



Challenges in Facilitating Online Teaching for Secondary Education during the Covid- 19 Pandemic.

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Abstract

This research aims to evaluate the challenges in facilitating online teaching for secondary education during the Covid-19 pandemic. With the pandemic, teachers had to face many challenges with regards to online teaching as they were unprepared for the remote teaching process that was to follow. For this study teachers were able to give an account of their experiences, challenges and the sacrifices that had to be made in adapting to this new method of teaching. A mixed method of data collection and analysis was used for this research, first a qualitative method followed by a quantitative method. A literature review was done in order to propose an analytical evaluation of the prior investigations related to this research. With the data collected from the literature review specific variables were identified and also observed as to how they relate to each other. With the variables obtained, the conceptual framework was built, bringing more clarity to the findings. The conceptual framework indicated four factors which were motivation, IT infrastructure, time management and increased workload. The initial data collection took place through interviews with experts in the field where they answered the open ended question that was proposed. With the data collected from the interviews a thematic analysis was done subsequently the analytical narrative was weaved together to draw up a thematic analysis map which was the final outcome of the qualitative analysis. The next set of data was collected with the usage of a questionnaire that was given to teachers from schools in the western province of Sri Lanka. The questionnaire contained questions that recognized the challenges faced by teachers in facilitating online teaching during the Covid-19 pandemic. The questions enabled the teachers to agree or disagree to the challenges faced in the online teaching process. With the data collected from the questionnaire a multiple regression analysis was done, hence multiple identifying scales were used for the process. The results obtained through this process indicated the final outcome of the quantitative analysis. Through all of the findings of this research it was revealed that most schools and its teachers had embraced online teaching in the midst of all the challenges thereby it is essential that measures are taken to overcome these challenges faced in online teaching, making it possible for teachers to deliver education that is of high standing.

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List of Abbreviations and Acronyms

df	Degrees of Freedom
IT	Information Technology
ICT	Information Communication Technology
N	Total number of Observations
SPSS	Statistical Package for the Social Sciences
Std. Dev.	Standard Deviation
sig	Significance
Std. Error	Standard Error
VIF	Variance Inflation Factor

Declaration

The thesis entitled “Challenges in Facilitating Online Teaching for Secondary Education during the Covid-19 Pandemic” is conducted under the supervision of Dr. Mrs. Anuradha Karunasena.

I declare that the information provided in this thesis is a result of my own work, except where referred. The work has not been previously accepted in substance for any degree and is not being concurrently submitted in candidature for any degree.



Signed:..... (M.A.G de Silva)

Date: 21 September 2021

SUPERVISOR’S DECLARATION STATEMENT

I declare that the student De Silva M. A. G. bearing the student number MS19817972 has undertaken the thesis titled “Challenges in Facilitating Online Teaching for Secondary Education during the Covid-19 Pandemic” under my supervision. The student has completed the thesis to a satisfactory level.



Signature: (Anuradha Karunasena)

Date: 19/10/2021

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Chapter 1 Introduction

The use of technology in teaching has led to a paradigm shift in the entire education system. Contemporary education involving technology supports a more technologically driven, more flexible and a more learner centered teaching environment.[1] This has made way for online teaching which has enabled teachers to research out students on a digital platform. The online teaching process is comprised of academic, technical and administrative components thereby it is mandatory that the online teaching environment include these components in order to accomplish the effective execution of online education. In the wake of the global pandemic Covid-19 education methods had to change drastically. Educational reforms were brought in immediately so that transition and a smooth flow in education could take place. Online teaching took a center stage in the education system but the challengers in facilitating in online teaching were many Therefore this study intends to determine the challengers in facilitating online teaching for secondary education during the Covid-19 pandemic.

The education system was not equipped to face a change of this magnitude as a fully digitized education system had not been tried out before. The challengers faced in online teaching were common to all but the impact of it was mostly felt by developing nations where technological methods of teaching were not commonly practiced. [2] In Sri Lanka digitized education was at its inception at the start of the pandemic but within a short span of time a rapid change took place in the education system as teachers took the challenge of switching from conventional teaching to digitized teaching. With the unexpected digital transformation in education it was clear that teachers had no time for preparation, they had to depend on the devices and the technological skill they already possessed. Affordability and accessibility to teaching resources were said to be inadequate and challenging as teachers come from various socioeconomic backgrounds. [3] Limited funds were allocated by authorities for this process thereby the online teaching expenditure was selflessly born by teachers. There was teacher's resistance to change as technological integration and change in work patterns in teaching created tension. [4] The direct human contact and interaction the teacher had with the students was not felt in distance learning thereby it created barrier between the student and teacher. Also Online teaching was quite an isolating process for the teachers as they did not have the required support of the community or colleagues. A robust IT infrastructure had not been available in the field of education to face this crisis thereby teachers had to make do with the resources they already had.

Many are the challengers in facilitating online teaching for secondary education during the Covid-19 pandemic yet it is evident that regardless of all the challengers faced, teachers have found ways and means to continue with the online teaching process. [5] In spite of all the resistance and the drawbacks, it is an obvious fact that online teaching continued solely because of the ability teachers possessed to adapt to the situation and the passion they had towards teaching. This research intends to identify the challengers in facilitating online teaching for secondary school during the covid-19 pandemic in order to find solutions to the challengers so that a smooth flow in online teaching could take place. In finding these gaps a mixed method of data collection and analysis would be utilized which would provide a comprehensive understanding of the challengers faced by secondary school teachers in online teaching during the Covid-19 pandemic. The future of successful online teaching would determine on how successful we are in overcoming the challengers faced by teachers in online teaching.

1.1 Background of the Study

The sudden closure of schools at the outbreak of the COVID-19 pandemic transformed the entire education landscape abruptly paving the way for online education. This shift in education led to the use of technology to meet the need of the hour. [6] Digital platforms and applications came into use almost overnight to fulfill the demands of education and in continuing the process of teaching and learning. Although the education system switched from conventional education to digital education within a short period of time, the challenges faced were found to be many. [7] As teachers had to adapt to new methods in teaching, the conventional learning content had to be digitized and a new curriculum introduced. This new routine of work added extreme pressure on the teachers as they were not geared to undertake a task of this magnitude. Often teachers were stressed and even experienced burnout having to cope with work that they were unaccustomed to and unfamiliar with. [8] Teachers were easily demotivated as the circumstances led to a more demanding and an unfamiliar working environment. There was knowledge and skill to be acquired within a short span of time in order to move ahead with the online teaching process with confidence. There were many weaknesses encountered by teachers with regards to the digital infrastructure. The lack of connectivity and the lack of digital equipment was the greatest challenge experienced by many teachers. A robust IT infrastructure had not been available in the field of education thereby teachers had not been able to utilize technologies that align with online educational concepts. [9] Limited funds were allocated by authorities for online teaching thereby teachers had to bear the cost of technology needed for online teaching which was beyond their budget as teachers are poorly paid. Online teaching is quite an isolating process as there's limited interaction with students and fellow teachers. It limits the freedom of both students and teachers that lets them share ideas and express their views effectively. Social interaction is essential in education but unfortunately this feature is not found or seldom practiced in online education. [10] In comparison with conventional methods of teaching it was revealed that online teaching was a more tedious and a more time consuming task as it takes a considerable amount of time to plan lessons, teach and thereafter evaluate on a digital scale. Based on the findings of the challenges faced by teachers in online teaching it is evident that in spite of all the resistance and the drawbacks online education still continues purely because of the determination teachers possessed to adapt to the situation.

1.2 Problem Statement

The acquisition of required essentials for online teaching amidst of a pandemic and the use of the existing resources effectively in order to transform conventional education into digitized education has been a challenging task. It was shown that some of the components of the online teaching environment affected the teacher's behavior and attitude.[11] Motivation that activates the teacher to do their utmost could be considered as one the key features that affects the teacher's online teaching process. Therefore, teachers involved the virtual teaching process need to have the right components of motivation to encourage and support the teaching process in a virtual environment. [12] The sudden shift from conventional education to online education has placed an immense strain on schools' IT infrastructure. The supporting IT infrastructures of many schools was not able to support this type of demand. Thereby it is essential that schools consider the restructuring of their IT infrastructure and how it could be optimized to support remote learning. Another challenge that impacts online teaching is the lack of time management. [13] Too many distractions, unscheduled task and multitasking has led to the mismanagement of time. Time management is essential for identifying dimensions such as setting goals and priorities, scheduling and planning. Teachers should be given the necessary support and knowhow to be able to manage their time effectively and efficiently. The accelerated integration of technology into education and the adapting of new methods of teaching has been overwhelming for teachers also added more strain to their workload.[14] The online teaching process also was forcing teachers into the role of the 24/7 teacher online. The future and sustainability of online teaching depends on how effectively the teachers manage their online workload so that they don't burn out from its demands.[15] Many are the challengers faced by teachers in online teaching but it is reassuring to know that the challengers have not stall the process neither has it stopped the process. Educators have the strong urgency of moving forward with the online teaching process so that students would not loose on their education no matter what crisis, teachers are faced with.

1.3 The Aim and Objectives of the Study

The aims and objectives in this research would be able to establish the space, the depth and the path this research would be taking. The aim of this research indicates what needs to be achieved, and objectives indicate how it would be achieved.

1.3.1 Aim

To investigate the challenges faced by secondary school teachers in facilitating online teaching in the midst of the Covid-19 pandemic by assessing the challenging experiences teachers faced during online teaching.

1.3.2 Main Objective

To identify challenges in facilitating online teaching for secondary education during the Covid-19 Pandemic.

1.3.3 Sub Objectives

- a) Develop an initial conceptual model on the challenges faced by teachers during the Covid-19 pandemic
- b) Validate the initial conceptual framework using qualitative and quantitative data collected from the teachers and experts in the field.

1.3.4 Research Question

What are the challenges in facilitating online teaching for secondary education during the Covid-19 pandemic?

1.3.5 Research Hypothesis

Hypothesis # 1: Motivation would have a positive impacted on teachers who engage in online teaching during Covid-19.

Hypothesis # 2: The lack of proper IT Infrastructure would have a negative impact on teachers who engage in online teaching during Covid-19.

Hypothesis # 3: There is a relationship between time management and the increased workload in online teaching during Covid-19.

Chapter 2 Literature Review

This review of literature examines the challenges faced in online teaching especially during the Covid-19 pandemic. Since it's a global pandemic the challenges encountered in online teaching are common to all teachers across the globe. The literature reviewed was organized according to common themes which provided insight and indicated its relation to the research topic. The final outcome of the literature review would be mapped out in a conceptual framework.

2.1 The Impact of Covid-19 on Education

With the development of Covid-19 the closure of schools took place within a short span of time in keeping with the newly imposed regulations. This situation was able to break new ground in the field of education. The upgrading of its mode of delivery, focusing its attention more on emerging technologies had to take place. [16] The switch from conventional education to virtual education had its consequences, the teachers were unprepared to take up the new challenge. They lacked the resources and the knowledge to engage in the process. [17] Teachers were overworked with the new turn of events, conventional learning content had to be digitized, a new curriculum introduced. Proper professional anatomy had to be brought about for a more focused and effective outcome. [18]

2.2 Technological Competence

There has not been a clear consensus on the technical abilities of teachers. It was observed that teacher's attitude towards technology incorporated education were controlled by the characteristics of each teacher and their willingness to continue with the process. [19] The teachers who are competent in the use of computers are said to be self-efficient in carrying out online teaching effectively. Teachers who are competent showed willingness to continue in the online teaching process. [20] Taking into consideration the scenario faced by teachers at present it is essential to invest in the teachers professional and technological development. This would make the teacher have a more creative, interactive and innovative approach towards teaching. [21] Appropriate technological skill, knowledge and equipment are required for teachers to proceed with online teaching. The effectiveness of distance education is based on the preparation and design of the learning material and also engagement of the teachers in the process. [22] A teacher's lack of experience in online teaching had its impact on the quality of

the teaching process. Lack of clear information and the complexity of the distance learning framework has brought along many challenges. [23] Results have revealed that teachers were faced with many problems during remote teaching. Nevertheless, teachers stated that the experience they gained through the process would help them further develop distance learning skills so that they would be able to face any crisis situation in the future. [24]

2.3 Cost

Teachers were faced with many financial problems in the online teaching process. Affordability and accessibility to teaching resources are said to be inadequate and challenging as teachers come from various economic backgrounds. [25] Limited funds are allocated by authorities for this process thereby online teaching would have a negative effect on education. Online delivery is more costly than conventional methods used in teaching. Teachers have revealed that they do not have access to computers and experienced poor internet connectivity. For effective online teaching to take place adequate technological tools and infrastructure should be available. [26] Researchers say that teachers are reluctant to use technology owing to the high cost of digital equipment. Due to inflation of technological equipment the provision of technological resources for educational purposes is hindered in developing countries. [27] Many students engage in online learning with the use of smart phones thereby students are unable to reap the full benefits of the learning process as most of the learning content would not be accessible from a smart phone. It was revealed that students coming from marginalized backgrounds did not have the needed resources to participate in the digital learning process. [28]

