

IMPACT OF COVID-19 ON THE TEACHING LEARNING PROCESS OF 10TH STANDARD STUDENTS IN KERALA

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MASTER OF EDUCATION

by
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2019 - 2021**

DECLARATION

I, **GEETHU.P**, do hereby declare that this dissertation entitled, **“IMPACT OF COVID-19 ON TEACHING LEARNING PROCESS OF 10TH STANDARD STUDENTS IN KERALA”** is a record of original research work done by me under the supervision and guidance of **Dr. ANEES MOHAMMED. C**, Assistant Professor in Education, Farook Training College, Kozhikode and has not been submitted by me in this university or any other university for the award of any Degree/Fellowship or Recognition before.

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CERTIFICATE

I, **Dr. ANEES MOHAMMED. C**, do hereby certify that this dissertation entitled “**IMPACT OF COVID-19 ON TEACHING LEARNING PROCESS OF 10TH STANDARD STUDENTS IN KERALA**” is a record of bonafide study and research carried out by **GEETHU.P** of M.Ed. Programme (2019-2021) under my supervision and guidance and has not been submitted by her for the award of a Degree, Diploma, Title or Recognition before.

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CHAPTER I

INTRODUCTION

- ❖ Need and Significance of the Study
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The past century brought changes that redrafted education with various academic areas accessible to students today; newer changes are rising during this field that has fully modified the previous style-held insights regarding education. Quality of Education plays an important role in the progress of every nation. Gurukula system of education was prevailing in India in the Vedic age. As time changes the teaching learning methods also changes to bring the quality in education. Education is a man making process; its specific role is to accelerate the holistic development of body, mind, intellect and emotions. It is through the process of education that savage tendencies are streamlined in to constructive channels. Education may be a dynamic method. It changes with time in step with the necessity of society. Education is a very important tool for everyone to succeed in life.

The global outbreak of the Covid-19 pandemic has spread worldwide, affecting almost all countries and territories. The outbreak was first identified in December 2019 in Wuhan, China. The countries around the world cautioned the public to take responsive care. The public care strategies have included hand washing, wearing face masks, physical distancing, and avoiding mass gathering and assemblies.

Now a day's our educational system cannot cope with the knowledge explosion occurring in the world. India, being a developing country, still striving for giving primary education to all its citizens. Education makes peoples as perfect and noble as possible. Education is important for everyone to lead a successful life especially for students in high school level. It is a foundation stage for college education and further learning and to establish a successful carrier. Every student

should be enlightened with right way to attain an interest in the field of education. Day by day the academic performances of the students are declining, in spite of the implementation of new methods and ideas in the educational set up. For improving academic performance of the individuals, educators must identify the factors affecting the achievement and performance of students and frame suggestions for overcoming the obstacles in the path of maximizing academic achievement. Learning is one of the important factors which can affect one's academic performance because learning is occurring by cognitive processes which are the central core of human understanding.

The Covid-19 pandemic has created the largest disruption of education systems in human history, affecting nearly 1.6 billion learners in more than 200 countries. Closures of schools, institutions and other learning spaces have impacted more than 94% of the world's student population. This has brought far-reaching changes in all aspects of our lives. Social distancing and restrictive movement policies have significantly disturbed traditional educational practices. Reopening of schools after relaxation of restriction is another challenge with many new standard operating procedures put in place. Within a short span of the Covid-19 pandemic, many researchers have shared their works on teaching and learning in different ways. Several schools, colleges and universities have discontinued face-to-face teachings. There is a fear of losing 2020 academic year or even more in the coming future. The need of the hour is to innovate and implement alternative educational system and assessment strategies.

Coronavirus is a special type of virus that is transmitted from animals to human. The first known case of coronavirus was reported in 1937. There are hundreds types of coronaviruses. But there are six types of coronavirus that can infect humans. The first coronavirus was transmitted from animals to humans in 1960. But fever exposure took place in 2002 in china. The virus was transmitted to human from cat. This was called 'SARSCOV'. Since then, coronaviruses have been reported in the Middle East. It is reported that it was infected by a camel. The name it was called 'MERSCOV'. But it is not possible to determine from which animal the 2019 suffered. What is to be feared in this is that by 2019 the coronavirus we have so far understood is moving from animals to human and from human to human. Corona confirmed in Wuhan, china. If the corona virus enters the body, the symptoms appear within 14 days. If the virus has started to work, it can cause sore throat, fever, sneezing, and coughing. The World Health Organization has declared the coronavirus pandemic. Then the coronavirus named Covid-19. Coronavirus disease 2019 is the full form of Covid-19. The coronavirus is the sixth such events to declare a global emergency.

In present condition, the role of teaching learning is extremely important in the modeling of adolescents to become a better human being in the society once they are grown up. The teaching learning process represents the channel of communication through which the individual strives to acquire the habits, skills, knowledge, attitude, values and appreciation, those are vital for surviving in the information age. The teaching learning, therefore, becomes a process by which change in behavioral patterns are produced through experience. The teaching learning is brought about through teaching, the teaching process is the

arrangement of the environment within which the students can interact and study how to learn. The process of teaching learning aims at the transmission of knowledge, imparting skills and information of attitudes, values and behaviour. Educationists have been trying to analyze the learning process in terms of the requirements of the society.

Everyone who lives in the midst of a pestilence called Covid-19 are the condition of a traveler walks through a long tunnel without knowing what lies ahead. Amidst fears of stringent restriction, even Covid-19's thoughts of afterlife are like beams of light emanating from the other side of the tunnel. There is a big debate around the world as to whether the Covid-19 is a man-made thing, countries are crying out for the right to inspect it. That inspection and its discovery will be instrumental in determining the next world system. Even a world war could change that, it is in this context that I was inspired to choose a Covid-19 theme. Because of the pestilence Covid-19, the world is suffering a lot today. At the end of this period, there are many consequence associated with Covid-19. Covid has been the biggest setback in education. With the announcement of the emergency, educational institutions were shut down and delaying exams and results.

Educational institutions opened on 2020 June 1 and started online classes for all children. The 10th class exam marks the beginning of a crucial turning point in one's life. This is why all students and teachers pay the most attentions. Lockdown and social distancing measures due to the Covid-19 pandemic have led to closures of schools, training institutes and higher education facilities in most

countries. There is a paradigm shift in the way educators deliver quality education through various online platforms. The online learning, distance and continuing education have become a panacea for this unprecedented global pandemic, despite the challenges posed to both educators and the learners. The education system and the educators have adopted “Education in Emergency” through various online platforms and are compelled to adopt a system that they are not prepared for.

The study on the impact of the Covid-19 pandemic on teaching and learning across the world concludes that although various studies have been carried out, in the case of developing countries, suitable pedagogy and platform for different class levels of higher secondary, middle and primary education need to be explored further. The lesson learnt from the Covid-19 pandemic is that teachers and students/ learners should be oriented on use of different online educational tools. After the Covid-19 pandemic when the normal classes resume, teachers and learners should be encouraged to continue using such online tools to enhance teaching and learning.

Need and Significance of the Study

The pandemic Covid-19 has spread over whole world and compelled the human society to maintain social distancing. It has significantly disrupted the education sector which is a critical determinant of a country’s economic future. February 11, 2020, the World Health Organization (WHO) proposed an official name of the virus as Covid-19, an acronym for Coronavirus disease 2019. It was first identified in Wuhan, China on December 31, 2019. The first case of the Covid-19 pandemic in India was reported on 30 January 2020 in the state of Kerala and the affected had a travel history from Wuhan, China. The first death

due to Covid-19 was reported in India on March 12, 2020. It has affected more than 4.5 million peoples worldwide (WHO). According to the UNESCO report, it had affected more than 90% of total world's student population during mid April 2020 which is now reduced to nearly 67% during June 2020.

After observing the corona virus pandemic situation the WHO advised to maintain social distancing as the first prevention step. So, every country started the action of lockdown to separate the contaminated people. The education sector including schools, colleges and universities became closed. Classes suspended and all examinations of schools, colleges and universities including entrance tests were postponed indefinitely. Thus, the lockdown destroyed the schedules of every student. Though it is an exceptional situation in the history of education, Covid-19 created many opportunities to come out of the rigorous classroom teaching model to a new era of digital model.

The lockdown has compelled many educational institutions to cancel their classes, examinations, internships etc. and to choose the online modes. Initially, the teacher and the students were quite confused and didn't understand how to cope up with the situation of this sudden crisis that compelled closure of the educational activities. But latter on all realized that the lockdown has taught so many lessons to manage with the emergence of such pandemics. The role of learning is extremely important in the preparation of adolescents and youth for citizenship in a democratic society. The learning process represents the channel through which the adolescents strive to acquire the habits, skills, knowledge, attitude, values and appreciation, which are necessary for effective participation in a democracy. Learning therefore becomes a process by which changes in

behavioural patterns are produced through experience. Learning is brought about through teaching, teaching process is the arrangement of environment within which the students can interact and study how to learn.

Covid-19 created many challenges and opportunities for the educational institutes to strengthen their technological knowledge and infrastructure. The lockdown has given them a ray of hope for teachers and students to continue their educational activities through online. The teachers assigned work to students via internet, delivered lectures video conferencing using different Apps like Zoom, Google meet, Facebook, Youtube, and Skype etc. There are WhatsApp groups of guardians, teachers, students and parents for affective communication through which they are always in touch to share their difficulties through this e-medium.

Although there have been overwhelming challenges for educators, schools, institutes and the government regarding online education from a different angle, there are several opportunities created by the Covid-19 pandemic for the unprepared and the distant plans of implementing e- learning system. It has forged a strong connection between teachers and parents than ever before. The homeschooling requires parents to support the students' learning academically and economically. Children with disabilities need additional and special support during this ongoing emergency. The use of online platforms such as Google Classroom, Zoom, virtual learning environment and social media and various group forums like Telegram, Messenger, WhatsApp and We Chat are explored and tried for teaching and learning for the first time ever to continue education.

This can be explored further even after face to- face teaching resumes, and these platforms can provide additional resources and coaching to the learners.

Teachers are obliged to develop creative initiatives that assist to overcome the limitations of virtual teaching. Teachers are actively collaborating with one another at a local level to improve online teaching methods. Many educational organizations are offering their tools and solutions for free to help and support teaching and learning in a more interactive and engaging environment. Online learning has provided the opportunity to teach and learn in innovative ways unlike the teaching and learning experiences in the normal classroom setting.

Covid-19 has transformed the centuries-old chalk-talk teaching model to one driven by technology. This shift of education has pushed policymakers to figure out how to drive engagement at scale while ensuring inclusive learning solutions and tackling the digit divide as it is not affordable by all. One, immediate measures are essential to ensure continuity of learning in government school. Open source digital learning solutions, learning management system software and modulated evaluation patterns in online mode should be adopted so the teachers can conduct teaching online.

This will increase effectiveness of learning and giving students and teachers multiple options to choose from. Therefore, it is important to consider the current delivery and pedagogical methods in school by integrating classroom learning with E-learning modes to build a unified learning system. In this time of crisis a well-rounded and effective education practice is needed for the capacity building of young minds in schools as they are the future of our country.

Statement of the Problem

Research highlights certain dearth such as the weakness of online teaching infrastructure, the limited exposure of teachers to online teaching, the information gap, non-conducive environment for learning at home, equity and academic excellence in terms of higher education. The present study aims to evaluate the impact of the Covid-19 pandemic on teaching and learning process across the world. The challenges and opportunities of online and continuing education during the Covid-19 pandemic are summarized and way forward suggested. The proposed study is entitled as **“IMPACT OF COVID-19 ON THE TEACHING LEARNING PROCESS OF 10TH STANDARD STUDENTS IN KERALA”**

Definition of Key Terms

Impact

The Oxford English dictionary gives two definitions of the word impact: ‘the actions of one object coming forcibly into contact with another’ and ‘a marked effect or influence’. A strong effect or consequence or influence.

Coronavirus Disease (Covid-19)

The Covid-19 pandemic, also known as the coronavirus pandemic is an ongoing global pandemic of coronavirus disease 2019. The WHO declared a Public Health Emergency of International Concern on 30th January 2020, and later thus declared a pandemic on 11th March 2020.

Coronavirus are a large family of virus which may cause illness in animals or humans. In humans, several coronaviruses are known to cause respiratory

infections ranging from the common cold to more severe disease such as Middle East Respiratory Syndrome (MERS) and Severe Acute Respiratory Syndrome (SARS). The most recently discovered coronavirus cause coronavirus disease Covid-19.

Teaching Learning Process

It is the most powerful instrument of education to bring about desired change in the students. Teaching learning process may be operationally defined as those classroom interactions which lead to learning.

