83.6% reported that they taught online when COVID-19 forced the closure of schools as compared to a small number of respondents (16.4%) who reported that they did not teach online.

The study also found out that majority of the respondents used WhatsApp, Zoom or Google classroom during the online teaching while a very huge number reported to use all the three platforms (89%).The study also found out that (71%) of the respondents reported to disagree that all planned work was covered effectively when using WhatsApp. Therefore, it can be concluded that WhatsApp as a digital platform was not effective for teachers in Vihiga County a huge number of respondents reported that it was not effective because of several

reasons as noted in table. The study also found out that a good number of respondents (67%) reported to disagree that all planned work was covered effectively when using Zoom. Therefore, it can be concluded that Zoom as a digital platform was not effective for teachers in Vihiga County a huge number of respondents reported that it was not effective.

The study also found out that with Google Classroom, a huge number of respondents (72%) reported to disagree that all planned work was covered effectively when using Google Classroom. Therefore, it can be concluded that Google Classroom as a digital platform was not effective for teachers in Vihiga County a huge number of respondents reported that it was not effective.

5.2 Discussions

The study can therefore show that WhatsApp as a digital platform was not effective for teachers in Vihiga County a huge number of respondents reported that it was not effective because of several reasons such internet connection, giving feedback, assessment was not easy, students did not acquire all the skills taught, teachers were unable to cover all the work planned among others.

Zoom as a digital platform was not effective for teachers in Vihiga county a huge number of respondents reported that it was not effective because of several reasons such internet connection, giving feedback, assessment was not easy, students did not acquire all the skills taught, teachers were unable to cover all the work planned among others.

Google Classroom as a digital platform was not effective for teachers in Vihiga County a huge number of respondents reported that it was not effective because of reasons such

internet connection, giving feedback, assessment was not easy, students did not acquire all the skills taught, teachers were unable to cover all the work planned among others.

5.3 Recommendations

The study makes the following recommendations:

WhatsApp only works well on an interface that needs regular update that is also reliant on internet. It has also looked the same from the time that it was ever developed and so I think the app developers should greatly be updating their interface to something newer and more up with the time for leaner to be able access efficient way of delivering lessons such as screen sharing.

More study to be done on how effective the digital platforms can be used among primary school teachers in Vihiga County a study can also be done on how teachers can be empowered to use many available digital platforms

5.4 Conclusion

The study has three objectives that are; to find out the digital tools that were used by primary schools in Vihiga county during the COVID-19 pandemic; to examine the effectiveness of the digital tools used by primary schools in Vihiga County during COVID-19 pandemic and lastly to find out the factors that affected the effectiveness of Digital Learning in Vihiga county during COVID-19 pandemic. As shown a good number of respondents reported to use WhatsApp, Google classroom and zoom while a very huge number reported.

APPENDIX 1: PRIMARY TEACHER'S QUESTIONNAIRE

I am a student at the University of Nairobi Registration Number L40/33058/2019 doing a research on Effectiveness of Digital Platforms Used for Teaching and Learning during Covid-19 Pandemic. A Case of Primary Schools in Vihiga County-Kenya**.** Please take 10 minutes to fill in the following questionnaire. The information collected will only be used for academic purpose.

Nelson Kagali
0775390630

SECTION A: DEMOGRAPHICS (Tick where Applicable only)

1. Gender

☐ Male ☐ Female

2. How many years have you been teaching?

☐ Below 5 years
☐ 6 - 10 years
☐ 11 - 20years
☐ 21 years and above

3. Position in school

☐ Head teacher
☐ Deputy Head teacher
☐ Senior Teacher
☐ Teacher

4. Did you continue teaching students online when the government ordered the closure all schools due to COVID-19?

☐ Yes ☐ No

If your answer to question 4 is YES, answer the following questions

5. Any additional information which you feel it should be captured and may be of importance in this research _____
_____

SECTION B

The following section is about the digital platforms used for teaching and learning

6. What digital platforms are you aware of as a teacher? Tick all that apply

☐ WhatsApp ☐ Telegram ☐ Google Classroom ☐ Zoom

☐ Firefly ☐ Classdojo ☐ Edmodo Moodle

others_____

7. Which digital platform did you use most often

☐WhatsApp

☐Zoom

☐Google Classroom

☐All

8. Any additional platform which was not captured or which you have heard of

_____

SECTION C

The following section is about the effectiveness of digital platforms used for teaching and learning. Please tick against each statement (1 = disagree, 2 = neutral, 3 = agree)

WhatsApp

Statement	1 Disagree	2 Neutral	3 Agree
• Learners were able to understand the concepts taught			
• Testing and assessment was done easily			
• Providing feedback was faster			
• Marking of submitted work was not easy			
• Not all concepts were well taught			
• Students could not acquire all the necessary skills			
• It worked well because of good internet connection			

• Students loved the content taught because of animations			
• All work planned was covered effectively			

What is your take on effectiveness of digital platforms which you feel was not captured above _____