2.4 Adaptability

Teachers lack motivation to learn technology thereby the utilization of technology that promotes sustainable education would be challenging. [29] The teacher's adaptability to technological change and the impact it has on them depends on the attitude teachers have towards the learning of technology and the technological knowledge the skill and the ability they already possess. [30] Although new technology offers numerous opportunities for teaching and learning, traditional teaching methods still dominate the educational arena. The teacher's role in an online teaching and learning environment is significant in uplifting the quality of education. [31] Teachers who are familiar with traditional pedagogical methods of teaching have been resistant towards adapting to online teaching. Although in the midst of a

pandemic teachers had no choice but to completely switch to online teaching and accept the change. [32]

2.5 Resistance

The teacher's resistance to change has not helped the online teaching process thereby the sudden adaption to this new method of teaching and learning has been a challenge in maintaining the quality and the standards in education. [33] Technophobia has brought in resistance to online education and is viewed with skepticism. The technological involvement in teaching has created tension among teachers as there has been a change in work patterns and the technological integration into education. [34] Among the many barriers in online education, technological and the cultural barriers are considered the most prominent. The teacher's resistance to change and the attitude towards technology is considered a cultural barrier whereas the lack of knowledge and skill could be considered as personal barriers. [35] Despite the benefits in technology teachers continue to show resistance in engaging in the online process. Teachers showed a lot of negativity in following the digital teaching process. They were afraid to teach with the involvement of technology and were not excited about the prospect. This resistance has been mainly because of the inadequate support and training received, the time involved in developing digital content and the fear of failure. [36]

2.6 Human Interaction

Learning content that is provided to the students should be organized by the teachers to suit the mode of delivery so that the students would be able to engage in the online learning process with ease. [37] Traditional teaching methods provide the platform for informal learning where the process could take place through casual conversation, these methods expose the students to informal education whereas remote education provides a more complex means of communication.[38] Online teaching has change the method of communication between teacher and student thereby it is necessary that teachers change the way they communicate by adapting to new methods of communication.[39] Online teaching could be quite an isolating process for the teachers if they don't have the required support of the community.[40] Social interaction is essential in education but unfortunately in online education this feature is not found or seldom practiced. It limits the freedom of both students and teachers have to share ideas and express views effectively. [41] Although efforts are taken in creating a counterbalance in online education, students show that they have lost the sense of belonging to

a student community. [42] There is a lack of connection between the teacher and the student. The one on one relationship that students would experience in a conventional classroom was lacking in distance learning. [43] Teachers are expected to develop content that would help overcome limitations in online teaching. Teachers need to interact with fellow teachers in bring in ideas and innovative ways on how to improve online teaching methods but sadly there are many limitations to this process as online education is known to be a socially and intellectually isolated process. [44] The establishment of social presence is a difficult task in online teaching. It was show that social presence was an area that was underdeveloped in an online educational environment. [45]

2.7 Indiscipline Behavior

Indiscipline behavior of students is often experienced by teachers during the online teaching process as students are not able carry out the process of learning in a proper learning environment thereby the teachers have to take necessary measures to avoid such behavior.[46] It was found that the attention span of students was limited in the distance learning process therefore students misbehaved and often tried accessing online material during online class sessions.[47] Teachers have to control their emotions and maintain a balance by using various strategies as students tend to misbehave during online lessons. It is indicated that teachers who check on the student who misbehaves would be able to deal with the situation better. [48] Student are faced with many distractions as they are working in a non-educational environment. Distraction from family, pets, ringing of phones do not set the mode for learning. On the other hand, students tend to text and play games while lessons are on, which would affect their academic performance. [49] Students stated that they are easily distracted and lose focus when engaged in the online learning thereby they would not be able complete assignments or the given task. Whereas in a traditional classroom setup they would have each other's help and assistance from teachers. [50]

2.8 IT infrastructure

The sudden change has enforced both students and teachers to adjust themselves to an unfamiliar technological process in education. It was observed that the IT infrastructure for online education was insufficient or was missing. [51] There are many weaknesses encountered by teachers with regards to the digital infrastructure. The teachers had limited exposure in online teaching, they experienced a gap in information and an environment that is not

conducive to online teaching. [52] Technological infrastructure that provides support to the teachers should be made available. Availability of internet connectivity and equipment would help in the integration of technology in education. [53] A robust IT infrastructure has not been available in the field of education thereby steps have been taken to develop technologies that align with online educational concepts. Although there has been resistance towards technology in education, with the current crisis authorities have developed a different perspective towards technology in education. [54] Though a traditional learning environment has many forms of delivering learning content, distance learning lacks the structure to develop this process. The barrier in online education does not lie only in the technology itself but also in the pedagogical concepts used in technology. [55]

2.9 Time Management

Teachers have stated that preparation that goes into online lessons consumes more time than the preparation that takes place in conventional lesson planning. It was shown that the teacher's effectiveness depended on the preparation of educational material and its design. [56] When compared to conventional methods of teaching it is said that online teaching is a more tedious task as it takes a considerable amount of time to plan lessons, teach and thereafter evaluate on a digital scale. [57] Teachers utilized their time not only in online teaching but in updating and uploading of learning content as and when needed. Unlike in a traditional learning environment more time was spent on communication as a variety of communication methods were used in online education. [58] Timely feedback is expected in online teaching. This involves a lot of time as downloading of students work, identifying areas that need correction, commenting and uploading of work, should be done for each and every student. Writing comments for each and every student takes more time than verbal commentary. The teacher's availability is expected round the clock in online education. [59]

2.10 Increased Workload

To develop online learning content, it takes a lot of commitment. Which would add to the teacher's workload. [60] Considerable amount of time is required for online teaching as there's considerable amount of work that has to be established and developed. [61] The amount of work that goes into corresponding with students is relatively high as students have questions that have to be addressed by the teacher consistently. [62] The teacher has to be fully involved in online teaching by engaging in discussions through threads, email and chats. Teachers have

to work more to avail the diverse online requirements of students. It is necessary that the teacher remains active throughout the learning process to reap the full benefits of the process. [63] Teachers put in a lot of effort to involve the students in educational activities. They provide the students with meaningful theoretical and practical work that makes the online learning process effective. [64] Teachers struggle to deliver the same amount of content that was previously used in conventional teaching. According to student's teacher's work tirelessly to involve students in educational activities that provides the students with flexibility in education and knowledge that makes the online learning successful. [65]

2.11 Motivation

Although many fields have embraced technology, the field of education is still lagging in the use of technology. [66] Researchers have said that self-motivation of teachers would act as a change agent in improving their teaching styles and methods. There are a variety of online tools that could be used as a motivational influence in online teaching. [67] Online tools have acted as a substitute to conventional learning although at times it creates immense difficulty for both teacher and student ranging from downloading problems to installation problems. The need for digital literacy has increased for both teachers and students, thereby, guidance and training should be given in order increase competency in the use of technology in education. [68] Technology promotes self-efficiency and technological competence in teachers. [69] Lack of motivation in teachers is reviewed as one of the disadvantages in using online teaching tools. This is mainly owing to the lack of expertise and the lack of commitment they have in developing online learning content. When teachers have the knowledge and the skill they are motivated and thereby an increase in the quality of their teaching is shown. Students are able to enhance their learning as teachers use creative delivery methods. [70]

This research conducted intends to categorically identify the overall challenges faced by teachers in online teaching specifying each category that relates to the process. Through this literature review it was identified that the challenges faced by teachers in online teaching were common to all. Teachers across the globe were facing the same difficulties and challenges. Teachers from diverse backgrounds were challenged by the lack of finances, not having the proper teaching environment, the lack of support, poor competence and skill, and inadequate technological resources were similar challenge faced by all teachers' across the globe. It was reveled in the review of literature that the teachers were not inactive during the pandemic but had been busy mastering online teaching in spite of all the obstacles. This portrayed their

commitment to fight against all odds. Although there was limited literature on the challenger faced in online teaching during Covid-19 in particular, there were many sources of literature on the challenges faced in the online teaching process in general. From the literature that was reviewed the required data was extracted and categorized. The outcome of the literature review would be mapped out in a conceptual framework.

Chapter 3 Conceptual Framework

Using the data extracted from the review of literature this conceptual framework was built. The problem statement in the research served as a reference for constructing the conceptual framework. To build the conceptual framework, the terms of concept has to be defined and outlined. [71] With the data collected from the literature review specific variables were identified also observed as to how they relate to each other bring more clarity to the findings. The identified four variables were motivation, It infrastructure, time management and the increased workload. This conceptual framework would be used as an analytical tool in this research.

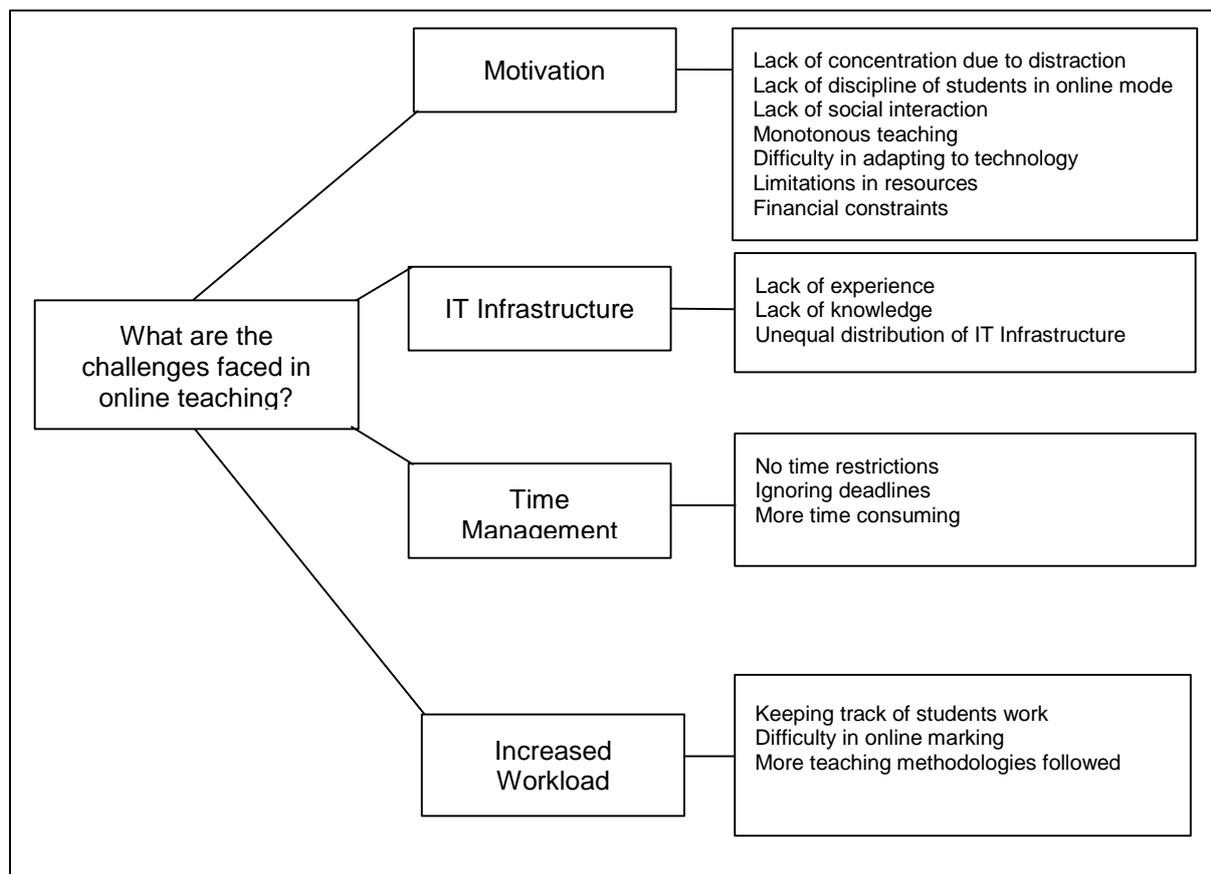


Figure 1.1 Conceptual Framework

Chapter 4 Methodology

For this research several systematic analysis methods were applied. A mixed method was used for this study, initially a qualitative analysis followed by a quantitative analysis. This research also highlights methods utilized for the collection of data and the instruments used for the process. The qualitative data would be obtained through interviews conducted with experts in the field. This qualitative data would be analyzed using a thematic analysis. The quantitative data would be collected with the use of a questionnaire that would be distributed among teachers in the western province. This quantitative data that is collected would be analyzed statically using multiple regression analysis. The validity and reliability of the data analysis would be concluded with the highest reliability and accuracy. All ethical considerations used during the course of data collection was handled adhering to the best practices in protecting the confidentiality of all participants.