10th Standard Students

Students studying for the secondary school certificate course or matriculation examination or 10th Board Exam. It is a public examination conducted by various boards of examinations including CISCE, CBSE and state boards for students of class ten. They are on the tenth year after the first introductory year upon entering compulsory education.

Variables of the Study

The present study involves two types of variables, independent variable and dependent variable. The dependent variable in the study is Covid-19 and independent variable is the teaching learning process of tenth standard students.

Objectives of the study

The major objectives of the proposed study are;

- ❖ List out the learning strategies used for the 10th standard students in the Covid-19 pandemics
- ❖ To study the justification of running such programs for 10th standard students
- ❖ To assess the 10th standard student's extent of satisfaction towards the teaching learning process during the pandemic
- ❖ To assess the difficulties of the 10th standard students taught through the ETV programs and through online platforms
- ❖ To identify the board of examination differences on the coverage of content of 10th standard students during the pandemic situation
- ❖ To compare the academic achievement of 10th standard students in pre-phase and peri-phase of Covid-19
- ❖ To find out whether there exists any significant difference in the online learning satisfaction of 10th standard students in the subsamples based on:
- ❖ Gender (b) Board of Examination (c) Medium of Instruction

Hypotheses of the Study

- ❖ There is no significant difference in the academic achievement of 10th standard students in 2019 and 2020 year batches

- ❖ There is no online learning difference in the academic satisfaction 10th standard students in the subsamples based on

(a) Gender (b) Board of Examination (c) Medium of Instruction

Methodology

Design	: Mixed Research
Quantitative study	: Descriptive research, Survey method
Qualitative study	: Document Analysis, Interview
Sample	: 120 tenth standard students and 30 teachers selected from Kozhikode and Malappuram districts
Sampling method	: Stratified Random Sampling
Tools and techniques	: Online learning satisfaction scale for students and Interview Schedule for teachers
Statistical techniques	: Preliminary Analysis (Mean, Median, Mode, standard deviation Kurtosis, Skewness) Percentage Analysis, t-Test of significance of difference between mean scores of sample, One-way ANOVA

Scope and Limitation of the Study

According to Best and Kahn (2012), "Limitations are those conditions beyond the control of the researcher that may place restriction on the conclusion of the study and their applications to other situations." The researcher has made every attempt to make the study perfection. But the constraints of time and resources reduced the size of the sample and variables selected for the study.

The aim of the present study is to evaluate the impact of the Covid-19 pandemic on teaching and learning process across the world. Appropriate and standardized tools of proven psychometric properties were used for collecting data from a stratified representative sample of standard X pupils.

Therefore the investigator hopes that the study will yield reliable results which can be generalized. The results obtain from the present study may help educationists to reform teaching learning situations. Even though the investigator made this study very correct and accurate, certain limitations are crept into the study. The required data was collected from two districts only because of time constraints and Covid pandemics.

The present study has its own limitations. The limitations of the study are the following.

1. The study has not covered all the districts of Kerala. It is limited to Malappuram and Kozhikode district.
2. As these schools are situated in Covid hotspot pandemic areas, investigator faced much difficulty in reaching at these institutions.
3. Unavailability of the related studies made a lot of hindrance to the investigator for a detailed study.
4. This study is limited to 120 tenth standard students

Organization of the Report

The report of the study is presented in five chapters. The details incorporated in each chapter are as follows

Chapter I Presents a brief introduction of the study, need and significance of the study, statement of the problem, definition of key terms, objectives of the study, methodology, scope and limitations of the study.

Chapter II Presents the review of related literature which includes theoretical overview and review of related studies.

Chapter III Present methodology of study, details of variables, tools used, selection of sample procedure for data collection, scoring techniques used for analysis and statistical techniques used.

Chapter IV Brings out the details of statistical analysis of data and discussion of the result.

Chapter V Deals with summary of the study, major findings, educational implications of the study and suggestions for further research in this area.

CHAPTER II

REVIEW OF RELATED LITERATURE

❖ Conceptual Overview

❖ Review of Related Studies

REVIEW OF RELATED LITERATURE

Review of related literature is an important aspect of any investigation. A proper study of related literature would enable the investigator to locate and go deep in to the problem. Review of the related literature helps the researcher to acquaint himself with current knowledge in the field or area in which he is going to conduct his research. It enables the researcher to delimit and define his problem. The knowledge of related literature bring the researcher up to date on the work which others have done and thus to state the objectives clearly and concisely. Thus a thorough examination of the related literature will help a researcher to understand the significance of present study and to build a new approach to the same.

The present study is an attempt to find out the Impact of Covid-19 on the Teaching Learning Process of 10th standard Students in Kerala. To have an understanding of the nature of study in this area, the researcher has gone through the relevant literature.

The review is presented here under the following headings.

- I. Conceptual overview
- II. Survey of related studies

The conceptual overview of Covid-19 and Teaching Learning Process are given below.

Conceptual Overview

The conceptual overview introduces and describes the concept that explains why the research problem under study exists. The background literature related to the relevant concepts in this research study is included. Conceptual overview serves the purpose of stating as clearly and as concisely as possible the state of knowledge in the area in which the researcher proposed to work. Once this has been done, it is to see what must be done to find the major gaps in the present knowledge.

Covid-19

The pandemic Covid-19 has spread over whole world and compelled the human society to maintain social distancing. It has significantly disrupted the education sector which is a critical determinant of a country's economic future. Outbreak of Covid-19 has impacted more than 120 crores of students and youths across the planet. In India, more than 32 crores of students have been affected by the various restrictions and the nationwide lockdown for Covid-19. As per the UNESCO report, about 14 crores of primary and 13 crores of secondary students are affected which are two mostly affected levels in India.

After observing the corona virus pandemic situation the WHO advised to maintain social distancing as the first prevention step. So, every country started the action of lockdown to separate the contaminated people. The education sector including schools, colleges and universities became closed. Classes suspended and all examinations of schools, colleges and universities including entrance tests were postponed indefinitely. Thus, the lockdown destroyed the schedules of every

student. Though it is an exceptional situation in the history of education, Covid-19 has created many opportunities to come out of the rigorous classroom teaching model to a new era of digital model.

The lockdown has compelled many educational institutions to cancel their classes, examinations, internships etc. and to choose the online modes. Initially, the students were quite confused and didn't understand how to cope up with the situation of this sudden crisis that compelled closure of the educational activities. But latter on all realized that the lockdown has taught so many lessons to manage with the emergence of such pandemics. Thus, Covid-19 has created many challenges and opportunities for the educational institutes to strengthen their technological knowledge and infrastructure.

The lockdown has given them a ray of hope for teachers and students to continue their educational activities through online. The teachers assigned work to students via internet, delivered lectures through live video conferencing using different Apps like Zoom, Google meet, Facebook, Youtube, and Skype etc. There are WhatsApp groups of guardians, teachers, students and parents for affective communication through which they are always in touch to share their difficulties through this e-medium.

Positive impact of Covid-19 on education

Though the outbreak of COVID-19 has created many negative impacts on education, educational institutions of India have accepted the challenges and trying their best to provide seamless support services to the students during the pandemic. Indian education system got the opportunity for transformation from

traditional system to a new era. The following points may be considered as the positive impacts.

❖ Move towards blended learning

Covid-19 has accelerated adoption of digital technologies to deliver education. Educational institutions moved towards blended mode of learning. It encouraged all teachers and students to become more technology savvy. New ways of delivery and assessments of learning opened immense opportunities for a major transformation in the area of curriculum development and pedagogy. It also gives access to large pools of learners at a time.

❖ Rise in use of learning management systems

Use of learning management systems by educational institutions became a great demand. It opened a great opportunity for the companies those have been developing and strengthening learning management systems for use educational institutions.

❖ Enhance the use of soft copy of learning material

In lockdown situation students were not able to collect the hard copies of study materials and hence most of the students used of soft copies materials for reference.

❖ Improvement in collaborative work

There is a new opportunity where collaborative teaching and learning can take on new forms. Collaborations can also happen among faculty/teachers across the world to benefit from each other.

❖ Rise in online meetings

The pandemic has created a massive rise in teleconferencing, virtual meetings, and webinars and e-conferencing opportunities.

❖ Enhanced digital literacy

The pandemic situation induced people to learn and use digital technology and resulted in increasing the digital literacy.

❖ Improved the use of electronic media for sharing information

Learning materials are shared among the students easily and the related queries are resolved through e-mail, SMS, phone calls and using different social Medias like WhatsApp or Facebook.

❖ World wide exposure

Educators and learners are getting opportunities to interact with peers from around the World. Learners adapted to an international community.

❖ Better time management

Students are able to manage their time more efficiently in online education during pandemics.

❖ Demand for open and distance learning (ODL)

During the pandemic situation most of the students preferred ODL mode as it encourages self-learning providing opportunities to learn from diverse resources and customized learning as per their needs.

Negative impact of Covid-19 on education

Education sector has suffered a lot due to the outbreak of Covid-19. It has created many negative impacts on education and some of them are as pointed below:

❖ Educational activity hampered

Classes have been suspended and exams at different levels postponed. Different boards have already postponed the annual examinations and entrance tests. Admission process got delayed. Due to continuity in lockdown, student suffered a loss of nearly 3 months of the full academic year of 2020-21 which is going to further deteriorate the situation of continuity in education and the as students would face much difficulty in resuming schooling again after a huge gap.

❖ Impact on employment

Most of the recruitment got postponed due to Covid-19 Placements for students may also be affected with companies delaying the on board of students. Unemployment rate is expected to be increased due to this pandemic. In India, there is no recruitment in Govt. sector and fresh graduates fear withdrawal of their job offers from private sectors because of the current situation. The Centre for Monitoring Indian Economy's estimates on unemployment shot up from 8.4% in

mid-March to 23% in early April and the urban unemployment rate to 30.9% (www.educationasia.in). When the unemployment increases then the education gradually decreases as people struggle for food rather than education.

❖ Unprepared teachers/students for online education

Not all teachers/students are good at it or at least not all of them were ready for this sudden transition from face to face learning to online learning. Most of the teachers are just conducting lectures on video platforms such as Zoom, Google meet etc. which may not be real online learning without any dedicated online learning platform.

❖ Reduced global employment opportunity

Some may lose their jobs from other countries and the pass out students may not get their job outside India due to restrictions caused by Covid-19. Many Indians might have returned home after losing their jobs overseas due to Covid-19. Hence, the fresh students who are likely to enter the job market shortly may face difficulty in getting suitable employment. Many students who have already got jobs through campus interviews may not be able to join their jobs due to lockdown.

❖ Increased responsibility of parents to educate their wards

Some educated parents are able to guide but some may not have the adequate level of education needed to teach children in the house.

❖ Loss of nutrition due to school closure

Mid day meals is a school meal programme of the Government of India which is designed to provide better the nutritional food to school-age children nationwide. The closure of schools has serious implications on the daily nutrition of students as the mid-day meal schemes have temporarily been shut. Various studies have pointed out that mid-day meals are also an important contributing factor for increased enrolment in the schools.

❖ Access to digital world

As many students have limited or no internet access and many students may not be able to afford computer, laptop or supporting mobile phones in their homes, online teaching-learning may create a digital divide among students. The lockdown has hit the poor students very hard in India as most of them are unable to explore online learning according to various reports. Thus the online teaching-learning method during pandemic COVID-19 may enhance the gap between rich/poor and urban/rural.

❖ Access to global education

The pandemic has significantly disrupted the higher education sector. A large number of Indian students who are enrolled in many Universities abroad, especially in worst affected countries are now leaving those countries and if the situation persists, in the long run, a there will be a significant decline in the demand for international higher education.

❖ Payment of schools, colleges fee got delayed

During this lockdown most of the parents will be facing the unemployment situation so they may not be able to pay the fee for that particular time periods which may affect the private institutes.

Opportunities for Teaching and Learning

❖ Although there have been overwhelming challenges for educators, schools, institutes and the government regarding online education from a different angle, there are several opportunities created by the COVID-19 pandemic for the unprepared and the distant plans of implementing e- learning system.

❖ It has forged a strong connection between teachers and parents than ever before. The homeschooling requires parents to support the students' learning academically and economically. Children with disabilities need additional and special support during this ongoing emergency.

❖ The use of online platforms such as Google Classroom, Zoom, virtual learning environment and social media and various group forums like Telegram, Messenger, WhatsApp and We Chat are explored and tried for teaching and learning for the first time ever to continue education. This can be explored further even after face-to-face teaching resumes and these platforms can provide additional resources and coaching to the learners.