_____

ZOOM

Statement	1 Disagree	2 Neutral	3 Agree
1. Learners were able to understand the concepts taught			
2. Testing and assessment was done easily			
3. Providing feedback was faster			
4. Marking of submitted work was not easy			
5. Not all concepts were well taught			
6. Students could not acquire all the necessary skills			
7. It worked well because of good internet connection			
8. Students loved the content taught because of animations			
9. All work planned was effectively covered			

What is your take on effectiveness of digital platforms which you feel was not captured above _____

_____

GOOGLE CLASSROOM

Statement	1 Disagree	2 Neutral	3 Agree
1. Learners were able to understand the concepts taught			
2. Testing and assessment was done easily			
3. Providing feedback was faster			
4. Marking of submitted work was not easy			
5. Not all concepts were well taught			
6. Students could not acquire all the necessary skills			
7. It worked well because of good internet connection			
8. Students loved the content taught because of animations			
9. All work planned was effectively covered			

What is your take on effectiveness of digital platforms which you feel was not captured above _____

_____

REFERENCE

Alderman (2017). *5 ways to use WhatsApp in the ELT classroom*

Retrieved from https://en.unesco.org/covid19/educationresponse/solutions

Asare, A. O., Yap, R., Truong, N., & Sarpong, E. O. (2021). The pandemic semesters: Examining public opinion regarding online learning amidst COVID-19. Journal of Computer Assisted Learning, 37(6), 1591-1605.

Baguma, R., Bagarukayo, E., Namubiru, P., Brown, C., & Mayisela, T. (2019

Shum, S. B., & Ferguson, R. (2012). Social learning analytics. Journal of educational technology & society, 15(3), 3-26.

Barasa, E., Kazungu, J., Orangi, S., Kabia, E., Ogero, M., & Kasera, K. (2021). Assessing the indirect health effects of the COVID-19 pandemic in Kenya (Vol. 2021). Washington, DC,

Barkley, E. F., & Major, C. H. (2020). Student engagement techniques: A handbook for college faculty. John Wiley & Sons.medical sciences, 36(COVID19-S4), S27.USA: Center for Global Development.

Barhoumi, C. (2015). The Effectiveness of WhatsApp mobile learning activities guided by activty theory on students' knowldege management. Contemporary educational technology, 6(3), 221-238.

Buckingham, David (2007).TECHNOLOGY AND DIGITAL MEDIA IN THE CLASSROOM: A Guide for Educators". Waterford.org. Retrieved 2021-05-26

-05-11).

Brindley, J. E., Blaschke, L. M., & Walti, C. (2009). Creating effective collaborative learning groups in an online environment. International Review of Research in Open and Distributed Learning, 10(3).

Cantoni, V., Cellario, M., & Porta, M. (2004). Perspectives and challenges in e-learning: towards natural interaction paradigms. Journal of Visual Languages & Computing, 15(5), 333-345.

Chokri, B. (2015)The Effectiveness of Whatsapp Mobile Learning Activities Guided by Activity Theory on Students' Knowledge Management Chokri Barhoumi Taibah University, Saudi Arabia

Chokri Barhoumi Taibah (2015),The Effectiveness of WhatsApp Mobile Learning Activities Guided by Activity Theory on Students' Knowledge Management University, Saudi Arabia

Dailey-Hebert, A. (2018). Maximizing interactivity in online learning: Moving beyond discussion boards. Journal of Educators Online, 15(3), n3.

DIGITAL LEARNING: Data, Trends, and Strategies You Need to Know. www.schoology.com. Retrieved 2017-10-04.

De Lange, K. M., Moutsianas, L., Lee, J. C., Lamb, C. A., Luo, Y., Kennedy, N. A., ... & Barrett, J. C. (2017). Genome-wide association study implicates immune activation of multiple integrin genes in inflammatory bowel disease. Nature genetics, 49(2), 256-261.

Fink, K. (2020) Zoom 101 for Teachers retrieved from https://www.weareteachers.com/zoom for-teachers/

Garbe, A., Ogurlu, U., Logan, N., & Cook, P. (2020). COVID-19 and remote learning: Experiences of parents with children during the pandemic. American Journal of Qualitative Research, 4(3), 45-65.

Goetsch, D. L., & Ozon, G. (2019). Occupational safety and health for technologists, engineers, and managers (p. 720). New York: Pearson.

Halpin, P. A., & Lockwood, M. K. K. (2019). The use of Twitter and Zoom videoconferencing in healthcare professions seminar course benefits students at a commuter college. Advances in physiology education, 43(2), 246-249.

Hasan, N., & Khan, N. H. (2020). Online teaching-learning during covid-19 pandemic: students' perspective. The Online Journal of Distance Education and e-Learning, 8(4), 202-213.

Huntington, Heidi (2011). DIGITAL MEDIA IN EDUCATION: Expanding the Technology Acceptance Model. Rochester Institute of Technology – via ProQuest.

Iftakhar, S. (2016). Google classroom: What works and how. Journal of Education and Social Sciences, 3(1), 12-18.

Jimoyiannis, A., Tsiotakis, P., Roussinos, D., & Siorenta, A. (2013) Preparing teachers to integrate mobile in school practice: Toward a framework for Pedagogy 2.0. Australasian Journal of Educational Technology, 29(2), 248-26.