4.1 Research Design

A research design shows the collecting of data, its analysis, its interpretation and the reporting of data. The research design shows the complete plan in connecting and answering the research question, bring forth the required results. [72] This research would involve a mix of methods for analysis and data collection. A mixed method is described as a combination of research methods applied in a research. For this research both quantitative and qualitative methods would be utilized. The qualitative approach was utilized to ascertain the data needed to carry out a thematic analysis. A multiple regression analysis was done with the quantitative data that was obtained from the questionnaire that was circulated among teachers in the western province. This mixed method of both quantitative and qualitative data analysis would ensure the research problem is effectively addressed.

4.2 Area of Study

This area of study specializes in a specific academic theme that discusses the challenges faced by teachers in facilitating online teaching during COVID-19. In the field of education online teaching is relatively new especially in developing countries. Technologically incorporated teaching although its new has made a huge impact in the field of education in recent times in the wake of the Covid-19 pandemic.

4.3 Population

Population is a group of individuals with a particular set of attributes. A sample is the subgroup of the population. A sample study is done by choosing a sample from the population. [73] Out of a population of 1501448 the sample size was obtained as 277 thereby 10 schools were selected from each of the three districts in the western province. 277 teachers participated in the research accordingly. As planned out, 277 respondents representing Government schools, Private schools and International schools in the western province made their contribution to the research.

4.4 Sampling Design

This design is utilized for convenience and the simplification of the research process [74] Sample design gives the opening to collect numerous observations in a group, calculate the strength of the research to evaluate relevant levels of effect on the group. [75] This research employed the systematic sampling design. The sample design would act as the framework in selecting the sample needed for the quantitative data collection. The population was recognized based on the latest population results of secondary school teachers in the western province obtained from the Ministry of Education, Isurupaya, Battaramulla, Sri Lanka.

4.5 Sample Size

This is a component of a research design which has a considerable effect on the strength and its scientific significance. [76] This study would use a sample of respondents from the western province. From a population of 1501448 teachers in the western province the sample size obtained would be approximately 277. Thereby 277 respondents participated in the research.

Formula to calculate sample size

Population size - 1501448

Confidence level - 90%

Margin of error - 5%

Sample proportion - 0.5

Sample size - 277

$$\text{Sample size} = \frac{\frac{z^2 \times p(1-p)}{e^2}}{1 + \left(\frac{z^2 \times p(1-p)}{e^2 N} \right)}$$

4.6 Data Type

The two types of data used in research are primary data and secondary data. Primary data for a research is collected in fulfilling a specific task. Primary data would help answer the research question. Secondary data are the resources created by previous researchers available for use. [77] Primary data is the first hand data obtained by the researcher. This data is used for a specific area of study. [78] The primary data was collected from the participants engaged in the online teaching process, using techniques that suits the research problem best. The data was gathered through interviews and questionnaires. The primary data used for the research are qualitative and quantitative data. Qualitative data was obtained from the interviews whereas quantitative data was obtained from the questionnaire. Secondary data was collected from a sources that already exist. This is the data that is already collected, analyzed and stored for public use including reports, journals, research papers and other relevant data relating to the subject that is at hand. [79] The secondary data that was obtained for this area of study was through journals and research papers published electronically. The literature relating to the area of research was extracted, critically evaluated and summarized in the literature review of the research.

4.7 Data Collection Methods

A procedure is used for the collection of data from related sources in finding answers to the research problem. There are several data collection methods used in a research. The method of collecting data should be done to suit the line of study. [80] There were two methods of data collection used for this research. The first qualitative data collection method and the second quantitative data collection method. Qualitative data was collected through interviews that were conducted with experts in the field and quantitative data was collected with the aid of a questionnaire that was given to teachers who had experience in the online teaching process.

4.8 Interviews

Research interviews are carried out to explore the views expressed by a group of individuals on a specific topic. This data gathered would be used for qualitative analysis. [81] Data was collected through an interview where the participants answered an open end question. Twenty participants were selected for the interview, these participants were experts were in the field

of education. The participants work experience and their current positions in the field of education were taken into consideration in the selection. These participants had been involved in the online teaching process from its inception thereby had gained a wealth of experience in handling the task. For the interviews the participant's expertise and experience in the online teaching process would be greatly valued. Various methods were applied in order to keep record of what was expressed during the interview by the participants. These methods included taking notes and audio-recordings. The audio recordings were transcribed verbatim before data analysis. The transcribed audio-recorded interview was then generated into a written dialogue. Notes that were taken during the interviews provided important context to the interpretation of audio-recordings. Which later on would help remind factors that are important for data analysis. The audio recordings and transcripts obtained from the interviews would be utilized in the qualitative data analysis that would follow.

4.9 Questionnaire

This is taken as the key tool for gathering data in a survey of a research. A questionnaire is used for the collection of individual data based on a specific topic. [82] For this research the questionnaire was built based on the information obtained at the interviews. This data was then classified into several categories in order to construct the questionnaire. [83] The questionnaire was translated into both Sinhala and Tamil to suit the requirements of the teachers and their mode of language. The questionnaire was given out to schools in the western province which included government schools, private schools and international schools. The distribution of the questionnaires was done both physically and electronically through Google docs and email. With the data collected from the questionnaire a multiple regression analysis was done, hence identifying scales were used for the process. Identifying processes included taking into account the data obtained from the entire sample population.

4.10 Validity and Reliability of the Research

Reliability and Validity of a research are entirely based on the research reliability and validity of outcomes and the assumptions drawn by them. [84] The data obtained for this research was obtained through credible sources and are cited accordingly. Validity of a research is entirely based on the accuracy of the measurement of the concepts in a quantitative analysis. [85] The data that was obtained through the quantitative analysis was validated using multiple regression analysis. This analysis examines findings and measures its reliability and stability. [86] All the

data that was tested delivered reliable results as the sources that the data was obtained from were reliable as previously stated in the research.

4.11 Ethical Consideration

When research is done using human data, ethical values and conduct should be taken into consideration. [87] In this research confidentiality of the information obtained from the respondents were done respecting their rights and privacy. Throughout the process the respondents were informed that this research would be done for academic purposes. The respondents were requested not to write their names in any of the forms provided in this research so that confidentiality could be observed. The research was done adhering with ethical considerations and principles guaranteeing anonymity and citing all the work used as reference.

Chapter 5 Analysis

A research data analysis is done by researchers in order to analyze data obtained in the process. The procedure is also responsible in interpreting results, give insights to the research problem giving it more clarity. [88] For this research two types of data analysis was performed namely qualitative analysis and quantitative analysis. For the analysis the previously collected qualitative and the quantitative data would be used.

5.1. Qualitative Analysis

Qualitative analysis is a process that is designed to concise raw data into themes or categories based on its validity and its interpretation. Inductive reasoning is used for this process where the researcher carefully examines and compares the data. [89] From the qualitative data obtained, a thematic analysis would take place in this research.

5.1.1 Thematic Analysis

This analysis systematically recognizes organizes and categorically sorts the data into themes. This allows the researcher to recognize the data with more clarity and understanding. [90] For this analysis the qualitative data that was collected during the interview was first documented, these transcripts were then carefully scrutinized and categorized. The important features of the data that was of relevance was extracted and coded for further clarity. The coding was then examined to identify significant patterns and themes. The themes were reviewed to check if it reveals a convincing pattern of data that answered the research question. The themes were categorized as Motivation, IT infrastructure, Time management and Increase workload. The analytical narrative was weaved together to draw up a thematic analysis map which was the final outcome of the analysis.

Thematic Analysis

Motivation

Question: What are the challenges in facilitating online teaching for secondary education during the Covid-19 Pandemic?

Verbatim data extract - Interview feedback	
Res. 01	"If only a set of guidelines and instructions were issued regarding online teaching things would have been much easier."
Res. 02	"There's no privacy when teaching online, there are instances where the students' whole family watches you while you teach."
Res. 03	"There's always a communication gap that is experienced between teachers and students."
Res. 04	"When there is unauthorized access into the online class there's acts of indiscipline and misconduct experienced."
Res. 05	"I see students very often distracted as they are either surfing the net or chatting online during online lessons."
Res. 06	"Unauthorized access causes chaos in the class."
Res. 07	"Some students switch off their camera so that the teacher would not see them disengaged in lessons."
Res. 08	"Students tend to type inappropriate content in the chat."
Res. 09	"Interaction with fellow teachers that brings about a sense of wellbeing is no more."
Res. 10	"Follow-up on students' work is the most challenging part, especially when students don't have the required devices"

Respondent	Sub coding	Coding	Themes
Res. 01	Motivation Factors	Guidance and instruction	No guidelines and instructions issued regarding online teaching.
Res. 02	Motivation Factors	Lack of privacy	Lack of privacy when teaching online.
Res. 03	Motivation Factors	Communication gap	Communication gap between students and teachers.
Res. 04	Motivation Factors	Indiscipline and misconduct	Acts of indiscipline and misconduct experienced.
Res. 05	Motivation Factors	Indiscipline and misconduct	Distracted students.
Res. 06	Motivation Factors	Indiscipline and misconduct	Unauthorized access.
Res. 07	Motivation Factors	Indiscipline and misconduct	Students disengaged in lessons.
Res. 08	Motivation Factors	Indiscipline and misconduct	Typing inappropriate content.
Res. 09	Motivation Factors	Limited interaction	Lack interaction with fellow teachers.
Res. 10	Motivation Factors	Follow-up	Inability to follow-up on students' work.

Table 1.1 Thematic Analysis Table of Motivation

IT Infrastructure

Question: What are the challenges in facilitating online teaching for secondary education during the Covid-19 Pandemic?

Verbatim data extract - Interview feedback	
Res. 01	"My internet connection is so unstable that I go offline all the time."
Res. 02	"Subscribing to a high speed internet connection is too costly and it is beyond my budget."
Res. 03	"Some digital learning content and teaching tools don't come free and there are restrictions for what you download and install."
Res. 04	"Since we are not proficient in online teaching, we require training and support."
Res. 05	"So many teachers are not familiar with methods of online delivery and instruction."
Res. 06	"Very often students don't follow proper online etiquette rules and inappropriate use of technology takes place all the time."
Res. 07	"Teaching and learning approaches with the aid of technology has not taken place the way it should."
Res. 08	"Often teachers are unable to give their best as the devices we possess are incompatible or outdated."
Res. 09	"We are unable to keep up with IT trends and innovations because we have limited exposure and knowledge."
Res. 10	"Proper technical support and assistance is not readily available for teachers."

Respondent	Sub coding	Coding	Themes
Res. 01	IT Infrastructure Factors	Technological issues	Unstable internet connections.
Res. 02	IT Infrastructure Factors	Costly	High speed internet connection is costly.
Res. 03	IT Infrastructure Factors	Costly	Digital learning content and teaching tools are costly.
Res. 04	IT Infrastructure Factors	Lack of proficiency	Lack of proficiency in online teaching.
Res. 05	IT Infrastructure Factors	Lack of proficiency	Unfamiliarity in online deliver and instruction.
Res. 06	IT Infrastructure Factors	Online etiquette	Improper online etiquette.
Res. 07	IT Infrastructure Factor	Blended learning	Pedagogical approaches with technological aid.
Res. 08	IT Infrastructure Factors	Technological issues	Incompatible and outdated devices.
Res. 09	IT Infrastructure Factors	Blended learning	Inability to keep up with IT trends and innovations.
Res. 10	IT Infrastructure Factors	Technical support	Unavailability of technical support and assistance.

Table 1.2 Thematic Analysis Table of IT Infrastructure

Time Management

Question: What are the challenges in facilitating online teaching for secondary education during the Covid-19 Pandemic?

Verbatim data extract - Interview feedback	
Res. 01	"Having to multitask with delivery, uploading of lessons, recordings and assessments leaves me with no breathing space."
Res. 02	"When students don't work according to the set schedule, a lot of time is wasted rescheduling work."
Res. 03	"Online tasks give a lot of flexibility to the student where students tend to misuse that flexibility and disregard deadlines."
Res. 04	"When I have to toggle between various websites trying to find material for lessons I, very often lose track of time."
Res. 05	Online environment is not a controlled space like brick and mortar learning environments, thereby you have no time constraints.
Res. 06	"When working from home I'm distracted by family members and background noise which puts a strain on my time schedule."
Res. 07	"Feedback means a lot to students, when feedback is delayed, student's express concern."
Res. 08	"I have to spend more time in online teaching than I did in conventional teaching as there's more teaching resources out there."
Res. 09	"I spend so much time and energy trying to keep track of student's work and their progress."
Res. 10	"Online teaching is more time consuming as it takes more time for interaction than in a physical teaching environment."

Respondent	Sub coding	Coding	Themes
Res. 01	Time management Factors	Multitasking	Multitasking is time consuming.
Res. 02	Time management Factors	Disregarded schedules	Time wasted owing to disregarded schedules.
Res. 03	Time management Factors	Disregarded schedules	Misuse of flexibility and disregard deadlines.
Res. 04	Time management Factors	Lose track of time	Lose track of time finding material for lessons.
Res. 05	Time management Factors	No time constraints	Not a controlled space thereby no time constraints.
Res. 06	Time management Factors	Strain on schedules	Distractions puts a strain on schedules.
Res. 07	Time management Factors	Delayed feedback	Express concern when feedback is delayed.
Res. 08	Time management Factors	More time consuming	Finding teaching resources is time consuming.
Res. 09	Time management Factors	More time consuming	Keeping track of student's work is time consuming.
Res. 10	Time management Factors	More time consuming	Online interaction is time consuming.