Review of Related Studies

The phase 'review of literature' consists of two words: Review and Literature. The term 'review' means to organize the knowledge of the specific zone of research to evolve an edifice of knowledge to show that the proposed study would be an addition to this field. In research methodology the term literature refers to the knowledge of a particular area of investigation of any discipline which includes theoretical, practical and its research studies.

The task of review of literature is highly creative and tedious because the researcher has to synthesize the available knowledge of the field in a unique way to provide the rationale for his study. The study of the related literature helps the researcher in problem study, promotion of hypothesis, research methods, research design, selection of the tools and its uses.

Review of related studies is about reviewing or studying existing works carried out in the project/ research field. Related studies can be taken from journals, magazines, websites links, government reports and other source. In that related studies offers need to be included to justify your novelty of the research work.

Ram Gopal and Varsha Singh (2021) conducted a study on 'Impact of online classes on the satisfaction and performance of students during the pandemic period of Covid19'. The aim of the study is to identify the factors affecting students' satisfaction and performance regarding online classes during the pandemic period of Covid-19 and to establish the relationship between these variables. The study is quantitative in nature, and the data were collected from 544

respondents through online survey who were studying the business management or hotel management courses in Indian universities. Structural equation modeling was used to analyze the proposed hypotheses. The results show that four independent factors used in the study viz. quality of instructor, course design, prompt feedback, and expectation of students positively impact students' satisfaction and further student's satisfaction positively impact students' performance. This study is being conducted during the epidemic period of Covid-19 to check the effect of online teaching on students' performance.

Sumitra Pokhrel and Roshan Chhetri (2021) conducted a study on impact of Covid-19 pandemic on teaching and learning. Within a short span of the Covid-19 pandemic, many researchers have shared their works on teaching and learning in different ways. Several schools, colleges and universities have discontinued face-to-face teachings. There is a fear of losing 2020 academic year or even more in the coming future. The need of the hour is to innovate and implement alternative educational system and assessment strategies. The Covid-19 pandemic has provided us with an opportunity to pave the way for introducing digital learning. This article aims to provide a comprehensive report on the impact of the Covid-19 pandemic on online teaching and learning of various papers and indicate the way forward.

Ghulam Shabiralyani and Khuram Shahzad Hasan (2021) conducted a study on 'Impact of visual aids in enhancing the learning process case research'. This research explores the teacher's opinions on the use of visual aids as a motivational tool in enhancing students' attention in reading literary texts. To accomplish the aim of the research, the closed ended questionnaire was used to

collect the required data. In this research the primary data was used for gathering information. The collected data is analyzed through the SPSS software and also data was represented in the percentage distribution of pie, line, and bar graphs. The analysis of the data indicated that the majority of the teachers and students had positive perceptions of the use of visual aids.

Raja P.C (2021) conducted a study on 'Impact of modern technology in education'. Technology plays an important role in every sphere of life. Several manual tasks can be automated, thanks to technology. Also, many complex and critical processes can be carried out with ease and greater efficiency with the help of modern technology. Thanks to the application of technology, living has changed and it has changed for better. Technology has revolutionized the field of education. The importance of technology in schools cannot be ignored. In fact, with the onset of computers in education, it has become easier for teachers to impart knowledge and for students to acquire it. The use of technology has made the process of teaching and learning all the more enjoyable.

Arun Frey (2021) conducted a study on 'Learning loss due to school closures during the Covid-19 pandemic'. Suspension of face-to-face instruction in schools during the Covid-19 pandemic has led to concerns about consequences for students learning. So far, data to study this question have been limited. The results reveal a learning loss of about 3 percentile points or 0.08 standard deviations. Results remain robust when balancing on the estimated propensity of treatment and using maximum-entropy weights or with fixed-effects specifications that compare students within the same school and family. The findings imply that students made little or no progress while learning from home and suggest losses

even larger in countries with weaker infrastructure or longer school closures.

Sumitra Pokhrel and Roshan (2020) conducted a study on ‘A literature review on impact of Covid-19 pandemic on teaching and learning’. The Covid-19 pandemic has provided us with an opportunity to pave the way for introducing digital learning. This article aims to provide a comprehensive report on the impact of the Covid-19 pandemic on online teaching and learning of various papers and indicate the way forward.

Ambika Bhatt and Santoshi Chauhan (2020) conducted a study on ‘Covid-19 impact on education with reference to classroom teaching-learning process’. The teachers are dealing with the good teaching-learning and evaluation practices for the students, simultaneously students are also facing challenges with their real learning situation. Because the traditional mode has been completely closed during and after the lockdown, in this mode students were habitual to direct interaction with their teachers regarding educational matters and whereas nowadays students' community is completely dependent on the online mode. The study has concluded with the drawbacks as well as some positive sides of this online education mode during lockdown period especially in respect to the education and teaching-learning process.

Arora A.K and Srinivasan R. Prabandhan (2020) conducted a study on ‘Impact of pandemic covid-19 on the teaching-learning process a study of higher education teachers’. The objective of the study was to assess the adoption rate for virtual classes and to determine the various benefits, challenges, and reasons for non-adoption of virtual classes. The study considered responses from 341 teachers of higher education institutions (HEIs) of Ghaziabad region. The study was

divided into two parts. One set of respondents were those who adopted virtual classrooms and another set that did not adopt virtual classrooms. Descriptive statistics and t-test were performed to analyze the data collected through primary sources. The study also suggested the ways to overcome the above challenges, drawbacks, and reasons behind non-adoption of virtual classes.

Shelina Bhamani and Areeba Zainab Makhdoom (2020) conducted a study on 'Home learning in times of Covid-19 experiences of parents'. The study presented was designed to explore the experiences of home learning in times of Covid-19. A descriptive qualitative study was planned to explore the experiences of parents about home learning and management during Covid-19 to get an insight into real-life experiences. Purposive sampling technique was used for data collection. Data were collected from 19 parents falling in the inclusion criteria. Considering the lockdown problem, the data were collected via Google docs form with open-ended questions related to Covid-19 and home learning. Three major themes emerged after the data analysis impact of Covid-19 on children learning, support given by schools, and strategies used by caregivers at home to support learning. Measures should be adopted to provide essential learning skills to children at home.

Shivangi Dhawan (2020) conducted a study on 'Online learning a panacea in the time of Covid-19 crisis'. The article includes the importance of online learning and Strengths, Weaknesses, Opportunities, & Challenges (SWOC) analysis of e-learning modes in the time of crisis. This article also put some light on the growth of EdTech Start-ups during the time of pandemic and natural disasters and includes suggestions for academic institutions of how to deal with

challenges associated with online learning.

Nidhi Singh (2020) conducted a study titled 'Covid-19 and its impact on education, social life and mental health of students'. The article identified the following as the impact of Covid-19 on the students of different age groups: time spent on online classes and self-study, medium used for learning, sleeping habits, daily fitness routine, and the subsequent effects on weight, social life, and mental health. Moreover, our research found that in order to deal with stress and anxiety, participants adopted different coping mechanisms and also sought help from their near ones. This study suggests that public authorities should take all the necessary measures to enhance the learning experience by mitigating the negative impacts caused due to the Covid-19 outbreak.

Lokanath Mishraa and Abha Shreeb (2020) conducted a study on 'Online teaching-learning in higher education during lockdown period of Covid-19 pandemic'. This study is a portrayal of online teaching-learning modes adopted by the Mizoram University for the teaching-learning process and subsequent semester examinations. The paper employs both quantitative and qualitative approach to study the perceptions of teachers and students on online teaching-learning modes and also highlighted the implementation process of online teaching-learning modes. The value of this paper is to draw a holistic picture of ongoing online teaching-learning activities during the lockdown period including establishing the linkage between change management process and online teaching-learning process.

Mohammad Mahyooob (2020) conducted a study on 'Challenges of e-learning during the Covid-19 pandemic experienced by EFL learners'. This

study aims to determine the challenges and obstacles confronted by English language learners (EFL) in Science and Arts College, Alula, Taibah University, Saudi Arabia, during switching to online learning in the second semester of 2020 due to the COVID-19 pandemic. A descriptive statistical method was used to test the validation of the study. It is found that the main problems that influence and impact online EFL learning during Covid-19 are related to technical, academic, and communication challenges. The study results show that most EFL learners are not satisfied with continuing online learning, as they could not fulfill the expected progress in language learning performance.

Pravat Kumar Jena (2020) conducted a study on 'Impact of pandemic Covid-19 on education in India'. This paper highlights some measures taken by Govt. of India to provide seamless education in the country. Both the positive and negative impacts of Covid19 are discussed and some fruitful suggestions are pointed to carry out educational activities during the pandemic situation.

Seble Tadesse Mekonnen (2020) conducted a study on 'The impact of Covid-19 pandemic on education system in developing countries'. This paper aims to review the impact of the Covid-19 pandemic on the education system in developing countries. Hence, countries design a strategy to use educational technology, zero-fee internet educational resources, free online learning resources, and broadcasts teaching. During closures, educational institutions design curriculum, prepare teaching-learning strategies for post-coronavirus. The educational institutions design strategies to recover lost learning, and return students to school when schools reopen. Coronavirus has been impacting the face-to-face education system of developing countries. Therefore, developing countries

should enhance broadcast teaching, online teaching, and virtual class infrastructures.

Priyanka Pandita Koul and Omkar Jagdish Bapa (2020) conducted a study on 'Impact of Covid-19 on education sector in India'. The spread of the epidemic was so speedy and quick that there were hardly any plans for transition to online teaching or learning from higher education systems offline classes and no one could anticipate the associated potential risks and opportunities that a sudden change could bring in the sector. Entrance tests of several universities and many competitive examinations are held in such a crucial period that is affecting education system badly. Academic events chain and the academic calendars will be tempting fate if those are not completed in time. There is a stern threat that this academic year will eventually be shifted by a few months all over India. Indeed, the students in the final years of a course will suffer the most.

Shazia Rashid and Sunishtha Singh Yadav (2020) conducted a study on 'Impact of Covid-19 pandemic on higher education and research'. The pandemic has exposed the shortcomings of the current higher education system and the need for more training of educators in digital technology to adapt to the rapidly changing education climate of the world. In the post-pandemic situation, the use of eLearning and virtual education may become an integral part of the higher education system. The higher education institutions and universities need to plan the post-pandemic education and research strategies to ensure student learning outcomes and standards of educational quality.

Tarik Al Shaibani and Yahya Naguib (2020) conducted a study on 'Impact of Covid-19 pandemic on students' performance in a problem-based learning

system comparative study between face-to-face-and virtual learning'. The aim of the present study was to evaluate the effectiveness of virtual medical education by comparing students' performance in final exams in face-to-face and virtual settings. Methods Following the college's ethical approval, this longitudinal study was performed on 183 medical students. A result there was no significant difference in student performance between Units V and VI. Conclusion of results demonstrates that students' performance in final exams could serve as an objective parameter when comparing different educational settings. The results also support the idea that, in certain aspects, virtual is equal to face-to-face medical education strategies.

Laia Subirats and Santi Fort (2020) conducted a study on 'Influence of Covid-19 confinement on student's performance in higher education'. This study analyzes the effects of Covid-19 confinement on the autonomous learning performance of students in higher education. The results show that there is a significant positive effect of the Covid-19 confinement on students' performance. This effect is also significant in activities that did not change their format when performed after the confinement. Additionally, an analysis of students' learning strategies before confinement shows that students did not study on a continuous basis. Based on these results, we conclude that Covid-19 confinement changed students' learning strategies to a more continuous habit, improving their efficiency.

Andria Praghlapati (2020) conducted a study on 'Covid-19 impact on students'. As we have questioned today in the world, especially Indonesia which is struggling against Coronavirus or commonly known by the name (Covid-19),

which is already much needed by victims. Coronavirus or commonly known by the name (Covid-19) is an infectious disease caused by a newly discovered coronavirus. The purpose of this article is to identify the impact of the corona virus (covid-19) on college students.

Kaushik Bhakta and Nabanita Dutta (2018) conducted a study titled ‘Today the changes brought about by new technology had a significant effect on the life of people living in every corner of the globe. Information Technology is having a major impact on all areas of education- curriculum, methods of teaching, classroom learning etc. Rapid communication with increased access of Information Technology (IT) in home, work place and educational institutions has make education a life-long process. Information technology helps in promoting opportunities of knowledge sharing throughout the world. These can help teachers and students in gaining up-to-date information and knowledge. This paper highlights the importance of IT in educational sector, impact of IT on classroom teaching, advantages and disadvantages of IT.