K Bielaczyc (1999) Learning Communities in Classroom: reconceptualization of educational practice Advancing Knowledge

Kedraka, K., & Kaltsidis, C. (2020). EFFECTS OF THE COVID-19 PANDEMIC ON UNIVERSITY PEDAGOGY: STUDENTS'EXPERIENCES AND CONSIDERATIONS. European Journal of Education Studies, 7(8).

Khurma, O. A., Al Darayseh, A., & Al Ramamneh, Y. (2022). Prerequisites Of STEM Education In The Online Teaching Mode: Analysis Paper Of Influential Factors. Journal of Positive School Psychology, 6(8), 5900-5917.

Masaviru, M. (2020) From Physical Classrooms to E-Learning and Online TeachingJournal of Education Practice. www.iiste.org ISSN 2222 1735. Vol. 11.No. 13, 2020

Mathew, L. (2018) 10 Benefits of Google Classroom Integration retrieved from http Maity, Sudarshan; Sahu, Tarak Nath; Sen, Nabanita (2020-12-10). PANORAMIC VIEW OF

DIGITAL EDUCATION IN COVID-19: A new explored avenue Review of Education. 9 (2): 405–423. doi:10.1002/rev3.3250. ISSN 2049-6613s://www.thetechedvocate.org/10-benefits-of-google-classroom-integration/

Mashiah, I. (2021). The relationship between public-relations and journalists in WhatsApp technology. Public Relations Review, 47(5), 102117.

Miller, M. (2008). Cloud computing: Web-based applications that change the way you work and collaborate online. Que publishing.

Mphahlele, K. (2021). The Impacts of COVID-19 in the Education Sector: a Student Leader Perspective

Mukhtar, K., Javed, K., Arooj, M., & Sethi, A. (2020). Advantages, Limitations and Recommendations for online learning during COVID-19 pandemic era.

Ngalomba, S (2020). Using WhatsApp to enhance online learning Retrieved from https://www.universityworldnews.com/fullsearch.php?mode=search&writer=Simon+Ngalomba

Ngalomba, S (2020). Using WhatsApp to enhance online learning Retrieved from https://www.universityworldnews.com/fullsearch.php?mode=search&writer=Simon+Ngalomba

Nardi, B. A. (1996). Studying context: A comparison of activity theory, situated action models, and distributed cognition. In B. A. Nardi (Ed.), Context and consciousness: Activity theory and human–computer interaction (pp. 69–102). The MIT Press.

Onyema, E. M., Eucheria, N. C., Obafemi, F. A., Sen, S., Atonye, F. G., Sharma, A., & Alsayed, A. O. (2020). Impact of Coronavirus pandemic on education. Journal of Education and Pract Banerjee, A., & Duflo, E. (2006). Addressing absence. Journal of Economic perspectives, 20(1), 117-132. sice, 11(13), 108-121.

Owino, B. (2020). Funding for health and welfare https://devinit.org/resources/kenyas-covid-19-budget-funding-for-health-and welfare/

OPIMBI, O. A. (2021). Determinants of coping strategies adopted by community health workers engaged in organisations supporting vulnerable children in kakamega county, KENYA (Doctoral dissertation, KENYATTA UNIVERSITY)

1998 K. Patricia Cross Why Learning Communities? Why Now? First Published July 1, 1998 Research Article

https://doi.org/10.1177/108648229800300303

Plester, Beverly; Wood, Clare (July 2009),EXPLORING RELATIONSHIPS BETWEEN TRADITIONAL AND NEW MEDIA LITERACIEs: British Preteen Texters at School". Journal of Computer-Mediated Communication. 14 (4): 1108–1129. doi:10.1111/j.1083-6101.2009.01483.x. ISSN 1083-6101.

2017, Jenna K Gillet-swan: the challenges of online learning: Supporting and engaging the Isolated Queensland University of Technology.

Quaglietta and Alvord. (2020). Coronavirus Impact on Service Delivery Continuity, Employees andCustomers.Retrievedfrom https://www.gartner.com/en/documents/3982025/coronavirus-impact-on-service- delivery-continuity-employ

Ramsook, L., & Thomas, M. (2019). PERSPECTIVES OF PROSPECTIVE TEACHERS ON ZOOM AS A TRANSFORMATIVE TEACHING METHODOLOGY: Zoom. International Journal for Innovation Education and Research, 7(11), 946-957.

Sánchez-Moya, A., & Cruz-Moya, O. (2015). Whatsapp, textese, and moral panics: discourse features and habits across two generations. Procedia-Social and Behavioral Sciences, 173, 300-306.

Taylor and Francis Ltd CJEM_A_234194.sgm 10.1080/17439880701343006 Learning, Media and Technology 1743-9884 (print)/1743-9892 (online) Original Article

Treceñe, J. K. D. (2022). COVID-19 and Remote Learning in the Philippine Basic Education System: Experiences of Teachers, Parents, and Students. In Socioeconomic Inclusion During an Era of Online Education (pp. 92-110). IGI Global

UNESCO, (2021). UNESCO's support: Educational response to COVID-19

https://en.unesco.org/covid19/educationresponse/support