Table 1.3 Thematic Analysis Table of Time Management

Increased workload

Question: What are the challenges in facilitating online teaching for secondary education during the Covid-19 Pandemic?

Verbatim data extract - Interview feedback	
Res. 01	"The workload involved is overwhelming as we have to cope with the use of technology as well as conventional methods of teaching."
Res. 02	"I'm not at all happy with the transition from conventional teaching to electronic teaching as it adds to the workload."
Res. 03	"Online teaching is more exhausting as it takes a lot of effort and resources to impart knowledge than in a physical classroom."
Res. 04	"Practical lessons are done with the use of videos and simulations which involves a lot of planning for execution."
Res. 05	"Keeping track of students' work and progress online is a lot of work."
Res. 06	"It is an exhilarating task to cope with the countless numbers of assignments being uploaded on a daily basis."
Res. 07	"Adapting to various methods students use to present their work, adds to the workload."
Res. 08	"Giving feedback to each and every student on their work is an exhausting process."
Res. 09	"Marking lengthy examination papers online is the most exhausting task."
Res. 10	"Adapting to the new methods of teaching has increased the workload so much."

Respondent	Sub coding	Coding	Themes
Res. 01	Increased workload Factors	Difficulty Coping	Use of technology and conventional methods of teaching.
Res. 02	Increased workload Factors	Transition	Transition from conventional teaching to electronic teaching.
Res. 03	Increased workload Factors	More effort	More effort and resources for teaching.
Res. 04	Increased workload Factors	More effort	More planning for execution.
Res. 05	Increased workload Factors	More effort	Keeping track of students' work and progress.
Res. 06	Increased workload Factors	Difficulty Coping	Correcting countless assignments being uploaded.
Res. 07	Increased workload Factors	New adaptations	Various methods used to do work.
Res. 08	Increased workload Factors	More effort	Giving feedback on students' work.
Res. 09	Increased workload Factors	More effort	Marking lengthy examination papers.
Res. 10	Increased workload Factors	New adaptations	Adapting to the new methods of teaching.

Table 1.4 Thematic Analysis Table of Increased Workload

Thematic Analysis Map

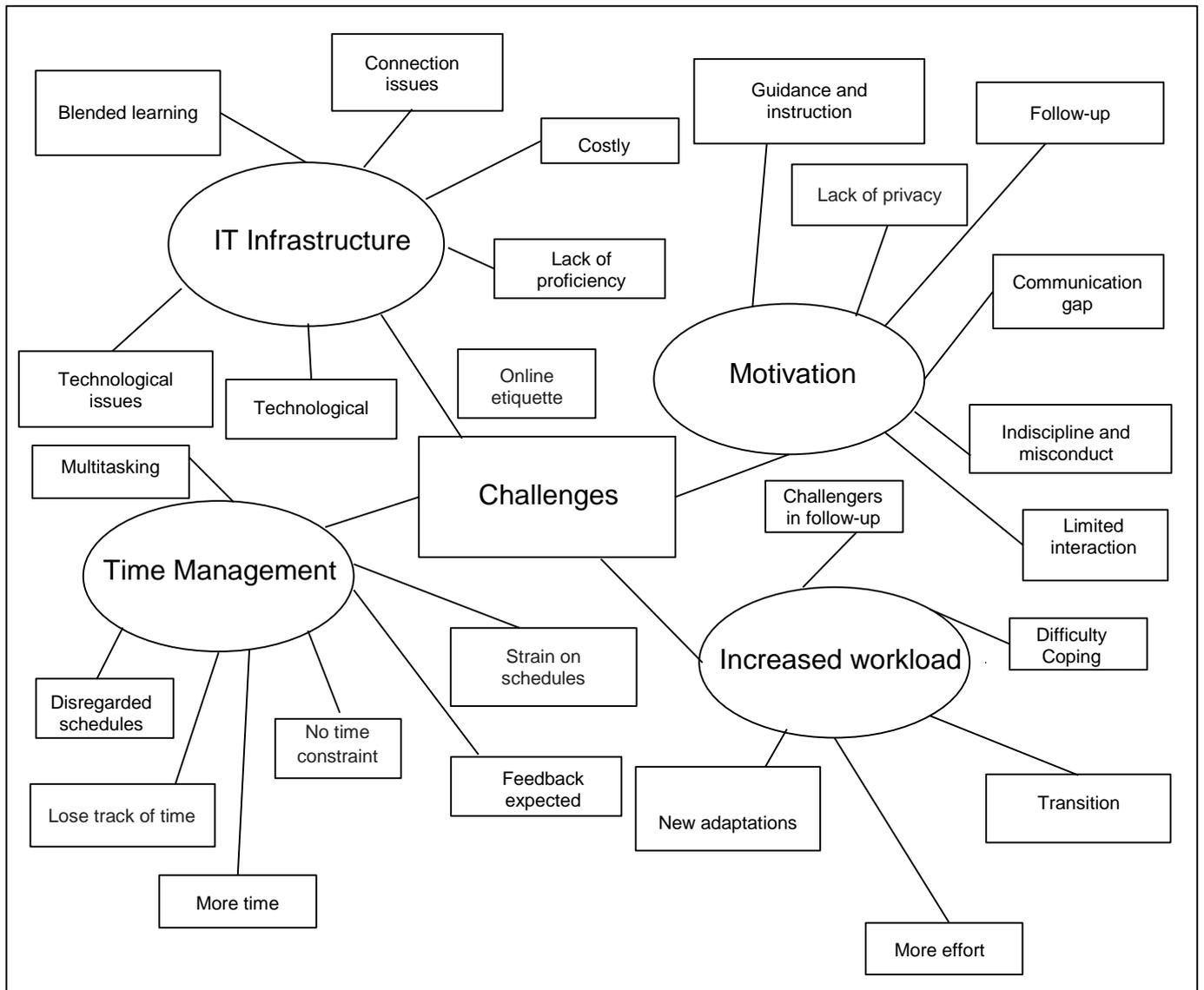


Figure 1.2 Thematic Analysis Map

5.2 Quantitative Analysis

This analysis is done with the numeric data. This type of analysis is involved when the research is scientific in its approach. This method of analyzing statistical data involves less time thereby more data can be collected and analyzed in a shorter period of time. Using software such as SPSS “Statistical Package for the Social Sciences” for a qualitative analysis would help save a lot of time and effort. [91] Prior to this process a questionnaire was utilized to collect quantitative data and later the quantitative data collected was analyzed to generate results.

5.2.1 Multiple Regression Analysis

This method of analysis is commonly utilized for quantitative analysis purposes. For this analysis special analysis software was used. Through this analysis various types of data problems could be solved bring in more clarity and accuracy to the analysis. [92] For this statistical analysis multiple regression data analysis was used. The data obtained was sent through the analysis process with the use of the Statistical Package for the Social Sciences (SPSS), the data feed passed the required assumptions for multiple regression and thereby valid results were obtained. The results were presented in the form of tables and graphs. The table would include regression coefficients, standard errors, statistics indicating significance, and goodness-of-fit statistics. The graphs would include histograms and p-p charts.

5.2.3 Validity and Reliability Test

In a quantitative analysis validity is defined as the level of which concepts are measured accurately whereas reliability shows the consistency of measures.[93] For this analysis all the independent variables, dependent variables that are operational were used. The model taken for this analysis was the alpha model. The validity and reliability test are shown in the reliability statistics table and the ANOVA table.

Reliability Statistics		
Cronbach's Alpha	Cronbach's Alpha Based on Standardized Items	N of Items
.858	.914	20

Table 2.1 Reliability Statistics

ANOVA						
		Sum of Squares	df	Mean Square	F	Sig
Between People		6373.863	276	23.094		
Within People	Between Items	128170.732	19	6745.828	2064.174	.000
	Residual	17137.668	5244	3.268		
	Total	145308.400	5263	27.609		
Total		151682.263	5539	27.384		
Grand Mean = 4.47						

Table 2.2 ANOVA

Reporting

The 2.1 Reliability Statistics Table shows that the Cronbach's alpha is at (.858). Thereby the internal consistency is considered excellent as it's above (70).

The 2.2 ANOVA Table shows that the value of F is at (2064.174), which reaches significance with a *p*-value of (.000) which is less than the (.05) alpha level. This means there is a statistically significant difference between the different levels of the challengers faced in online teaching.

5.2.4 Normality Testing

The two methods used in normality testing are graphical methods and numerical methods. [94] For statistics Skewness and Kurtosis was selected. For Histograms normal curve on Histogram was selected. If the Kurtosis curve is greater than (3) it is taken as Leptokurtic, if the Kurtosis curve is less than (3) it is taken as Platykurtic.[95] This analysis included Frequency table and Histograms.

		Statistics			
		Motivation	IT Infrastructure	Time Management	Increased Workload
N	Valid	277	277	277	277
	Missing	0	0	0	0
Std. Deviation		7.339	3.411	.974	1.119
Skewness		-.616	-.673	1.268	-.373
Std. Error of Skewness		.146	.146	.146	.146
Kurtosis		-.811	-.957	2.549	-1.220
Std. Error of Kurtosis		.292	.292	.292	.292

Table 2.3 Statistics

Reporting

The 2.3 Statistics Table denotes the Skewness of the dependent variables are between (-1) and (+1) which shows the distribution is highly skewed. Since the kurtosis values are less than (3) the dataset shows a lighter tail than shown in a normal data distribution. This says that the data are Flatted or Platykurtic.

Frequency Table

		Statistics						
		Lack of concentrati on due to distractions	Lack of discipline of students in online mode	Lack of social interaction	Monotonous teaching	Difficulty in adapting to technology	Limitations in resources	Financial constraints
N	Valid	277	277	277	277	277	277	277
	Missing	0	0	0	0	0	0	0
Skewness		-.251	-.670	-.412	.659	-1.087	-.752	-.440
Std. Error of Skewness		.146	.146	.146	.146	.146	.146	.146
Kurtosis		-1.103	-.870	-.834	-.994	.820	-.671	-1.307
Std. Error of Kurtosis		.292	.292	.292	.292	.292	.292	.292

Table 2.4 Frequency

Histogram - Motivation

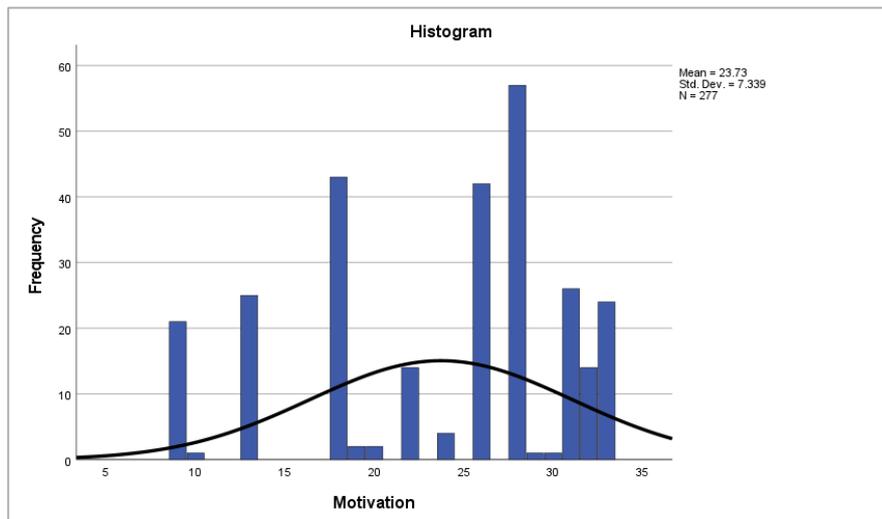


Figure 2.1 Motivation Histogram

Reporting

The 2.4 Statistics Table denotes that the independent variables in Motivation are between (-1) and (+1) which shows the distribution is highly skewed. Since the kurtosis values are less than (3) the dataset shows a lighter tail than shown in a normal data distribution. This says that the data are Flatted or Platykurtic.

Figure 2.1 Motivation Histogram shows the set of data that’s displayed according to the Motivation Frequency Table.