Nwigbo Nusa Stella (2018) conducted an investigational study on ‘Impact of Expert System as tool for efficient teaching learning process in educational system in Nigeria’ in contemporary Nigerian education system, newline there is scanty information on the application of expert systems. This study is therefore newline to investigate into the use of impacts of expert systems as a tool for efficient teaching newline and learning process in the educational system in Nigeria.

Strodl and Sun (2014) conducted a study on academic-related stress among private secondary school students in India. Participants were 400

adolescent students (52 percent male) from five private secondary schools in Kolkata who were studying in grades 10 and 12. Findings revealed that 35 and 37 percent have high or very high levels of academic stress and exam anxiety respectively and all students reported high levels of academic stress.

Selvan and Paul Devanesan (2012) conducted a study on utilizing of online programmes by teachers in teaching learning process at secondary level. The investigator found that the teachers had a high level of awareness about using online programmes while the female teachers utilized the online programmes better.

Liu (2010) conducted a comparative study of 'Learning effectiveness between traditional face-to-face learning and e-learning among goal oriented users'. The primary aim was to investigate and understand the effectiveness of e-learning. This study included the 219 students of graduate schools in Taiwan. The aim of the study was to compare the instructional differences between face-to-face learning and elearning methods. A questionnaire for survey was designed. It was concluded that elearning in all offers a higher level of learning effectiveness than traditional face-to-face learning. There was no significant difference found in using both the ways.

Satheesh Kumar and Rezene Habtemariam (2010) conducted a study on learning with multimedia, and they found that most of the multimedia programmes for educational purpose create situations in such a way that the students can interpret information for their own understanding.

Diaz (2009) conducted a research to study the functions of teacher in e-Learning and face to face learning. The study aimed to highlight some of the

possible risks and strengths which may help to improve the role of teachers in both methods. Two groups were formed for learning with face to face mode and e-learning mode. The mixed mode of research was used for this research. The study concluded that, there was no significant different found while learning in both the methods.

Addis (2009) investigated the similarities and differences in the implementation of face-to-face and online versions of an undergraduate educational technology course for elementary teacher candidates. Sample included 46 students where 22 students participated in online learning mode and 24 students participated in F to F mode of learning. It was found that the face-to-face group significantly outperformed the online group on posttest scores.

Huietal (2008) examined effects of technology assisted learning on learning effectiveness and satisfaction under quasi experimental study. The sample included 212 degree students. It was found that the use of technology assisted learning adversely affected student engagement in learning activities. Technology assisted learning showed no significant moderating effects on learning effectiveness or satisfaction. It showed that technology assisted learning is useful to improve achievement scores of the students.

Pirasa (2008) studied the effects of computer assisted instruction on students' attitudes towards science courses. The studies reviewed with regard to the effectiveness of CAI revealed that with regard to different subjects like sciences and mathematics, CAI was found effective in terms of students' achievement at school level. Further, it is worth noting that CAI was found effective not only for cognitive aspects but also for affective dimensions such as

attitude, interest and behavior pattern.

Kuo and Song (2007) compared the effectiveness of online and Face-to-face technology applications skills in Teacher Education. The sample included 62 undergraduate students. The survey method was followed for research where difference between achievement scores of students learning through face to face mode and technology assisted learning mode was compared. Among them, 27 students were enrolled in the online technology applications class and the other 35 students were enrolled in the equivalent Face-to-face class. The results of the t test showed that there was no significant difference in the computer attitude between the two different teaching formats before and after taking the technology course. It was also revealed that there was no significant difference between the online and face-to-face classes in terms of students' attitudes toward technology.

Upadhyay (2006) developed CAI Package for teaching classification of animals' of science and technology. Multimedia package was developed by the researcher. The sample included 58 students selected from standard X. The obtained data were analyzed by using ttest. At the end, it was found that students who received instructions through CAI Package scored significantly higher than that of the students who received conventional instructions. It was concluded that students had favorable altitude towards using multimedia packages for learning.

Hodges (2004) studied motivational techniques to incorporate in e learning experience stating that self efficacy is at the heart of motivation. It was suggested that while designing learning experiences, one should take this into consideration and make every effort to increase the students self efficacy. He studied the other features of e-learning experience that were motivating including feedback and

navigation systems. His findings suggested that the feedback mechanisms should be incorporated into the experience.

Nagpal (2004) studied that the training inputs of instructional strategies helped in developing technical competencies related to mechanics of teaching learning process. The preparation of need based lessons helped in visualizing and organizing learner centered activities in classroom. The author stressed that the instructor should involve variety in day to day teaching such as storytelling, discussions, audiovisuals, puppetry and folk play etc. The author further concluded that, in the present phase of time the teachers must be aware of the challenges of electronic media and information technology and their meaningful use in educational purposes.

Sureshkumar (2001) discussed the use of internet for CAI, to perform teaching and learning collaboratively. He explained the four motivational factors influencing learning in hypermedia environments. The study revealed that the motivation is needed to make the students use multimedia in their day to day learning process. When multimedia was used by learners, it was found that there was high level of interests generated among the students who scored more than the scores obtained by students in regular learning.

Pandya and Chaudhary (2000) studied the effectiveness of CAI package by comparing face to face mode. The pretest post test design approach was followed in this research. It was found that the achievement scores of the students learnt through CAI were better than face to face mode. It was concluded that CAI has the potential for improving student's achievement scores. The researchers further suggested that the teaching with CAI has higher positive effect on

achievement of students in learning. The research concluded that there is a necessity to use innovative methods of teaching by the teacher to keep the students attentive in teaching learning process.

Conclusion

The review of related literature gives the researcher a better knowledge and understanding about the research methodology. Review of the related literature help the researcher to know about the tools and instruments which became useful and promising in the previous studies. The advantage of review of related literature is to provide insight into the statistical methods through which the results are to be established. In this chapter, the researcher has undergone through different researches, its subject matter which were related to the study. With the help of reference books, abstracts, dissertations, the international sources of educational publications, yearbooks and survey reports, the researcher has studied the previous researches and enhanced the necessary knowledge to proceed further in the study. The success of any work depends on its fundamental planning. In the next chapter the researcher will explain the complete methods of research used in this study.

CHAPTER III

METHODOLOGY

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- ❖ Variables of the Study
 - ❖ Research Methods
 - ❖ Sample Selected for the Study
 - ❖ Tools Used for Data Collection
 - ❖ Data Collection Procedure
 - ❖ Scoring and Consolidation of Data
 - ❖ Statistical Techniques Used
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METHODOLOGY

As studied in the second chapter, the review of literature helps a researcher to choose a broad field of education within which the researcher conducts the study. Through the survey and review of literature studies, the researcher gets thorough understanding of the problems which have remained unsolved or need a fresh interpretation and also understanding about the gaps which exist in knowledge in the field selected by the researcher. After selecting the broad zone or field, the next step is to identify a specific research study for investigation.

The present study is entitled as the “Impact of Covid-19 on the teaching learning process of 10th standard students in Kerala”

It is essential to use appropriate methods to find out the correct solutions of the problem. Various types of methods are employed for the educational research. Research is a purposeful, precise and systematic search for new knowledge, skills, attitude and values for the reinterpretation of existing knowledge, skills, attitude and values.

Research methodology involves the systematic procedures by which the researcher starts from the initial identification of the problem to its final conclusions. The role of the methodology is to carry on the research work in a scientific and valid manner. The method of research provides the tools and techniques by which the research problem is attacked. The methodology consists of procedures and techniques for conducting a study. Research procedures are of little value unless they are used properly.

The methodology adopted for the present study is described under the following major headings:

- ❖ Variables of the study
- ❖ Research Methods
- ❖ Sample selected for the study
- ❖ Tools used for data collection
- ❖ Data collection procedure
- ❖ Scoring and consolidation of data
- ❖ Statistical techniques used

Variables of the Study

The present study involves two types of variables, independent variable and dependent variable. The dependent variables in the study are Covid-19 and independent variable is the teaching learning process of tenth standard students.

Research Methods

The purpose of the present study was to find out the level of Impact of Covid-19 on the teaching learning process of 10th standard students in Kerala. The mixed research method was used in this research study.

Survey Method is the one of the most common and widely used method in social science research. Survey is a technique for gathering large amount of information from a large population in a relatively short duration, with the intent of employing data to justify current practices or to make more intelligent plans for improving them.

In the present study researcher has used online satisfaction scale as survey testing tool. The research tool used for the present research is a self-made tool and

the whole procedure for construction and standardization of tool is followed by the researcher with the help of supervising teacher, which is explained later in this chapter.

Document Analysis is a form of qualitative research in which documents are interpreted by the researcher to give voice and meaning around an assessment topic. Document analysis was used by the investigator in order to collect necessary information to list out the benefits of online teaching learning education by teachers.

A **Structured Interview** is a meeting in which the interviewer asks questions that are planned and created in advance. All candidates are asked the same questions in the same order. Structured interview questions can be open-ended or closed ended. Closed-ended questions ask respondents for specific pieces of information, and often require the respondent to choose from a list of given alternatives. Open ended questions are those that can be answered in many ways and allow the respondent to give elaborate, thoughtful answers.

In the present study along with online learning satisfaction scale, interview schedule is also used by the researcher to collect descriptive views with the help of open ended questions. The questions were asked in the tool to collect suggestions for improving online learning education. With the help of interview schedule, the researcher was able to collect required amount of information from 30 teachers.

Sample Selected for the Study

The importance of sampling is that you can determine the adequate respondents from the total number of the target population. Effective sampling,

therefore, gives a room to the generalisation of the findings to the targeted population making the research very practical and economical to conduct yielding more comprehensive information.

A sample is a small portion of the population that is selected for observation and analysis; one can make certain inferences about the characteristics of the population from which it was drawn (Best & Kahn, 2012).

The present study followed the design of a descriptive survey research in order to find out the Impact of Covid-19 on the teaching learning process of 10th standard students in Kerala concerning their gender, board of examination, year of exam.

The population of the present study is composed of teachers and students of tenth standard in Kerala. The sample of the study constituted 30 tenth standard teachers, and 120 tenth standard students studying in secondary schools of Malappuram and Kozhikode districts. Stratified random sampling procedure was used to select the sample for the study.

Table 1

List of selected secondary schools

SI. No	Name of school	Sample size
1	H.S.S Mukkam	10
2	G.H.S.S Manjeri	10
3	G.H.S.S Areacode	10
4	G.H.S.Pannipaara	10
5	Apex Public School	10
6	S.O.S.H.S.S Areacode	10
7	P.T.M.H.S Kodyathur	10
8	G.V.H.S.S Kizhuparamba	10
9	Greenvalley Public School	20
10	C.H.M.K.M.H.S.S Iruvetty	20

Tool Used for Data Collection

After a research design has been selected and it is decided who will be included in the study, the next step is to identify or develop suitable tools for collection of the desired information. Tools are nothing but the instruments that help the researcher to gather data.

During research process any instrument used to collect data consistent with the objectives of the study is known as tool.

The tools can be standardized tests which are readily available. If the standardized tests are not available then such tests are to be created, which should be reliable and appropriate for the respective research study.

In the present study to know the Impact of Covid-19 on the teaching learning process of 10th standard students in Kerala, researcher with the help of supervising teacher prepared two tools such as a scale and an Interview schedule and standardized it. The scale is a five point scale and an Interview Schedule were prepared. The scale is assessing the satisfaction of students and consists of 23 statements. In the process of standardization researcher has taken the advice and suggestions of experts. After pilot testing, item analysis was done, reliability and validity were calculated and tool was made standardized and after that Scale was used to know the satisfaction of 120 students. Complete process of construction and standardization of Scale is presented in detail below.

The researcher has also used the Interview Schedule to collect information to propose possible suggestions for online teaching learning for education curriculum based on teaching learning process, in descriptive manner.

In short, for the purpose of collecting data, the investigator used the following instruments for the study;

- ❖ Online learning satisfaction Scale for students (Anees & Geethu, 2020)
- ❖ Interview Schedule for teachers (Anees & Geethu, 2020)

Description of the Tools

The detailed description of the tools are given below

Online Learning Satisfaction Scale (OLSS)

Online learning satisfaction scale was used to measure the satisfaction of Parents and students towards Covid-19 on the teaching learning process of tenth standard students in Kerala. Online learning satisfaction scale, constructed and standardized by the investigator with the help of the supervising teacher, was used to measure the satisfaction of students towards Covid-19 on the teaching learning process of tenth standard students in Kerala.

Planning of the scale

The first step in the construction and standardization of the Scale was planning of the Scale.

After selecting the topic, the investigator reviewed relevant literature that cited numerous scales that were already being used for assessing satisfaction of teachers and students in educational settings. The investigator carried out an extensive search of the literature on the development of online learning satisfaction scale and testing.