Frequency Table

		Statistics		
		Lack of experience	Lack of knowledge	Unequal distribution of IT Infrastructure
N	Valid	277	277	277
	Missing	0	0	0
Skewness		-.490	-.505	-.547
Std. Error of Skewness		.146	.146	.146
Kurtosis		-.633	-.969	-1.226
Std. Error of Kurtosis		.292	.292	.292

Table 2.5 Frequency

Histogram – IT Infrastructure

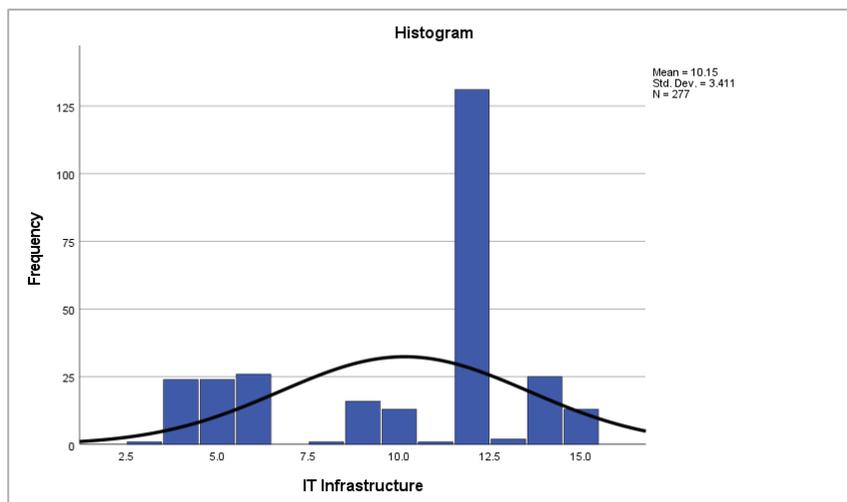


Figure 2.2 IT Infrastructure Histogram

Reporting

The 2.5 Statistics Table denotes that the independent variables in IT Infrastructure are between (-1) and (+1) which shows the distribution is highly skewed. Since the kurtosis values are less than (3) the dataset shows a lighter tail than shown in a normal data distribution. This says that the data are Flatted or Platykurtic.

Figure 2.2 IT Infrastructure Histogram shows the set of data that's displayed according to the IT Infrastructure Frequency Table.

Frequency Table

		Statistics		
		No time restrictions	Ignoring deadlines	More time consuming
N	Valid	277	277	277
	Missing	0	0	0
Skewness		.495	.324	-.022
Std. Error of Skewness		.146	.146	.146
Kurtosis		-.858	.845	-2.014
Std. Error of Kurtosis		.292	.292	.292

Table 2.6 Frequency

Histogram - Time Management

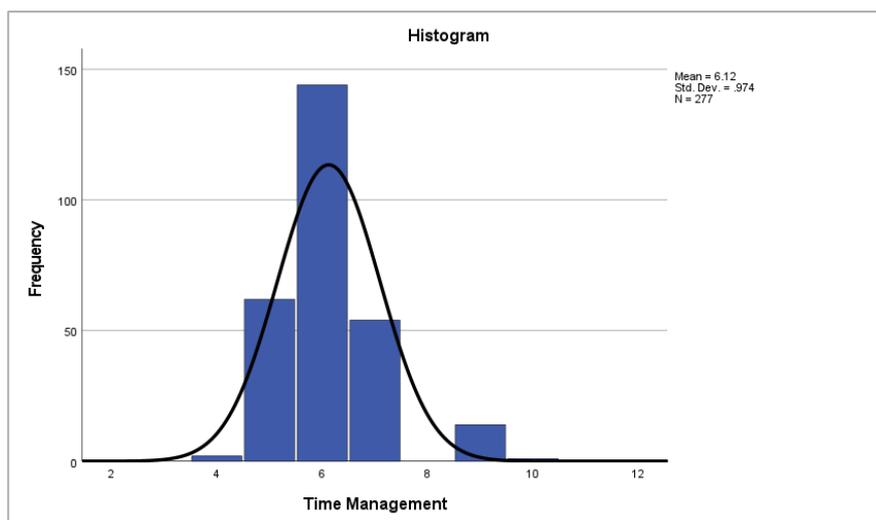


Figure 2.3 Time Management Histogram

Repotting

The 2.6 Statistics Table denotes that the independent variables in Time Management are between (-1) and (+1) which shows the distribution is highly skewed. Since the kurtosis values are less than (3) the dataset shows a lighter tail than shown in a normal data distribution. This says that the data are Flatted or Platykurtic.

Figure 2.3 Time Management Histogram shows the set of data that's displayed according to the Time Management Frequency Table.

		Statistics		
		Keeping track of students work	Difficulty in online marking	More teaching methodologies followed
N	Valid	277	277	277
	Missing	0	0	0
Skewness		.361	-.182	-1.167
Std. Error of Skewness		.146	.146	.146
Kurtosis		-1.883	-1.981	-.644
Std. Error of Kurtosis		.292	.292	.292

Table 2.7 Frequency

Histogram - Increased Workload

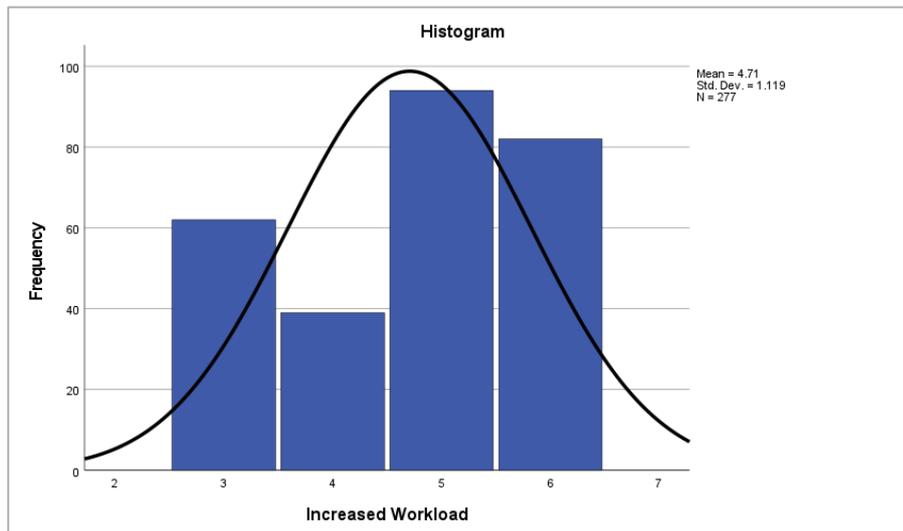


Figure 2.4 Increased Workload Histogram

Reporting

The 2.7 Statistics Table denotes that the independent variables in Increased Workload are between (-1) and (+1) which shows the distribution is highly skewed. Since the kurtosis values are less than (3) the dataset shows a lighter tail than shown in a normal data distribution. This says that the data are Flatted or Platykurtic.

Figure 2.4 Increased Workload Histogram shows the set of data that's displayed according to the Increased Workload Frequency Table.

5.2.5 Correlation Analysis

This analysis is done to analyze relationships among both independent and dependent variables. [96] If there is (+) or (-) at the start of a Pearson's correlational coefficient value, it would indicate that there is a negative or positive correlation between the variables. There is no relationship between variables if there is (0) indicated.

Correlations

		Correlations			
		Motivation	IT Infrastructure	Time Management	Increased Workload
Motivation	Pearson Correlation	1	.696**	.158**	.350**
	Sig. (2-tailed)	.000	<.001	.008	<.001
	N	277	277	277	277
IT Infrastructure	Pearson Correlation	.696**	1	.042	.509**
	Sig. (2-tailed)	<.001	.000	.481	<.001
	N	277	277	277	277
Time Management	Pearson Correlation	.158**	.042	1	.352**
	Sig. (2-tailed)	.008	.481	.000	<.001
	N	277	277	277	277
Increased Workload	Pearson Correlation	.350**	.509**	.352**	1
	Sig. (2-tailed)	<.001	<.001	<.001	.000
	N	277	277	277	277

** . Correlation is significant at the 0.01 level (2-tailed).

Table 2.5 Correlations

Report

The 2.5 Correlations Table denotes that the Pearson Correlation for Motivation, IT Infrastructure, Time Management and Increased Workload, is at (1) and the Sig. (2-tailed) is at (.000) which indicates that the correlation is of highest significance.

The Correlations Table also shows the Pearson Correlation between Time management and Increased Workload at (.352) this indicates that there is a relationship between Time Management and the Increased Workload in online teaching during Covid-19. This satisfied Hypothesis # 3 which predicted that there is a relationship between Time Management and the increased Workload in online teaching during Covid-19.

5.2.6 Multicollinearity Analysis

Multicollinearity takes place when the multiple regression analysis involves multiple variables that are correlated with the dependent variables and with each other. [97] Multicollinearity affects p-values and coefficients but has no influence on the predictions.

Correlations

		Correlations			
		Motivation	IT Infrastructure	Time Management	Increased Workload
Motivation	Pearson Correlation	1	.696**	.158**	.350**
	Sig. (2-tailed)	.000	<.001	.008	<.001
	N	277	277	277	277
IT Infrastructure	Pearson Correlation	.696**	1	.042	.509**
	Sig. (2-tailed)	<.001	.000	.481	<.001
	N	277	277	277	277
Time Management	Pearson Correlation	.158**	.042	1	.352**
	Sig. (2-tailed)	.008	.481	.000	<.001
	N	277	277	277	277
Increased Workload	Pearson Correlation	.350**	.509**	.352**	1
	Sig. (2-tailed)	<.001	<.001	<.001	.000
	N	277	277	277	277

** . Correlation is significant at the 0.01 level (2-tailed).

Table 2.6 Correlations

Reporting

Two diagnostics were done to identify Multicollinearity:

- Analysis of the correlation matrix.
- Compare the tolerance values with the variance inflation factor.
 - Analysis of the correlation matrix

Correlation matrix lets you compare correlation of coefficients of an independent variable. Pearson's correlation differs between (+1) and (-1). (+1) indicates that it's a positive correlation whereas (-1) indicates that it's a negative correlation. (0) indicates that there no correlation. [98] The 2.6 Correlations Table shows that the Pearson Correlation for Motivation, IT Infrastructure, Time Management and Increased Workload is at (1) and the Sig. (2-tailed) is at (.000) which indicates that the correlation is of highest significance.

Coefficients

		Coefficients^a						
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.	Collinearity Statistics	
		B	Std. Error	Beta			Tolerance	VIF
1	(Constant)	-.737	.177		-4.172	<.001		
	Motivation	.152	.005	.935	31.158	<.001	.496	2.016
	IT Infrastructure	-.059	.012	-.170	-5.122	<.001	.407	2.454
	Time Management	-.017	.029	-.014	-.587	.558	.818	1.223
	Increased Workload	.287	.029	.269	10.071	<.001	.627	1.595

a. Dependent Variable: Challenges in facilitating online teaching

Table 2.7 Coefficients

- Compare the tolerance values with the variance inflation factor.

In values that are of low tolerance a high level of multicollinearity is shown. To analyze this composition, a variable that is dependent is selected into dependent and also composition variable that's independent into independent.[99] Lower tolerance values reflect a higher degree of multicollinearity. When the tolerance value is greater than (0.2) and the variance inflation factor is less than (5) there is no risk of multicollinearity. The tolerance values in the 2.7 Coefficients Table were higher than (0.2) and the VIF values were less than (5) thereby it was shown that the VIF values were within the expected range which indicated that the multiple regression analysis could be carried out.

5.2.7 Collinearity Diagnostics

Collinearity Diagnostics ^a								
Model	Dimension	Eigenvalue	Condition Index	Variance Proportions				
				(Constant)	Motivation	IT Infrastructure	Time Management	Increased Workload
1	1	4.845	1.000	.00	.00	.00	.00	.00
	2	.086	7.500	.04	.11	.17	.06	.01
	3	.037	11.449	.02	.44	.15	.02	.37
	4	.021	15.216	.20	.41	.53	.00	.52
	5	.011	20.824	.75	.04	.15	.92	.09

a. Dependent Variable: Challenges in facilitating online teaching

Table 2.8 Collinearity Diagnostics

Reporting

Most experts in the field take (30) as the number that is used for further investigation. [100] The 2.8 Collinearity Diagnostics Table shows that the Variance Proportion columns values are less than (90) thereby it could be said that there is no collinearity problem between the predictors. Collinearity Diagnostics Table indicates that the values in the condition index is less than (30) and the values in the Eigenvalue column are close to zero thereby there would be no collinearity.

5.2.8 Model Summary

Model Summary ^b										
Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics					Durbin-Watson
					R Square Change	F Change	df1	df2	Sig. F Change	
1	.937 ^a	.878	.877	.420	.878	491.323	4	272	<.001	1.711
a. Predictors: (Constant), Increased Workload, Motivation, Time Management, IT Infrastructure										
b. Dependent Variable: Challenges in facilitating online teaching										

Table 2.9 Model Summary

Reporting

The model summary should not be less than (1) and not greater than (3) when it's the Durbin Watson value. [101] In the 2.9 Model Summary Table the Durbin Watson value is shown at (1.711) which meets the said criteria. This table represents the summary where the *R* squared value is at (.878). The statistical significance is at (.001) thereby the $P < (.05)$ criteria is met. The *R* squared value that is at (.878) shows that variants in the challenges faced in online teaching were predicted from the level of predictors. This shows that the prediction level is good. The Model Summary shows *R* at (.937) *R* square at (.878) adjusted *R* square at (.877) and also the standard error of the estimate at (.420). This indicates how well the data fits in the regression model. In the multiple correlation coefficient *R* is shown at (.937) which indicates that there is a good level of prediction. *R* is known to be the measure of quality of a dependent variable that would be predicted.

5.2.9 ANOVA table

ANOVA ^a						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	346.101	4	86.525	491.323	<.001 ^b
	Residual	47.901	272	.176		
	Total	394.002	276			

a. Dependent Variable: Challenges in facilitating online teaching
b. Predictors: (Constant), Increased Workload, Motivation, Time Management, IT Infrastructure

Table 2.10 ANOVA table

Reporting

ANOVA test are done to check if the regression is good for data analysis. The regression is considered good for data analysis if the significant value is less than (0.0005). [102] The 2.10 ANOVA Table was able to statistically predict variables that are dependent. It also checked if the multiple regression model was a good fit for the analysis of data. In this analysis the ANOVA Table indicated the independent variables that are the protectors, were statistically able to predict the dependent variable that are the challengers faced in online teaching. It also shows that the F value is at (491.323) and the Sig value is at (.001) which indicates that the $P < (.05)$ criteria is met.

5.2.10 Coefficients

		Coefficients ^a				
Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	-.737	.177		-4.172	<.001
	Motivation	.152	.005	.935	31.158	<.001
	IT Infrastructure	-.059	.012	-.170	-5.122	<.001
	Time Management	-.017	.029	-.014	-.587	.558
	Increased Workload	.287	.029	.269	10.071	<.001

a. Dependent Variable: Challenges in facilitating online teaching

Table 2.11 Coefficients

Reporting

The 2.11 Coefficients table shows that $p < (.05)$, thereby it could be said that the coefficients are statistically and significantly different from (0), this indicates that the correlation coefficient is “significant.” The Coefficients indicate as to how the dependent variables varies from the independent variable when all of the other independent variables are constant. [103]

Unstandardized Coefficients B shows that Motivation which is at (.152) and Increased workload which is at (.287) has a positive impact whereas IT Infrastructure which is at (-.059) and Time Management which is at (-.017) has a negative impact on the Challenges in facilitating online teaching. Which confirms the first and the second hypothesis.

This reporting satisfies Hypothesis # 1 which predicted that the decrease in Motivation which indicates the lack of motivation in teachers would have a positive impacted on teachers who engage in online teaching during Covid-19.

And Hypothesis # 2 which predicted the lack of proper IT Infrastructure would have a negative impact on teachers who engage in online teaching during Covid-19.

5.2.11 Residual Statistics

Residuals Statistics ^a					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.10	5.06	3.52	1.120	277
Residual	-.973	1.110	.000	.417	277
Std. Predicted Value	-2.166	1.374	.000	1.000	277
Std. Residual	-2.318	2.645	.000	.993	277

a. Dependent Variable: Challenges in facilitating online teaching

Table 2.12 Residual Statistics

Reporting

The 2.12 Residual Statistics Table shows the residual standards of both minimum and maximum values are not less than or more than (3). If it does it's an outlier which needs to be removed and the test should be redone. [104] In this table the minimum residual value is shown at (-.973) and the maximum at (1.110) which meets the said criteria without outliers. Linear regression involves the interpretation and the analysis of various residuals in order to confirm the expectations of statistical tests. [105]

5.2.12 P-P Plot

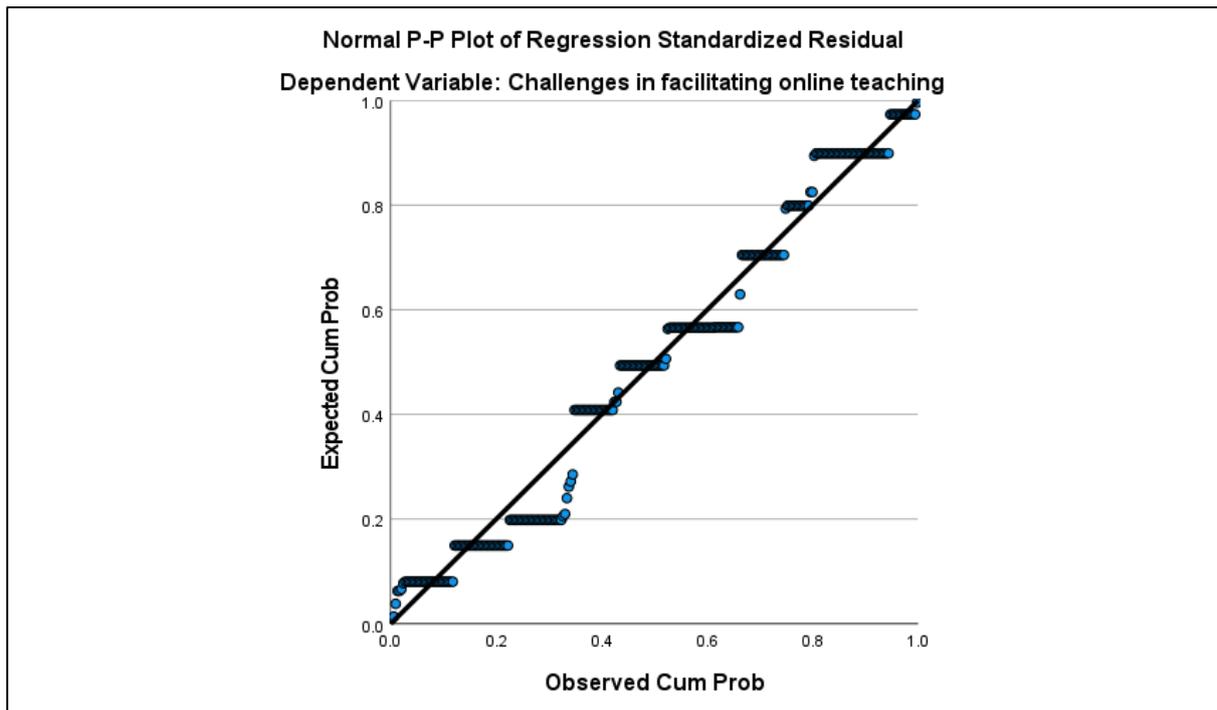


Figure 2.5 P-P Plot

Reporting

Figure 4.1 P-P Plot shows that the plot distribution is normal thereby the dependent variables are distributed well. The P-P plot observations are shown in the form of short lines. The predicted line in regression is shown in the form of a solid diagonal line. The diagonal line indicates that there are normally distributed residual values.

5.2.13 Scatterplot

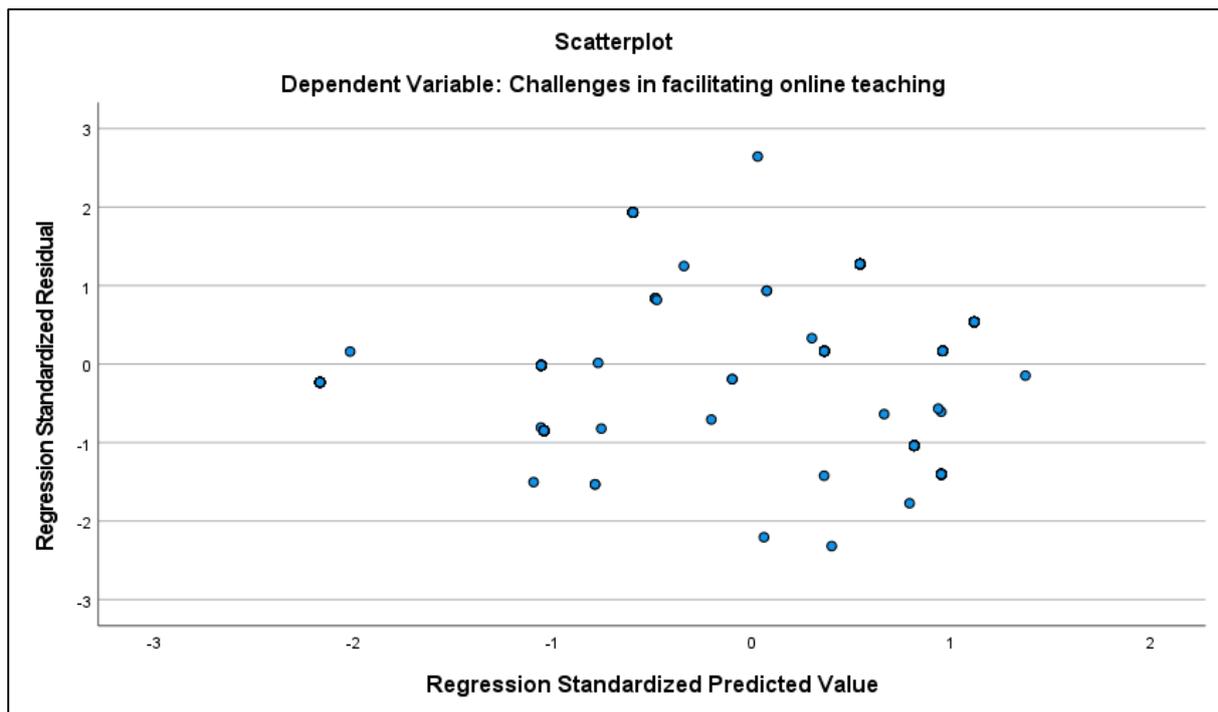


Figure 2.6 Scatterplot

Reporting

Figure 4.2 Scatterplot shows that the plot distribution of both positive and negative sides of the horizontal line data are presented. The vertical distance is the residual. A dot in the scatter plot indicates one single data point. The several dot that are scattered on the scatter plot shows that there's low correlation between variables. It could be said that this scatter plot has a low positive correlation as the height of the dots shows a slight increase.

5.3 Summary of Analysis

The two types of data analysis that was performed were qualitative analysis and quantitative analysis. A thematic analysis was done with the qualitative data. This analysis systematically recognized organized and categorically sorted the data into themes. The themes were categorized as Motivation, IT infrastructure, Time management and Increase workload. An analytical narrative was weaved together to draw up a thematic analysis map which was the final outcome of the analysis. Multiple regression was used as a statistical procedure to analyze the quantitative data. The data obtained was sent through the analysis process with the use of the Statistical Package for the Social Sciences (SPSS), the data feed passed the required assumptions for multiple regression and thereby valid results were obtained. The results were presented in the form of tables and graphs. The tables would include Reliability Statistics table, ANOVA table, Frequency tables, Correlations table, Coefficients table, Collinearity Diagnostics table, Model Summary table and Residual Statistics table. The graphs would include histograms and p-p plots.

The Reliability Statistics test showed that the Cronbach's alpha was at (.858). Thereby the internal consistency was considered excellent as it was above (.70). The ANOVA test showed that the value of F was at (2064.174), which reached significance with a *p*-value of (.000) which was less than the (.05) alpha level. This meant that there was a statistically significant difference between the different levels of the challengers faced in online teaching variables. The Normality testing showed that the Skewness of the dependent variables and the independent variables were between (-1) and (+1) which indicated that the distribution was highly skewed. Since the kurtosis values were less than (3) the dataset showed a lighter tail than shown in a normal data distribution. This indicated that the data were Flatted or Platykurtic which was also shown in the related Histograms.

The Correlations test results revealed that the Pearson Correlation for Motivation, IT Infrastructure, Time Management and Increased Workload, was at (1) and the Sig. (2-tailed) was at (.000) which indicated that the correlation was of heist significance.

Two diagnostics were done to identify Multicollinearity. The analysis of the correlation matrix revealed that the Pearson Correlation for Motivation, IT Infrastructure, Time Management and Increased Workload was at (1) and the Sig. (2-tailed) was at (.000) which indicated that the

correlation was of highest significance. The second diagnostics was the comparison the tolerance values with the variance inflation factor. The Coefficients test revealed the tolerance values which were higher than (0.2) and the VIF values were less than (5) thereby it was revealed that the VIF values were within the expected range.

Collinearity diagnostics test showed that the Variance Proportion columns values were less than (90) thereby it was shown that there was no collinearity problem between the predictors. The values in the condition index was less than (30) and the values in the Eigenvalue column were close to zero thereby there was no collinearity.

The Model Summary test results showed that the Durbin Watson value was at (1.711) which met the said criteria. The summary indicated that the R squared value was at (.878). The statistical significance was at (.001) thereby the ($P < .05$) criteria was met. The R squared value that was (.878) showed that variants in the challenges faced in online teaching were predicted from the level of predictors. This showed that the prediction level was good. The Model Summary showed R at (.937) R square at (.878) adjusted R square at (.877) and also the standard error of the estimate at (.420). This indicated how well the data fitted in the regression model. In the multiple correlation coefficient R was shown at (.937) which indicated that there was a good level of prediction.

The ANOVA test showed that the multiple regression model was a good fit for the analysis of data. It indicated the independent variables that were the predictors, which were statistically able to predict the dependent variable that are the challenges faced in online teaching. This also showed the value of F at (491.323) and the value of Sig at (.001) which indicated that the $P < (.05)$ criteria was met.