Preparation of the scale

The scale was prepared on the basis of the five components were identified for assessing the satisfaction of secondary school students. After thorough investigation and scrutiny, the investigator selected five dimensions. The dimensions selected for assessing the satisfaction towards online teaching learning process of tenth standard students are given below.

Dimensions

1. Satisfaction related to teacher
2. Satisfaction related to learning
3. Satisfaction related to evaluation and achievements
4. Satisfaction related to institution
5. Satisfaction related to teaching learning process

Components of each Dimension

1. Teacher

A teacher (also called a school teacher or, in some contexts, an educators) is a person who helps students to acquire knowledge, competence or virtue. Informally the role of teacher may be taken on by anyone. The primary role of a teacher is to deliver classroom instruction that helps students learn. To accomplish this, teachers must prepare effective lessons, grade student work and offer feedback, manage classroom materials, productively navigate the curriculum, and collaborate with other staff.

Eg: - Teacher is the person who taught child math

- ❖ Subject knowledge

- ❖ Teaching competency
- ❖ Friendliness and approachability
- ❖ Personality and behaviour
- ❖ Level of adjustment and mental health
- ❖ Personal qualities
- ❖ Educational qualification
- ❖ Experience
- ❖ Integration of ICT
- ❖ Practical knowledge of child psychology
- ❖ Continue learning
- ❖ Applying different methods
- ❖ Evaluation techniques

2. Learner

A learner is someone who is learning about a particular subject or how to do something. Learners are responsible for attending class and completing reading and other assignments are proscribed by the teacher. Although their first role in the process is as passive listener, listening requires paying attention during the class.

Eg: - Learner completes activity of goal setting and level of aspiration

- ❖ Maturation and age
- ❖ Motivation
- ❖ Previous learning
- ❖ Intelligence
- ❖ Mental health

- ❖ Physical handicaps and dysfunctioning
- ❖ Diet and nutrition
- ❖ Attention and interest
- ❖ Goal setting and level of aspiration
- ❖ Learning style
- ❖ Parental support received

3. Evaluation and Achievements

To evaluate is defined as to judge the value or worth of someone or something. Evaluation is the systematic assessment of the design, implementation or results of an initiative for the purposes of learning or decision making. Achievement should be evaluated in terms of multiple objectives.

Eg: - Evaluate is when a teacher reviews a paper in order to give it a grade

- ❖ To the level of student
- ❖ Difficulty to the task
- ❖ Length of the task
- ❖ Meaningfulness of the task
- ❖ The similarity of the task
- ❖ Organized material

4. Institution

Educational institutions mean a school, junior college, college or university that is operated or directly supported by the United States.

Eg: - Institution helps to students for Child friendly management

- ❖ Transportation
- ❖ Infrastructural facilities
- ❖ Recreational facilities
- ❖ Infrastructure
- ❖ Child friendly management
- ❖ Stability of institutional standards
- ❖ Democratic classroom
- ❖ Physical and material resource

5. Teaching learning process

The teaching learning, therefore, becomes a process by which change in behavioral patterns are produced through experience. The teaching learning is brought about through teaching, the teaching process is the arrangement of the environment within which the students can interact and study how to learn. The process of teaching learning aims at the transmission of knowledge, imparting skills and information of attitudes, values and behaviour. Educationists have been trying to analyze the learning process in terms of the requirements of the society.

Eg: - Teaching learning process helps to students for Learning by doing

- ❖ Peer group support
- ❖ Distribution of practice
- ❖ Whole V/S part learning
- ❖ PTA
- ❖ Community involvement
- ❖ Knowledge of results/immediate feedback

- ❖ Learning by doing
- ❖ Technological gadgets
- ❖ Support materials
- ❖ Scholarship
- ❖ Education support
- ❖ Teacher student ratio
- ❖ Quality of teacher and their commitments
- ❖ Institutional achievements

Quantitative Analysis

Online learning satisfaction Scale for students

The investigators prepared 23 questions in the tool and are prepared for students of tenth standard, to assess online learning satisfaction towards the Covid-19. Each statement carries five responses viz., ‘always’, ‘often’, ‘sometimes’, rarely’, and ‘never ‘questions for preparation of tool according to adopting prompted weightage to each area. The tool was developed based on the five dimensions.

Twenty three items were prepared in all together and have items from all the dimensions.

Item analysis

For the purpose of selection of items for the final online learning satisfaction scale for students and online learning satisfaction scale for parents, item analysis was done to ensure the quality of items. The preliminary scale was

administered to a sample of 120 students and 100 parents selected through stratified sampling technique by giving due representation to type of institution.

Cronbach's alpha (α)

This method is commonly used as a measure of internal consistency or reliability of a test. This was developed by Lee Cronbach in 1951 as an extension of the Kuder-Richardson formula. This method uses the variance of scores of odd, even and total items to find the reliability.

$$\text{Cronbach's } \alpha = 2 [1 - (\sigma^2_{\text{odd}} + \sigma^2_{\text{even}}) / \sigma^2_{\text{total}}]$$

Cronbach's Alpha ranges from 0 to 1, with higher values indicating greater internal consistency (and ultimately reliability). Common guidelines for evaluating Cronbach's Alpha are:

- ❖ 0.0 to 0.5 = Unacceptable
- ❖ 0.5 to 0.6 = Poor
- ❖ 0.6 to 0.7 = Questionable
- ❖ 0.7 to 0.8 = Acceptable
- ❖ 0.8 to 0.9 = Good
- ❖ 0.9 to 0.99 = Excellent/Strong

Finalization of scale

Items having Cronbach alpha value more than 0.7 is selected. Thus 20 items were selected and 3 items were removed. Of these 10 items were positive statements and 10 items were negative statements.

A copy of the final version of the online learning satisfaction scale for students (English and Malayalam) is appended as Appendix I, and Appendix II and the response sheet of students is appended as Appendix III.

Table 2

Dimensions wise items of online learning satisfaction scale for students

Sl.No.	Dimensions	Item No. In scale	
		Positive items	Negative items
1	Teacher	10	4
2	Learning	5, 16	1, 2
3	Evaluation and Achievements	14, 15, 19	8
4	Institution	13	6, 11
5	Teaching learning process	12, 17, 18	3, 7, 9

Validity of the scale

Validity is that quality of a data gathering instrument or procedure that enables it to measure what it is supposed to measure (Best & Kahn, 2014).

Face validity

When a scale ‘appears to measure’ what the scale intends to measure, it is said to possess face validity. Thus, face validity refers not to what the scale measure, but what the scale ‘appears to measure’, i.e. whether it seems to be relevant to its various objectives. Scale content should not appear to be irrelevant, inappropriate, silly or childish. Present scale is prepared to find impact of Covid-19 on the teaching learning process of 10th standard students in Kerala. Language of scale and construction of items are checked by experts to make it accurate, therefore this scale shows face validity.

Content validity

Content validity considers whether or not the items on a given scale accurately reflect the theoretical domain of the teaching learning process of students to measure. Items need to effectively act as a representative sample of all the possible questions that could have been derived from the construct. In present

study content validity was established for the tools. Tools had been sent to the experts related to the respective fields. Content of subject was checked by subject experts and items suggested by them were selected. Therefore this scale shows content validity.

Reliability

A measurement procedure is reliable to the extent, to which it provides consistent results on repeated measurements. Consistency of result means that we get the same score on repeated measurement. The scale was administrated to a sample of tenth standard school student selected through stratified sampling technique by giving due representation to gender, board of examination, medium of instruction.

Cronbach's alpha is used as a measure of the internal consistency of the instrument. Cronbach's alpha is expressed as a correlation coefficient, ranging in value from 0 to +1. An estimate of 0.60 or higher is desired for judging an instrument to be reliable.

Table 3

Item wise scores of Cronbach's alpha

Item number	Cronbach's Alpha	Item number	Cronbach's Alpha
1	0.094	11	0.706
2	0.798	12	0.780
3	0.719	13	0.711
4	0.706	14	0.783
5	0.703	15	0.700
6	0.722	16	0.714
7	0.726	17	0.717
8	0.789	18	0.713
9	0.783	19	0.790
10	0.700	20	0.077

Data Collection Procedure

Appropriate numbers of secondary schools from Kozhikode and Malappuram districts were selected. It includes government, aided and unaided schools. Required permission was collected from the head of the institutions and the online learning satisfaction scale for students along with the personal data were given in the Google form to the class teachers of the tenth standard section. Class teachers forwarded the Google form to the students and asked them to fill the response sheet and submit it within a week.

Scoring and Consolidation of Data

Proper instructions about how to fill the response sheet were given in the online learning satisfaction scale. The response can be made in a five point scale as 'always', 'often', 'sometimes', 'rarely', and 'never' For a positive statement the score given is 5,4,3,2 and 1 for the options 'always', 'often', 'sometimes', 'rarely', and 'never' respectively. Scoring scheme is reversed for negative items. The scores on all the items are added to get the total score on scale.

The response sheets were scored according to the scoring procedure and were consolidated and tabulated for further statistical analysis. While scoring, incomplete response sheets were rejected and hence the sample size is reduced from 200 tenth standard students, to 120 tenth standard students.

Statistical Technique Used

The statistical techniques used for the analysis of data are explained below.

1. Preliminary Analysis
2. Percentage Analysis

3. Test of significance of difference between mean scores of the sample
4. One-way ANOVA

Preliminary analysis

Preliminary Analysis on any data set includes checking the reliability of measures, evaluation of the effectiveness of any manipulation of individual variable, and identifying outliers.

Mean

The mean is the most used method of describing central tendency. The mean is found out using the formula.

$$\bar{x} = A + \frac{\sum f_i d_i}{\sum f_i} \times c$$

Where

\bar{x}	=	Mean
A	=	Assumed mean
f_i	=	frequency of the class interval
d_i	=	$x_i - A$
c	=	length of the class interval
$\sum f_i$	=	Total number of scores

Median

Median is a point in an array, above and below which one half of the scores fall. It is the measure position rather than the magnitude.

The median is calculated using the formula

$$\text{Median} = l + \frac{h}{f} \left(\frac{N}{2} - c \right)$$

Where:

l = lower class boundary of the median class

h = Size of the median class interval

f = Frequency corresponding to the median class

N = Total number of observations i. e. sum of the frequencies

c = Cumulative frequency preceding median class.

Mode

Mode is defined as the score with the highest frequency. The most frequent score. It is called normal statistics.

Standard Deviation

Standard deviation is the most important measure of variability. The standard deviation is the square root of the average of the squares of deviations of the scores taken from mean. Standard Deviation is calculated using the formula.

$$\text{Standard deviation} = \sqrt{\frac{\sum fx^2}{\sum f} - \left(\frac{\sum fx}{\sum f} \right)^2}$$

Where,

f = frequency of the class interval

$\sum f$ = total number of scores

x = raw score

Skewness

A distribution is said to be skewed if the value of the mean, median and mode are different and there is no symmetry between the right and left half of the curve. Such type of curve is inclined more towards the left or right of the curve.

Skewness was calculated by using the formula

$$SK = \frac{3(\text{mean} - \text{median})}{\text{standard deviation}}$$

Kurtosis

The term kurtosis refers to the flatness or peakness of a frequency distribution as compared with the normal.

The following formula for measuring kurtosis is

$$\text{Kurtosis} = \frac{P75 - P25}{2(P90 - P10)}$$

Where,

P25 = 25th percentile

P90 = 90th percentile

P10 = 10th percentile

P75 = 75th percentile

Percentage Analysis

Percentage analysis is one of the basic statistical tools which is widely used in analysis and interpretation of primary data. It deals with the number of respondents response to a particular question is percentage arrived from the total population selected for the study.

Test of Significance of difference between means

The mean scores obtained are compared using the test of significance of difference between means for large independent sample. The formula used for finding the critical ratio is,

$$t = \frac{(X_1 - X_2)}{\sqrt{\frac{(S_1)^2}{n_1} + \frac{(S_2)^2}{n_2}}}$$

Where,

X₁ = Mean of each item in the upper group

X₂ = Mean of each item in the lower group

s₁ = standard deviation of each item in the upper group

s₂ = standard deviation of each item in the lower group

n₁ = Sample size of upper group

n₂ = Sample size of lower group

One-way ANOVA

The analysis of variance is an effective way to determine whether the means of more than two samples are different to attribute to sampling error (Best & Kahn ,2002). It help us to know whether any of the differences between the means of the given samples are significant.

Qualitative Analysis

Document analysis

Document Analysis is a form of qualitative research in which documents are interpreted by the research to give voice and meaning around an assessment topic. Analyzing document incorporates coding content into theme similar to how

focus group or Interview transcripts are analyzed. A rubric can also be used to grade or score document.