The Coefficients test showed that $p < (.05)$, thereby it indicated that the coefficients were statistically and significantly different from (0). Unstandardized Coefficients B showed that Motivation which is at (.152) and Increased Workload which is at (.287) had a positive impact whereas IT Infrastructure which is at (-.059) and Time Management which is at (-.017) had a negative impact on the Challenges in facilitating online teaching.

The Residual Statistics test showed the residual standards of both minimum and maximum values were not less than or more than (3). This showed the minimum residual value at (-.973) and the maximum at (1.110) which met the said criteria without outliers.

The P-P Plot showed that the plot distribution was normal thereby the dependent variables were distributed well. The Scatterplot showed the plot distribution of both positive and negative sides of the horizontal line data that were presented. It was indicated that the scatter plot had a low positive correlation as the height of the dots showed a slight increase.

In the analysis the hypothesis predictions and relationships were empirically tested, and the results confirmed that the unstandardized coefficient B for Motivation was at (-.152). This indicated that for each one-unit increase in Motivation, there was a decrease in Challenges in facilitating online teaching (-.152) units. Which revealed that Motivation had a negative impact on the Challenges in facilitating online teaching. This satisfied Hypothesis # 1 which predicted that the decrease in Motivation which indicates the lack of motivation in teachers would have a positive impacted on teachers who engage in online teaching during Covid-19.

The unstandardized coefficient B for IT Infrastructure was at (-.059). This indicated that for each one-unit increase in IT Infrastructure, there was a decrease in Challenges in facilitating online teaching. (-.059) units. Which revealed that IT Infrastructure had a negative impact on the Challenges in facilitating online teaching. This satisfied Hypothesis # 2 which predicted the lack of proper IT Infrastructure would have a negative impact on teachers who engage in online teaching during Covid-19.

The Pearson Correlation between Time management and Increased Workload was at (.352) this indicated that there was a relationship between Time Management and the Increased Workload in online teaching during Covid-19. This satisfied Hypothesis # 3 which predicted that there is a relationship between Time Management and the increased Workload in online teaching during Covid-19.

The four factors Motivation, IT Infrastructure, Time Management and Increased Workload and its related independent variables that was obtained from the qualitative analysis was used in the quantitative analysis. Finally according to all the analysis results, it was revealed that the data was normally distributed and had relationships between multiple independent and dependent variables.

Chapter 6 Discussion

This research discussed the challenges in facilitating online teaching during the Covid-19 pandemic. The pandemic has shown us many inadequacies in the education systems, from the lack of proper IT Infrastructure to skill and competence of teachers. The community involvement in education has made tremendous efforts to continue the online teaching and learning process during the pandemic. Teachers had to adapt to technologically based pedagogy and new methods of delivery without prior experience or knowledge. The most marginalized communities who lack resources or even the basic requirements for teaching and learning had to face the most challenges in pursuing the task of distance education. It is important to find the gaps in the challenges faced by teachers in online teaching in order to provide solutions in bringing sustainable reform in education. Through the observations of this study it was revealed that the teachers faced common problems in online teaching. This study has effectively shown the challenges faced by teachers in online teaching, bringing to light specific areas that effect and stalls the process.

The challengers identified in this research were categorized as motivation, IT Infrastructure, time management and the increased workload. The challengers were recognized through the review of literature and the data obtained through interviews and the questionnaire. The challengers that were recognized through the interviews were many, these challengers were categorized in order to bring more clarity and understanding as to how it effects certain areas in online teaching. These characterized areas were used in constructing the questionnaire for data collection. Teachers who had similar experiences and faced similar challengers were able to express their experiences in answering the questioner. The data collected from the questionnaire was analyzed in order to obtain statistical results. This brought to light the areas that needs focus and attention so that the smooth function of online teaching could take place.

There are many challengers that impacted the motivational factor in online teaching. Limitations in resources was one such challenge. The lack of resources hindered the process of online teaching. To engage in the process both teacher and the student needed devices, software and proper internet connectivity. The main reason behind device, software and connectivity issues were financial constraints as teachers are poorly paid and the affordability of technology was farfetched. Teachers who are used to conventional methods of teaching have been reluctant to adapt to the new method of teaching. This is mainly because they didn't possess the skill

and the knowhow to adapt to the new requirement. Some teachers indicated that online teaching methods were monotonous and needed more interaction with student to have a more fruitful outcome in their teaching. For teachers meeting with the teaching community was greatly missed, this brought about a sense of discontent. Their ideas and aspirations could not be shared among the teaching community as they did before. Their problems could no longer be discussed with their fellow teachers. Teachers very often felt they were alone during these challenging times. There were many distractions faced by teachers in online teaching. Teachers were distracted mainly because they did not have the required teaching environment to engage in the process successfully. They were faced with many distractions both within their environment and also on the other end students were distracted for many reasons which made the teaching process difficult. Indiscipline behavior by the students were experienced mainly because of distractions and the lack of concentration.

The lack of experience in the field of technology led to great confusion and stress as teachers had to switch from conventional teaching to digitized teaching overnight. Making use of various platforms and mastering the online teaching process was no easy task. The teachers were not equipped with resources and did not have the expertise or the know how to engage in the task. The teachers had to teach themselves in order to get on board with the others who were proficient in the subject. Technophobia in teachers had caused anxiety and resistance to online teaching. The technological involvement and the attitude teachers had towards online teaching had created tension among teachers as they lacked the confidence to carry out the process. It was not all teachers who had the luxury of having the right resources and skills to carry out the task of online teaching. The Unequal distribution of IT Infrastructure was clearly felt by most of the teachers as most of them had to make do with the limited technological resources they had or brow as they were not financially stable to purches the technological resources that was essential for the online teaching process.

Online teaching involves proper time management as it is a time consuming task. There are vast amounts of material out there to choose from. Teachers needed to be aware of the most appropriate technological materials that would bring out the best in both teaching and learning which was a time consuming task was. Preparation for online teaching takes time and it is done round the clock. There are no time limitations in online teaching thereby it was discovered that teachers worked more than usual. Teaching has now become a 24/7 job as teachers no longer teach within the conventional time frame of five days of the week. Students upload work round

the clock as they often disregard deadlines. Responding to student's queries and also marking work as and when students upload has a negative impact on online teaching. Teachers find it stressful and are overwhelmed in coping with the new system of online teaching. It takes more time to teach and interact with students than in conventional teaching as online teaching involves online discussions, responding to student's emails, online evaluation, recording grades, uploading learning material and even solving technical problems.

The workload involved in online teaching is said to be overwhelming as teachers have to cope with the use of unfamiliar digital technologies. There is always an overflow of work that keeps flooding in at all times. Keeping track of students work and responding to all the queries is a difficult task. Preparation of online material is the task that involves the most amount of work. Most of the time it involves converting and modifying conventional learning content into digital learning content. The work load is increased as students request for more support as they are dealing with unfamiliar learning content hence teachers have to be available to offer students the help needed as and when required. Teachers struggle to do online marking as they don't possess the state of the art technology required for the task, they have to make do with the technology they already have which prolongs the process. The use of various digital teaching methods and software adds to the workload and can be stressful process. Coping with the added workload has taken away the sense of satisfaction that teachers have at the end of a job well done.

The findings of this study have been consistent and reliable in keeping with the research topic the challenges in facilitating online teaching for secondary education during the Covid-19 Pandemic. With these findings that derived from the interviews and survey analysis it was revealed that the challenges faced in online teaching were common to all teachers across the globe. It was also revealed that the challenges had not stalled or stopped the process of online teaching. The findings of the research finally brought to light that even in the midst of dire circumstances teachers were at work trying their best to overcome the challenges faced in online teaching the best way possible.

Chapter 7 Limitations

The main limitation of this research was the collection of secondary data as there was limited literature that was published on the challenges faced in facilitating online teaching during the COVID 19 pandemic. It was clear that there was a lack in research studies in this particular area as it is a relatively new topic and because the COVID-19 outbreak brought the operational habits of the academic sector across the globe to an abrupt halt. Therefore for research activity to take place within this short span of time was an impracticable task. Although there was limited literature on the challenges faced in online teaching during Covid-19 in particular there were many sources of literature on the challenges faced in the online teaching process in general. The data collection was a challenging task as there were lockdowns imposed every now and then with the increase of Covid-19 deaths and infections. Although most of the data collection took place on line, the task would have been much easier and quicker if the teachers were approached in person. There were technological limitations experienced in the data collection process as some teachers had limited data packages that was mainly used for school work thereby the use of data for other purposes were limited. With the new turn of event in the field of education all teachers were found to be busy trying to cope with the new method of teaching thereby sparing time to make a contribution of their experiences to the research was a challenging task. Obtaining of the sample size from the Department of Education Isurupiya was a prolong process as all Government offices ceased to function during the lockdown. The data could be obtained only when the authorities declared that government offices could function with limited operations.

Chapter 8 Recommendations

Many are the pedagogical and technological challengers faced in online teaching nevertheless measures could be taken to overcome these challengers, firstly by giving ear to the teacher's involved in the online teaching process. Teachers need the support of the authorities in overcoming the challengers faced in online teaching as they are unable to carry out the process single handedly. The revamping or rebuilding of the technological infrastructure should be of paramount importance. Online educational portals could be introduced so that an error free, user-friendly, robust, interactive online teaching and learning could take place. Adequate funds should be allocated for this process so that both teacher and student could benefit from it. Teachers should be given the required devices and the software needed for teaching as it was discovered in this research that teachers purchased devices and software at their own expense. The cost of data has also effected the online teaching process there by teachers should be given an allowance or free data so that they would not have to limit their teaching because of the cost of data. Steps should be taken to digitize print material so that the online teaching and learning would be convenient and less time consuming for both student and teacher. Computer literacy of teachers should be improved by providing training and the required learning resources so that the teachers would not fear technology or resist its use. Teachers need to be given the required support from the schools administration and government authorities so that they would have the confidence and the assurance to continue in the online teaching process. It was revealed that the sudden switch to online teaching had an adverse effect on teachers both emotionally and socially. Teachers had been under stress and even experienced burnout as they were unable to cope with the increased workload and the management of time. Measures should be brought in so that teachers would be given proper training on how to cope with online teaching so that teachers would be able to achieve their full potential in online teaching. Also teachers have been feeling a sense of disconnection with fellow teachers as they were unable to share their problems or collectively find solutions to the problems that they were faced with in online teaching. It is necessary that programs are introduced in order to bring about emotional and social wellbeing in teachers so that teachers would experience greater satisfaction in teaching.

Chapter 9 Conclusion

The findings of this research indicated that the challenges in facilitating online teaching during the COVID-19 pandemic for secondary schools were many. Teachers were unprepared and unequipped to face the sudden switch from conventional teaching to online teaching and also to take up a task of this magnitude. Although the data collected in this research revealed that the teachers encountered many challenges in online teaching it was also revealed that despite of all the challenges, the teachers continued the online teaching process. For this research a mixed method of data collection and analysis was conducted. The integration of qualitative and quantitative data collection and analysis provided a comprehensive and clear understanding of the final outcome of the research.

The transition from conventional teaching to online teaching made the teachers vulnerable to the new process of teaching, which was a considerable demotivating factor. The teachers lacked the environment, the resources, the skills and the experience to confidently engage in the online teaching process. There were many shortcomings in the IT infrastructure as it failed to provide the services, equipment and the facilities that was required for online education. Teachers found it difficult to manage their time with the new method of teaching and the increased work load. Thereby it is vital that authorities take necessary steps to provide the teachers with the needed requirements to face the new technological era of education. The teachers should be given the proper training to develop the required skills and knowledge to pursue the task of online teaching.

Although this year has been a process of mastering online teaching, it could be said through trial and error the set targets and goals were achieved, despite the numerous challenges encountered in online teaching during the Covid-19 pandemic. Through the findings of the research it was revealed that the pandemic had not stalled or hindered online teaching but teachers had been at work catering to the educational needs of each and every student in spite of the drawbacks and the hardship faced in the process. In the midst of all the challenges the pandemic showcased the resilience and commitment of teachers, the determination and courage they possessed in taking up any challenge in any given situation.

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Appendix 1: Questionnaire in English

Challenges in facilitating online teaching for secondary education during the Covid-19 Pandemic.

This survey is being conducted as a part of a Masters in IT student research for SLIIT/University.

Directions: Please indicate your level of agreement or disagreement with each of these statements regarding the challenges in facilitating online teaching for secondary education during the Covid-19 Pandemic. Place an "X" mark in the box of your answer.

School: (Government / Private / International)

District: (Colombo/ Gampaha/ Kaluthara)

	Statement	Strongly Agree	Agree	Neutral	Disagree	Strongly Disagree
A	Motivation					
1	I feel less motivated to engage in online teaching as it is hard to concentrate on teaching amidst distractions at home.					
2	I feel less motivated to engage in online teaching as students misbehave during the online classroom sessions and it is difficult to control such behavior.					
3	I feel less motivated to engage in online teaching as it does not allow me to interact with staff members which gives me a sense of security, safety and belonging.					
4	I am less motivated when having to follow monotonous online teaching methods as it does not facilitate practical teaching sessions and has low student-teacher interaction.					
5	I am less motivated as I face many difficulties in adapting to unfamiliar technology as it adds complexity to teaching.					
6	I find myself less motivated when faced with limitations in technology. Which makes it difficult for me to keep up with the many technological changes and trends in teaching.					
7	I am less motivated in carrying out online teaching due to financial constraints, which includes data cost, and not having compatible devices and software.					