The method used for the first, second, fourth and fifth objective, i.e.,

- ❖ To list out the List out the learning strategies used for the 10th standard students in the Covid-19 pandemics
- ❖ To study the justification of running such programs for 10th standard student
- ❖ To assess the difficulties of the 10th standard students taught through the ETV programs and through online platforms
- ❖ To identify the board of examination differences on the coverage of content of 10th standard students during the pandemic situation

Interview Schedule

Teacher's satisfaction about their children's academic achievements in schools matters a lot. Their views can shape their children's attitudes about school. In addition to the online learning satisfaction scale, the investigator developed an interview schedule to propose possible suggestions for strengthening teaching learning process based on covid pandemic. It was prepared based on the five components selected for assessing the impact of Covid-19 on the teaching learning process of 10th standard students in Kerala.

Description of the Interview schedule

Open ended questions were included in the interview schedule because it gave the desired factual information. It covered the five dimensions for assessing the teaching learning, process of tenth standard students during the pandemic situation. i.e. is to list out the learning strategies used for the 10th standard students

in the Covid-19 pandemics education as perceived by teachers. As per the suggestions given by experts, 15 questions were finalized by the researcher and teachers were asked to give descriptive response so that their perceptions may be analyzed by the researcher.

Eg. of item: What is the learning strategies used for the online class?

A copy of the final version of the Interview Schedule is appended as Appendix III.

Validity of the Interview Schedule

Validity is that quality of a data gathering instrument or procedure that enables it to measure what it is supposed to measure. The validity of the Interview schedule tool is ensured through face validity by consulting with experts in the field of secondary education and education technology.

Sample used for the Interview

A good sample of population is the one that will produce the characteristic of the population with a great accuracy. Interview was conducted on 30 teachers of children studying in different secondary schools in Kozhikode and Malappuram districts.

Data Collection Procedure

After the selection of sample, investigator asked permission from the Head of the institutions and collected details of the teachers and calls the teacher person. Investigator conducted interviews with 30 teachers and recorded their responses appropriately. Through this technique the investigator got required data from selected samples of Kozhikode and Malappuram districts.

Analysis and Interpretation of Data

Investigator analysed the responses given by the teachers in detail. All their suggestions for improving learning process were recorded, categorized on the basis of five components and summarized properly.

Conclusion

In this chapter research method, population and sample of the study, research tools, sampling method and the collection of data is described. This chapter has started the base of the research and gave the basic framework on which the research was carried out by the researcher. It also dealt with the construction of tool, final construction of tool, reliability, validity, scoring and interpretation of data and statistical techniques used.

The process of analysis of data will conclude with the help of various techniques. The researcher will transform the calculated values of the collected data into tabulation and subsequently produce the findings which will be interpreted in accordance with justification of the framed hypotheses. Analysis of collected data and its interpretation were done in detail in the next chapter.

CHAPTER IV

ANALYSIS AND INTERPRETATION

-
- ❖ Preliminary Analysis
 - ❖ Test of Significance of Means
 - ❖ Analysis of Variance
 - ❖ Document Analysis
 - ❖ Interview
 - ❖ Conclusion
-

ANALYSIS AND INTERPRETATION

The proper arrangement and presentation of information collected during any type of research or study is essential because misleading conclusions may be drawn and the whole purpose of doing research may get violated. Analysis and interpretation of information is the heart of research. Research tool and statistical methods helps to classify whole data into summarized forms.

According to Sukhia and Malhrotra (1965), “Analysis of data means studying the tabulated material in order to determine inherent facts of meanings.”

In the present research, framed hypotheses were tested by significance of mean of gender, locality, employment, educational qualification of parents and type of pre-primary institution.

Data analysis

Data analysis is a process of applying statistical practices to organize, represent, describe, evaluate, and interpret data. It is a process used to inspect, transform and remodel data with a view to reach to a certain conclusion for a given situation.

Data analysis is typically of two kinds: qualitative or quantitative. The type of data dictates the method of analysis. In qualitative research, any non-numerical data like text or individual words are analysed. Quantitative analysis, on the other hand, focuses on measurement of the data and can use statistics to help reveal results and conclusions. The results are numerical. In some cases, both forms of analysis are used hand in hand. For example, quantitative analysis can help prove qualitative conclusions.

Analysis of the data means studying and organizing data in order to discover the inherent facts. It requires alertness, flexibility and open mind on the part of the investigator. Interpretation of data is done by taking the objective of the research and keeping in mind the hypotheses.

The quantitative data is collected through the use of online learning satisfaction scale. It needs to be systematically organized. The researcher collected the data representing the gender (male and female), board of education (Kerala, CBSE), medium of instruction (Malayalam, English). The researcher has analysed the data using the statistical methods Mean, median, mode, SD, t-test.

The qualitative data is collected through document analysis and interview schedule.

Interpretation of data

Data interpretation is not a routine and mechanical process but it emphasizes the meaningful, logical and critical examination of the fact obtained after analysis. Through it, researcher can link up search for broader meaning of research findings. Interpretation is the process of determining what the findings means and making sense of the evidence gathered.

Quantitative data interpretation is the process of analysing results from surveys, where information is often compiled into data tables and represented through graphs. In qualitative data interpretation, non-numerical data like text or individual views are analysed based on the response given by subjects. Researcher has accomplished the task of interpretation only after considering all relevant factors affecting the problem to avoid false generalization. Researcher has used

figures and graphs to show results of data analysis, along with the tables with raw numbers.

The present study is investigated to find out the impact of Covid-19 on the teaching learning process of 10th standard students in Kerala. On the basis of the results of the statistical processing, the investigator tested the hypotheses formulated. For qualitative data, document analysis and interview is used.

Preliminary Analysis

A preliminary analysis of the Variable of the present study was done to know the basic properties of the variables for the total sample and subsamples based on Gender, Board of Education, Medium of Instruction. This analysis was taken up with a view that the findings will help to make more valid interpretation of statistical indices of the study.

As a preliminary step, the important constants such as Mean, Median, Mode, Standard deviation, Skewness and Kurtosis were calculated for the independent variable online learning satisfaction for the total sample to test whether the variables follow the properties of normal distribution or not. The statistical constants for the independent variable for total sample are presented in table 4.

Table 4.

Descriptive statistics of the variable online learning satisfaction for the total sample

Variable	N	Mean	Median	Mode	SD	Skewness	Kurtosis
Online Learning Satisfaction	120	61.84	61.50	61.00	10.27	0.20	0.25

From the Table 4, it can be seen that there is not much variation among the values of three measures of central tendency viz, mean, median and mode of the variable online learning satisfaction. Table revealed that the extent of skewness is near to zero and the measure of kurtosis do not depart appreciably from that of normality, so it can be concluded that the distribution is approximately normal for the variable online learning satisfaction.

The smoothed frequency curve of online learning satisfaction for the total sample is shown in figure 1.

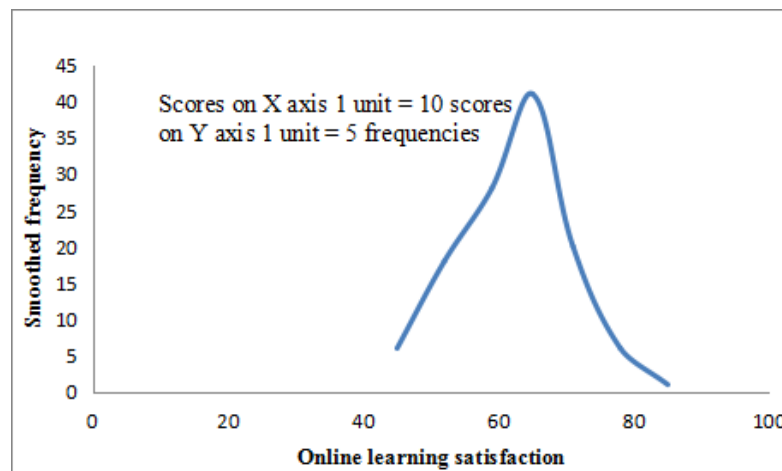


Figure 1. Smoothed frequency curve of online learning satisfaction for total sample

Percentage Analysis

The percentage of students with the levels of online learning satisfaction of total sample were found out using classificatory technique and were categorized as three levels, viz., High online learning satisfaction group, average online learning satisfaction group and low online learning satisfaction group. The number of samples coming under each level with percentage was given in table 5.

Table 5

Percentage of students with the levels of online learning satisfaction of total sample

Level of online learning satisfaction	Number of students	Percentage
1 High online learning satisfaction	21	17.5
2 Average online learning satisfaction	83	69.2
3 Low online learning satisfaction	16	13.3
Total	120	100

Table 5 indicates that 21 (17.3 %) have high online learning satisfaction group, 83 (69.2 %) have average online learning satisfaction group and 16 (13.3 %) of students have low online learning satisfaction group. Hence it was revealed that most of the students have average level online satisfaction group.

Pie diagram representing percentage of different levels of the independent variable online learning satisfaction for the total sample is shown in figure 2.

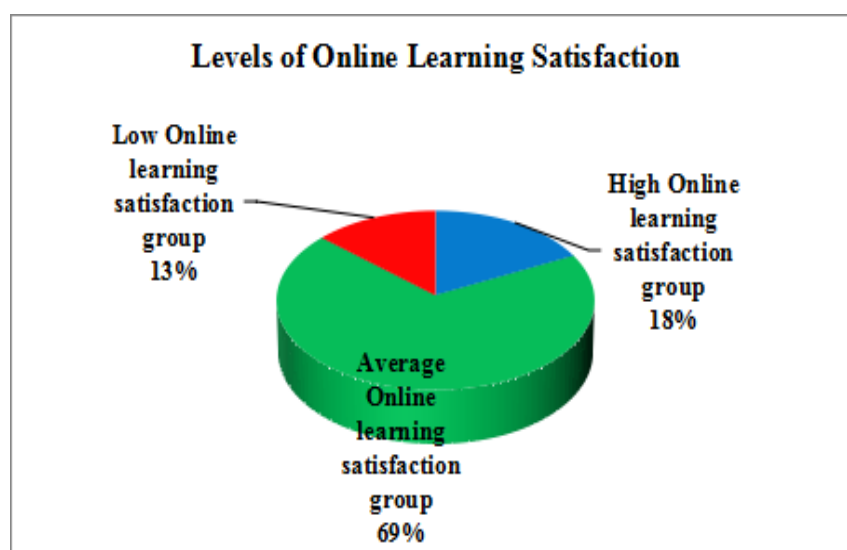


Figure 2. Pie diagram representing the percentage of different levels of online learning satisfaction for the total sample.

Test of significance of difference between means

This part of analysis was intended to find out whether there is any significant difference in the mean scores of online learning satisfaction among sub samples based on gender, board of examination and medium of instructions.

i. Mean difference in the scores of online learning satisfaction for the sub sample Gender

As part of the analysis the difference in the mean scores of Online learning satisfaction for the sub sample gender was found out. For this purpose, the mean and standard deviation of online learning satisfaction between Boys and Girls were subjected to two tailed test of significance of difference. The results of t test are given in Table 6.

Table 6

Data and result of the test significance of difference between in the mean score of online learning satisfaction for the total sample based on gender

Variable	Gender	N	Mean	SD	t	Level of significance
Online learning satisfaction	Boy	60	62.88	11.21	1.11	*NS
	Girl	60	60.80	9.19		

*NS- Not Significant

Table 6 shows that the Boys have a mean of 62.88 with a standard deviation 11.21. Also Girls have a mean of 60.80 with standard deviation of 9.19. The critical ratio for the test of significance of difference in the mean of online learning satisfaction of Girls and Boys is found to be 1.11 which is less than the table value 1.96 at 0.05 level of significance. This reveals that there exists no significant difference in the mean of online learning satisfaction of Girls and Boys

students. The mean score of Girls and Boys students is graphically represented in figure 3.