B IT Infrastructure						
1	My lack of experience in handling technology puts me in a position where I struggle to handle technological queries asked by students and offer them the technological support they often need.					
2	My lack of knowledge and skill in handling technology affects my confidence and my attitude towards teaching.					
3	Unequal distribution of IT Infrastructure does not let me have equal opportunity in using my talents and expertise in reaching my highest potential.					
C Time management						
1	I find it difficult to manage time when set time limits and reminders are disregarded by students.					
2	Online teaching is more time-consuming as teachers have to prepare lessons, post work and assess, in addition to instruction time.					
3	Providing the students with ongoing feedback and detailed instruction on lessons using various online teaching methods takes more time than teaching in person.					
D Increased workload						
1	Keeping track of students' individual work adds to the workload as individual comments and remarks cannot be made face to face or in person.					
2	There is more work involved in online marking than conventional methods of marking as most teachers do not have access to technology that makes marking easy.					
3	Using various online teaching methods, software and platforms increases the workload of teachers as they have to familiarize themselves with the technology and resources.					
E Additional Comments:						

Appendix 2: Questionnaire in Sinhala

කොවිඩ් -19 වසංගත සමයේ දී ද්විතීය අධ්‍යාපනයට අදාළ මාර්ගස්ථ ඉගැන්වීම් සිදු කිරීමේ ඇති අභියෝග.

SLIIT/ලීට් වීද්‍යාලයේ පොදුතුරු තාක්ෂණ සිසා පර්යේෂණ වල කොටසක් ලෙස මෙම සමීක්ෂණය සිදු කෙරේ.

උපදෙස්: කොවිඩ් -19 වසංගත සමයේ දී ද්විතීය අධ්‍යාපනයට අදාළ මාර්ගස්ථ ඉගැන්වීම් සිදු කිරීමේ දී ඇති අභියෝග වලට අදාළ මෙම එක් එක් ප්‍රකාශන වලට සිසාගේ එකඟත්වය හෝ විරුද්ධතාවයේ මට්ටම් නිරූපණයට පටහැන් කරන්න. සිසාගේ පිළිතුරට අදාළ කොටුව තුළ නිරූපණය "X" ලකුණක් යොදන්න.

නමුත්: (එදම / පුද්ගලික / රහස්‍යාත්මක)

දිස්ත්‍රික්කය: (නොදැන / මගේම / කරන)

ප්‍රකාශය	දැඩිව එරෙහිව	එතරම්	මධ්‍යස්ථ ව	විදුරුව	දැඩිව විරුද්ධව
A උපන්ද්‍රව					
1 නිවසේ තිබෙන තත්වය තුළ මාර්ගස්ථ ඉගැන්වීම් වලදී අවධානය යොමු වීම අපහසු නිසා එම ඉගැන්වීම් එතරම් භාරදීමට නොහැකි බව මාගේ විරුද්ධතාවයයි.					
2 මාර්ගස්ථ පාඨ පොත්වලින් අන්තර්ජාලයේ සිසුන්ගේ අවබෝධයට කටයුතු කිරීමට පැවැත්වීමට ක්‍රමයක් නොමැති නිසා එම ඉගැන්වීම් එතරම් භාරදීමට නොහැකි බව මාගේ අවබෝධයයි.					
3 කාර්ය මණ්ඩල සමඟ එක්ව ප්‍රායෝගිකව වැඩ කිරීමේදී නිසියම් අන්තර්ක්‍රමණයක්, දිරිමත්කරණයක් හා සහයෝගී කමක් ඇතිවන නිසා මාර්ගස්ථ ඉගැන්වීම් වල එය එසේ නොවන නිසා එය භාරදීමට නොහැකි බව මාගේ විරුද්ධතාවයයි.					
4 එකතුවී මාර්ගස්ථ ඉගැන්වීම් ක්‍රමවේද අනුපිටපත කිරීමට සිදුවීම නිසා ප්‍රායෝගිකව ඉගැන්වීම් අපහසුකර ඇති බැවින් අදාළ අවධානයක් සිදු වන නිසා මා එය අනුමත නොකරමි.					
5 නිවැරදි තාක්ෂණයකට පුද්ගලිකව සිදු වෙමින් සිටින රැකියාට පුහුණු කිරීමට සිදුවීම ඉගැන්වීමේ දී සංකීර්ණ ඇති කරන්නන් වන නිසා එය මා තුළ ඇති උනන්දුව ඒක කරන්නක් ලෙස මට නැත.					
6 තාක්ෂණික සිසා වලට කොටුවීමට සිදුවීම මාගේ උනන්දුව ඇති කිරීමකි. එමගින් ඉගැන්වීමේ දී තාක්ෂණ වෙනස්කම් හා ප්‍රවීණතා රැකීමට අනුබල කටයුතු කිරීමට අවස්ථා ඇත.					
7 දුන්ත වියදම් ඇතුළුව මූල්‍ය මාධ්‍යවත් සහ පැලපහන උපකරණ හා පොදුකාම නොමැතිවීම නිසා මාර්ගස්ථ ඉගැන්වීම් මට මාරාන්තු නොදෙන්නකි.					

B IT යටිතල පහසුකම්					
1	තාක්ෂණය භාවිතා කිරීමේ දී මට ඇති අඩු අත්දැකීම් ප්‍රමාණය සිසුන් විසින් අහන තාක්ෂණික ගැටලු නිරාකරණය කර දීමේදී හා සිසුන්ට නිතර අවශ්‍ය කරන තාක්ෂණික සහාය ලබා දීමේ දී මා හට අපහසුතා වැටුපත් කරන්නෙමි.				
2	තාක්ෂණය හැසිරවීමේ දී මාගේ අඩු දැනුම හා හැකියාව ඉගැන්වීම කෙරෙහි මාගේ ඇති විශ්වාසය හා ආකල්ප වලට බලපෑමක් එල්ල කෙරේ.				
3	IT යටිතල පහසුකම්වල අසමාන වෙනස්කම් මාගේ උපරිම හැකියාව හා පළපුරුද්ද පෙන්නුම් කිරීමට මට ඇති සම අවස්ථාව අතීම් කෙරේ.				
C කාල කළමනාකරණය					
1	සිසුන් දී ඇති කාල පිටුවක් හා මසක් කිරීම නිසිදායුතු අනුමැතිය නොකරන නිසා මට කාල කළමනාකරණය අපහසු වී ඇත.				
2	උපදෙස් ලබා දීමට අමතරව පාඩම්, පසු කාර්යයන් හා තත්කේරු කිරීම ඉටුකරගත් කළ යුතු නිසා මාර්ගයට ඉගැන්වීම් යනු වැඩි වේලාවක් ගන්නා කාර්යයකි.				
3	කෙටිමිත් පවතින තත්වය හා විවිධ මාර්ගයන් ඉගැන්වීම් ක්‍රමවේ භාවිතා කර සාධන පිළිබඳ විස්තරාත්මක උපදෙස් සිසුන්ට ලබාදීම සීමාසහිත සීමාසහිත ඉගැන්වීමට වඩා කාලය ගත වන්නකි.				
D අතිරේක කාර්ය ප්‍රමාණය					
1	සිසුන් කරන වැඩ කොටස් බැලීම පුද්ගලිකව හෝ සිසුන්ට සිසුන්ගේ කිරීමට නොහැකි නිසා පැවරී ඇති කාර්ය ප්‍රමාණයට එය තවත් ඔරක් වී ඇත.				
2	ප්‍රශ්න පත්‍ර බැලීම පහසු කරන තාක්ෂණය ඉටුකර වැඩි දෙනෙකුට නොහැකි නිසා සාම්ප්‍රදායික ප්‍රශ්න පත්‍ර පරීක්ෂාවට වඩා වැඩි වැඩ ප්‍රමාණයක් මාර්ගයට ප්‍රශ්න පත් බැලීමේ දී පැවරේ.				
3	විවිධ මාර්ගයන් ඉගැන්වීම් ක්‍රම, මෘදුකාංග හා යෙදවුම් භාවිතා කිරීම තාක්ෂණය හා සම්පත් වැඩිවන්න භාවිතා කිරීමට සිසුන්ට ඉටුකරගැනීමට ඇති වැඩ කොටස වැඩිකරන්නකි.				
E අතිරේක අදහස් දැක්වීම්:					

Appendix 3: Appendix 3: Questionnaire in Tamil

கொவிட் - 19 தொற்றுநோய்களின் போது கிரண்டாம்நிலைக் கல்விக்கான கிணைய வலையமைப்பில் கற்பித்தலை வசதிப்படுத்துவதற்காக கிருக்கின்ற சவால்கள்.

SLIIT / பல்கலைக்கழகத்திற்கு தகவல் தொழில்நுட்ப மாணவர் ஆராய்ச்சியில் முதுகலைமணிப் பட்டத்தின் ஒரு பகுதியாக கீழ்க் ஆய்வு நடாத்தப்படுகின்றது.

தலைககள்: கொவிட் - 19 தொற்றுநோய்களின் போது கிரண்டாம்நிலைக் கல்விக்கான கிணைய வலையமைப்பில் கற்பித்தலை வசதிப்படுத்துவதற்காக கிருக்கின்ற சவால்கள் குறித்து கீழ்க் அறிக்கைகளில் உங்களுடைய உடன்பாடு அல்லது கருத்துவேறுகளைத் தயவுசெய்து குறிப்பிடவும். உங்களுடைய பதில் வழங்கும் கூண்டில் (‘‘X’’)புள்ளியிடவும்.

பாடசாலை: (அரசாங்க / தனியார் / சர்வதேச)

மாவட்டம்: (கொழும்பு / கம்பஹா / களுத்துறை)

அறிக்கை	உறுதியாக உடன்படுகின்றேன்	உடன்படுகின்றேன்	நடுநிலை	உடன்படவில்லை	உறுதியாக உடன்படவில்லை
A இக்குறிப்புகள்					
1 விட்டியுள்ள கவனச் சிக்கல்களுக்கு எதிர்ப்பதில் கற்பிப்பதில் கவனம் செலுத்துவது கடினம் என்பதால் கிணையவழி கற்பித்தலில் எடுப்படுவதற்கு நான் குறைந்த இடக்குவிப்பாக உணர்வின்றேன்.					
2 கிணையவழி வகுப்பறை அமர்வுகளின்போது மாணவர்கள் தவறாக நடந்துகொள்வதால் கிணையவழி கற்பித்தலில் எடுப்படுவதற்கு நான் குறைந்த இடக்குவிப்பாக உணர்வின்றேன். அத்தகைய நடத்தைகளைக் கட்டுப்படுத்துவது கடினம்.					
3 கிணையவழி கற்பித்தலில் எடுப்படுவதற்கு நான் குறைந்த இடக்குவிப்பாக உணர்வின்றேன். ஏனெனில் கிணைய பணியாளர்களுடன் தொடர்புகொள்ள என்னை அனுபவிக்காது. கிணையவழி கற்பிப்பது, மாணவர்களுக்கும் மற்றும் உருவாக்கப்படும் உணர்வைத் தடுக்கிறது.					
4 நடைமுறைசார் கற்பித்தல் அமர்வுகளுக்கு வசதி செய்யாததால், குறைந்த மாணவர் - ஆசிரியர் தொடர்பு கிணையவழி, சமீபமான கிணையவழி கற்பித்தல் முறைகளைப் பின்பற்றும்போது நான் குறைவாக இடக்குவிப்பை உணர்வின்றேன்.					
5 அறிமுகக்காலத் தொழில்நுட்பத்தை ஏற்றுக்கொள்வதால் நான் கற்பித்தலில் சிக்கலைச் சேர்க்கின்றேன் என்பதையும் நான் பல சிக்கல்களுக்கு முகங்கொடுப்பதையும் உணர்வின்றேன்.					
6 தொழில்நுட்பத்தில் கட்டுப்பாடுகளை ஏற்றிகொள்ளும்போது நான் குறைவாக இடக்குவிக்கப்படுவதாக உணர்வின்றேன். அது கற்பித்தலில் பல தொழில்நுட்ப மாற்றங்கள் மற்றும் பொருட்களை பெண்புறத்தில் சிக்கல்களை எனக்கு ஏற்படுத்துகின்றது.					
7 நடுத்தர் கட்டுப்பாடுகள் காரணமாக கிணையவழி கற்பித்தலை முன்வெடுப்பதற்கு நான் குறைந்த இடக்குவிப்பாக உணர்வின்றேன். அது தரவு செலவுகள், மற்றும் கிணைக்கமான சாதனங்கள் மற்றும் பென்சைல்கள் கிணையவழி உடன்படவில்லை.					