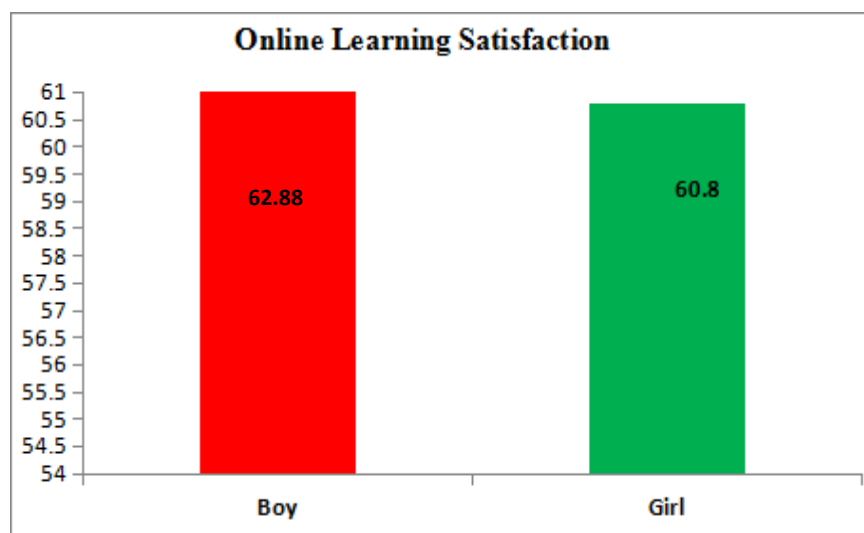


Figure 3. Graphical representation of mean difference in online learning satisfaction based on gender

ii. Mean difference in the scores of online learning satisfaction for the sub sample Board of Education

As part of the analysis the difference in the mean scores of online learning satisfaction for the sub sample board of education was found out. For this purpose, the mean and standard deviation of online learning satisfaction between both Boards of Education were subjected to two tailed test of significance of difference. The results of t test are given in Table 7.

Table 7

Data and result of the test significance of difference between in the mean score of online learning satisfaction for the total sample based on board of education

Variable	Board of Education	N	Mean	SD	t	Level of significance
Online learning satisfaction	Kerala	80	62.67	9.88	1.26	*NS
	CBSE	40	60.17	10.91		

*NS- Not Significant

Table 7 shows that the Kerala state board students have a mean of 62.67 with a standard deviation 9.88. Also CBSE students have a mean of 60.17 with standard deviation of 10.91. The critical ratio for the test of significance of difference in the mean of online learning satisfaction of both groups is found to be 1.26 which is less than the table value 1.96 at 0.05 level of significance. This reveals that there exists no significant difference in the mean of online learning satisfaction of both groups of students.

The mean score of Girls and Boys students is graphically represented in figure 4.

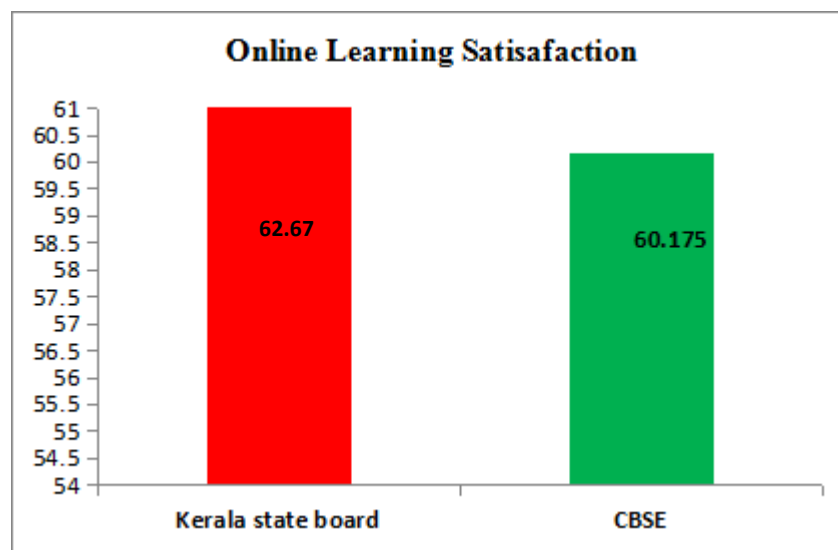


Figure 4. Graphical representation of mean difference in online learning satisfaction based on board of education

iii. Mean difference in the scores of online learning satisfaction for the sub sample Medium of Instruction

As part of the analysis the difference in the mean scores of online learning satisfaction for the sub sample Medium of instruction was found out. For this purpose, the mean and standard deviation of online leaning satisfaction between

both medium of instructions were subjected to two tailed test of significance of difference. The results of t test are given in Table 8.

Table 8

Data and result of the test significance of difference between in the mean score of online learning satisfaction for the total sample based on medium of instruction

Variable	Medium of Instruction	N	Mean	SD	t	Level of significance
Online learning satisfaction	Malayalam	80	62.67	9.88	1.26	*NS
	English	40	60.17	10.91		

*NS- Not Significant

Table 8 shows that the Malayalam medium students have a mean of 62.67 with a standard deviation 9.88. Also English medium students have a mean of 60.17 with standard deviation of 10.91. The critical ratio for the test of significance of difference in the mean of online learning satisfaction of both groups is found to be 1.21 which is less than the table value 1.96 at 0.05 level of significance. This reveals that there exists no significant difference in the mean of online learning satisfaction of both groups of students.

The mean score of Girls and Boys students is graphically represented in figure 5.

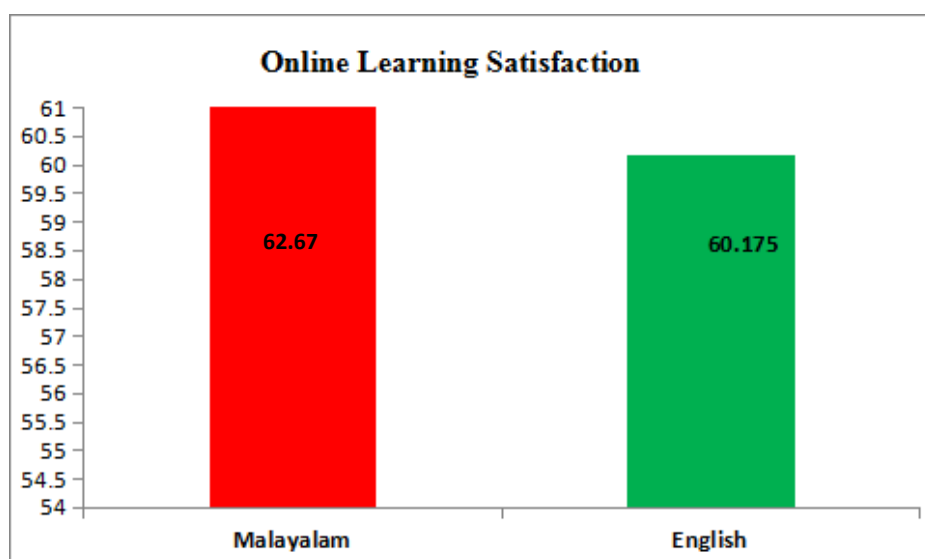


Figure 5. Graphical representation of mean difference in online learning satisfaction based on medium of instruction.

One-way ANOVA

To find out the Academic achievement of 10th standard students in pre-phase and peri-phase of Covid-19, the technique one-way ANOVA is employed. Being a parametric technique, ANOVA has some basic assumptions viz.,

1. The distribution of the dependent variable shows normality.
2. Homogeneity of variance.
3. The sample drawn should be random and independent.

The statistical constant and graphical representation obtained for the dependent variable reveals that Covid-19 is normally distributed in the total sample.

Since the sample is drawn from the normal population and also is sufficiently large, the investigator assumes that there is homogeneity of variance. As the samples in the present study are randomly and measures are independent, it also satisfies the third basic assumptions of ANOVA. As the basic conditions of

ANOVA are almost satisfied, ANOVA is carried out. The statistical analysis and discussion of the result with regard to this technique are described under the following sections.

Data and results of the test of One-way ANOVA of academic achievement for the subgroup based on Covid-19 Pre-phase are presented in the table 9.

Table 9

Summary of Analysis of Variance of academic achievement for the pre-phase of Covid-19

Source of variation	Sum of squares	Df	Mean Square	F-Value	Sig
Between Group	4485.86	37	121.23	0.07	0.80
Within Group	12905.60	82	157.38		
Total	17391.46	119			

*NS- Not Significant

From Table 9, it can be found that 'F' value obtained is 0.07 which is less than 1.96, the tabled value of 'F' for (37,82) degrees of freedom at 0.05 level.

It shows that achievement of 10th standard students in subgroups based on the teaching learning process is 0.07. which is less than the tabled value at 0.05 level of significant. Thus there is no significance difference in the mean score of achievement and teaching learning process.

Table 10

Summary of Analysis of Variance of academic achievement for the peri-phase of Covid-19

Source of variation	Sum of squares	Df	Mean Square	F-Value	Sig
Between Group	7239.43	37	195.66	0.80	0.77
Within Group	20048.56	82	244.49		
Total	27288.00	119			

*NS- Not Significant

From Table 10, it can be found that 'F' value obtained is 0.80 which is less than 1.96, the tabled value of 'F' for (37,82) degrees of freedom at 0.05 level.

It shows that achievement of 10th standard students in subgroups based on the teaching learning process is 080 which is less than the tabled value at 0.05 level of significant. Thus there is no significance difference in the mean score of achievement and teaching learning process.

Document Analysis

The first, second, third and fourth objective was to list out the learning strategies used for the 10th standard students in the Covid-19 pandemics, to study the justification of running such programs for 10th standard students, to assess the difficulties of the 10th standard students taught through the ETV programs and through online platforms, to identify the board of examination differences on the coverage of content of 10th standard students during the pandemic situation. The investigator listed the learning strategies used for the 10th standard students in Kerala. With the guidance from the supervising teacher, investigator collected

data from journals, articles, and books in order to reach the first, second, third and fourth objective of the study. The investigator also conducted a structured interview to 30 teachers. The collected information were categorised on the basis of five dimensions are listed as online learning strategies used for 10th standard students in Covid-19 pandemics.

Qualitative Analysis of Interview

To know the satisfaction of teacher's possible suggestions for improving online learning education, the qualitative analysis was done by the researcher based on the following questions asked in the research tool as Interview Schedule.

Question no. 1

Which learning methods are used to take classes?

This question was intended to know the teachers opinion about the first dimension. For this question, teachers are explained many learning strategies are used for teaching during Covid-19 pandemic situation. WhatsApp, Google meet, Zoom, etc. are the most commonly used learning strategies.

Question no. 2

Why did classes start to switch to the above mentioned online learning method?

This question was intended to know the teacher opinion about the fourth dimension. For this question, teachers expressed their opinion about new teaching method is adopted as children and teachers are unable to attend school as per the current situation. Many points were expressed by teachers.

Question no. 3

What are advantages of such learning method? What are the disadvantages?

This question was intended to know the teacher opinion about the fifth dimension. For this question, teachers expressed their opinion; all teachers have same opinion on this question. Able to take face to face classes can solve children's doubts, and new learning style introduced to child etc. are the advantages of learning method and network issues are the main disadvantages of this learning method.

Question no. 4

What are the difficulties experienced in the learning method?

This question was intended to know the teacher opinion about the second dimension. For this question, teachers expressed their opinion about this question. Children's seem to be less interested in learning from the current learning style. All teachers are asked about the same opinion.

Question no. 5

Does the new learning method improve children's knowledge? Or going backwards? Can you explain the reason?

This question pointed on the second dimension. Teachers are satisfied about this question. Children's knowledge new learning method improves and goes backwards. Their knowledge is used more in the current learning methods.

Question no. 6

Can you tell us about the current development of children in the social and emotional sphere?

This question pointed on the second dimension. All teachers are the same opinion about this question. Develop the children's knowledge according to the new learning method.

Question no. 7

What about their excellent when compared to last year's SSLC students and this year's SSLC students?

This question pointed on the third dimension. In the opinion of all teachers, children's learning is going backwards.

Question no. 8

How to teach them practical and other difficult topics on online?

This question pointed on the third dimension. All teachers suggested the Youtube are the main medium.

Question no. 9

Do children ask questions? When to give time to ask questions?

This question was intended to know the teachers perception about the second dimension motivation, previous learning, intelligence, attention and interest, Goal setting and level of aspiration, etc. Teacher's opinion about these question children to ask questions while taking the class time.

Question no. 10

Are students able to take exams on time? How the exam papers are valued?

This question was intended to know the teacher's perception about the fifth dimension. It is possible to take the exam on time.

Question no. 11

Can you explain why the learning resources related to the school institution are not used?

This question was intended to know the teacher's perception about the fifth dimension.

Question no. 12

What do you say about the learning facilities that children need at home?

This question was intended to know the teacher's perception about the first dimension.

Question no. 13

**Are you discussing with parents about their children's learning excellence?
Which way to tell them things is to understand?**

This question was intended to know the teacher's perception about the first dimension.

Question no. 14

What do you think should be the nature of education during this period?

This question was intended to know the teacher's perception about the fifth component.

Question no. 15

Sir, are you satisfied with the new learning method? Why?

This question was intended to know the teachers perception about the fourth dimension. 75% Teachers are satisfied new teaching method. The lockdown has compelled many educational institutions to cancel their classes, examinations, internships etc. and to choose the online modes. Initially, the students were quite confused and didn't understand how to cope up with the situation of this sudden crisis that compelled closure of the educational activities. But latter on all realized that the lockdown has taught so many lessons to manage with the emergence of such pandemics.

Conclusion

In the present chapter, quantitative data were analysed and interpreted by checking of hypotheses through finding out Mean, SD, and t-value. The qualitative analysis is done based on descriptive statements given by the students and parents. The data analysed and interpreted helped the researcher to arrive at findings, suggestions and conclusions. This was the final step of the research process which involved critical and logical thinking. Thus the researcher was able to list all the findings about research study after analysis and interpretation of the data. In the next chapter the researcher will discuss the summary, findings and suggestions for further research in detail. Thus it will give a clear idea about the whole study.

CHAPTER V

SUMMARY, FINDINGS, AND SUGGESTIONS

-
- ❖ Study in Retrospect
 - ❖ Major Findings of the Study
 - ❖ Tenability of Hypotheses
 - ❖ Educational Implications of the Study
 - ❖ Suggestions for Further Research
-

SUMMARY, FINDINGS AND SUGGESTIONS

For any kind of work, initial play a vital role in research. Similarly, end of work also need proper conclusion. Conclusions are the mirror of research work; conclusions are presented in such a way that inferences of research are reflected clearly. The result obtained out of statistical analysis is considered to be the findings of the study based on which the researcher makes appropriate suggestions. These findings are nothing but researcher's objective outlook based on the research conducted. The findings give the researcher an insight into the problem and the solution reflects scientific approach of the problem. The solution is a scientific manifestation of the systematic process of studying a complex problem.

Overall in the last chapter of research report, an overview of the significant aspects of the various stages of the study is provided. This chapter includes study in retrospect, major findings of the study, educational implications and suggestions for the further research.

Study in Retrospect

This section tries to make a retrospective study of the title, variables, objectives, hypotheses, methodology, tools and statistical technique used for the study.

Statement of the Problem

The proposed study is entitled as: **“Impact of Covid-19 on the teaching learning process of 10th standard students in Kerala.”**

Variables of the Study

The present study involves two types of variables, independent variable and dependent variable. The dependent variable in the study is Covid-19 and independent variable is the teaching learning process of tenth standard students.

Objectives of the study

The major objectives of the proposed study are;

- ❖ List out the learning strategies used for the 10th standard students in the Covid-19 pandemics
- ❖ To study the justification of running such programs for 10th standard students
- ❖ To assess the 10th standard student's extent of satisfaction towards the teaching learning process during the pandemic
- ❖ To assess the difficulties of the 10th standard students taught through the ETV programs and through online platforms
- ❖ To identify the board of examination differences on the coverage of content of 10th standard students during the pandemic situation
- ❖ To compare the academic achievement of 10th standard students in pre-phase and peri-phase of Covid-19
- ❖ To find out whether there exists any significant difference in the online learning satisfaction of 10th standard students in the subsamples based on:

(a) Gender (b) Board of Examination (c) Medium of Instruction

Hypotheses of the Study

- ❖ There is no significant difference in the academic achievement of 10th standard students in 2019 and 2020 year batches
- ❖ There is no online learning difference in the academic satisfaction 10th standard students in the subsamples based on

(a) Gender (b) Board of Examination (c) Medium of Instruction

Methodology

The study was intended to investigate the Impact of Covid-19 on the teaching learning process of 10th standard students in Kerala. The investigator used mixed research method for the study. In Descriptive research Survey method is applied for collecting the data from students and appropriate quantitative and qualitative techniques is used for analyzing the data. Interview and Document analysis are employed to collect qualitative data.

Sample

The sample of the proposed study consist of 120 tenth standard students and 30 teachers from different schools located in Kozhikode and Malappuram districts of Kerala. Stratified sampling technique is used by giving due representation to gender, board of examination, and medium of instruction.

Tool

- ❖ Online learning satisfaction Scale for students
- ❖ Interview Schedule for teachers

Both tools are developed and validated by the investigator with the guidance of the supervising teacher.

Data collection procedure

After selecting the sample, the researcher contacted the head of the institutions and seeks permission to administer the tool. Relevant instructions are given to the selected sample for the effective administration of the scale and interview. During the interview the points are noted by the investigator itself.

Statistical Techniques

The following statistical techniques are used for the analysis of data;

- ❖ Preliminary Analysis - Mean, Median, Mode, SD, Kurtosis & Skewness
- ❖ Percentage Analysis
- ❖ t-Test of significance of difference between mean scores of the sample
- ❖ One-way ANOVA

Major Finding of the Study

Major Findings of the Study Important findings of the study are presented below:

- ❖ Value of mean, median and mode of the variable, online learning satisfaction scale of students are 61.84, 61.50, and 61.00, for the total sample. It indicates that the value of mean, median and mode coincide approximately for the total sample. The indices of skewness ($SK = -0.202$) show that the distribution of scores of students is negatively skewed for the total sample. The indices of

kurtosis for students reveals that the distribution of scores of students ($K=0.249$) is leptokurtic in nature for the total sample of the students. Thus, the distribution of the scores of online learning satisfaction shows that the distribution is almost normal.

- ❖ The total sample contain 21 (17.3 %) have high online learning satisfaction group, 83 (69.2 %) have average online learning satisfaction group and 16 (13.3 %) of students have low online learning satisfaction group. Hence it was revealed that most of the students have average level online satisfaction group.
- ❖ The difference in the mean scores of Online learning satisfaction for the sub sample gender was found out. For this purpose, the mean and standard deviation of online learning satisfaction between Boys and Girls were subjected to two tailed test of significance of difference.
- ❖ Boys have a mean of 62.88 with a standard deviation 11.21. Also Girls have a mean of 60.80 with standard deviation of 9.19. The critical ratio for the test of significance of difference in the mean of online learning satisfaction of Girls and Boys is found to be 1.11 which is less than the table value 1.96 at 0.05 level of significance. This reveals that there exists no significant difference in the mean of online learning satisfaction of Girls and Boys students.
- ❖ The Kerala state board students have a mean of 62.67 with a standard deviation 9.88. Also CBSE students have a mean of 60.17 with standard deviation of 10.91. The critical ratio for the test of significance of difference in the mean of online learning satisfaction of both groups is found to be 1.26 which is less than the table value 1.96 at 0.05 level of significance. This

reveals that there exists no significant difference in the mean of online learning satisfaction of both groups of students.

- ❖ The Malayalam medium students have a mean of 62.67 with a standard deviation 9.88. Also English medium students have a mean of 60.17 with standard deviation of 10.91. The critical ratio for the test of significance of difference in the mean of online learning satisfaction of both groups is found to be 1.21 which is less than the table value 1.96 at 0.05 level of significance. This reveals that there exists no significant difference in the mean of online learning satisfaction of both groups of students.
- ❖ Achievement of 10th standard students in subgroups based on the teaching learning process is 0.07. which is less than the tabled value at 0.05 level of significant. Thus there is no significance difference in the mean score of achievement and teaching learning process.
- ❖ Achievement of 10th standard students in subgroups based on the teaching learning process is 0.80 which is less than the tabled value at 0.05 level of significant. Thus there is no significance difference in the mean score of achievement and teaching learning process.

Findings Related to Objectives

The pandemic Covid-19 has spread over whole world and compelled the human society to maintain social distancing. It has significantly disrupted the education sector which is a critical determinant of a country's economic future. Outbreak of Covid-19 has impacted more than 120 crores of students and youths

across the planet. In India, more than 32 crores of students have been affected by the various restrictions and the nationwide lockdown for Covid-19. As per the UNESCO report, about 14 crores of primary and 13 crores of secondary students are affected which are two mostly affected levels in India.

After observing the corona virus pandemic situation the WHO advised to maintain social distancing as the first prevention step. So, every country started the action of lockdown to separate the contaminated people. The education sector including schools, colleges and universities became closed. Classes suspended and all examinations of schools, colleges and universities including entrance tests were postponed indefinitely. Thus, the lockdown destroyed the schedules of every student. Though it is an exceptional situation in the history of education, Covid-19 has created many opportunities to come out of the rigorous classroom teaching model to a new era of digital model.

The lockdown has compelled many educational institutions to cancel their classes, examinations, internships etc. and to choose the online modes. Initially, the students were quite confused and didn't understand how to cope up with the situation of this sudden crisis that compelled closure of the educational activities. But latter on all realized that the lockdown has taught so many lessons to manage with the emergence of such pandemics. Thus, Covid-19 has created many challenges and opportunities for the educational institutes to strengthen their technological knowledge and infrastructure.

The lockdown has given them a ray of hope for teachers and students to continue their educational activities through online. The teachers assigned work to

students via internet, delivered lectures through live video conferencing using different Apps like Zoom, Google meet, Facebook, Youtube, and Skype etc. There are WhatsApp groups of guardians, teachers, students and parents for affective communication through which they are always in touch to share their difficulties through this e-medium.

Objective 1 List out the learning strategies used for the 10th standard students in the Covid-19 pandemics.

To get the findings of objective one, researchers conducted a survey study in which percentage analysis have been done to reveal the different type of online teaching strategies or online teaching modes adopted by the teachers and students during the lockdown period. Schools in India have been working hard in creating a comprehensive online infrastructure for the effective remote learning of their students.

Educational institutions in most countries are now closed to contain the spread of coronavirus, resulting in the home-schooling of millions of students globally. Schools in India have been working hard in partnership with the parents and educational boards in creating a comprehensive online infrastructure for the effective remote learning of their students.

Online Learning Strategies in which online learning involves studying without necessarily going to the classes. The learning program is aimed at helping the learners who are not willing to attend the lessons physically or committed in other activities. The programs are in pursuit for online content delivery and interactions with learners. Learners usually experience challenges especially when

it comes to effective planning, technological use, and time management. Also, the process does not involve visual or nonverbal feedback, and therefore hindering productive learning.

Online/web-based learning programme In light of Covid-19 pandemic, a wide array of public and private services has been suspended country wide.

Online learning tools used for teaching,

❖ Hangouts

❖ Google Meet

❖ Zoom

❖ Google Classroom

❖ WhatsApp

Objective 2 To study the justification of running such programs for 10th standard students.

To get the findings of objectives two, that is study the perceptions of teachers and students on online teaching learning during Covid-19 pandemics, the content analysis of the questionnaire on the perception of teachers and students over teaching learning has been done.

The justifications for the use Hangouts, Google meet and Zoom to connect with learners in real-time. Whereas the latter requires a class work management platform, and Classroom application by Google to organize and manage all teaching learning activities which include sharing resources with learners,

designing worksheets and tests, assigning individual and collaborative work, providing feedback to individual learners, and grading. In addition to these, also upload resources such as notes, videos, and presentations on Edusprint, a native digital class work management system, from where parents and students can access and download all of the resources.

To teach remotely, a teacher requires a way to:

- ❖ Communicate with learners in real-time, share with learners a variety of resources in different file formats, assign them individual or collaborative work,
- ❖ Assess learners' understanding as it evolves during the lesson and make changes in the teaching strategy to improve overall learning outcome-formative assessment and evaluate their learning at the end of chapters/unit for grading purposes-summative assessment.
- ❖ Provide individual learners with feedback on their work for further improvement.

1. Hangouts Meet

A video-conferencing application available exclusively to the users of G Suite. It allows a teacher with a G Suite account to schedule a meeting using Google Calendar and invite learners to connect online via their phone, tablet, laptop, or desktop. The invitation can be sent to anyone with a regular gmail.com account; however, the meeting can be initiated only through a G Suite account. Aside from video conferencing, Meet allows the host to share their live screen

with the participants. This feature comes in handy when the teacher wants to show learners a live presentation, a virtual whiteboard, a video, etc. This is especially useful for math lessons.

2. Zoom

For those who do not have a G Suite account, Zoom is a good alternative of Meet. Zoom is another online video-conferencing application similar to Hangouts Meet but not affiliated with Google.

Like Meet, Zoom also features a screen sharing option along with in-built whiteboard that the teachers can share with learners which is great for teaching remotely. The free version of the application allows continuous streaming of only 40 min after which the host needs to restart the meeting.

3. Google Classroom

Google Classroom is a classroom management app that relieves the teacher from much of the administrative tasks and can be accessed through most G Suite and gmail.com accounts. This app features a host of useful applications that can help teachers streamline online classroom work, track learners' progress, and better engage them in online learning activities. Following are some of the features of the Classroom that teachers may find useful:

◆ Online assignment and assessment

The only way to measure the effectiveness of a lesson is to measure students' learning outcome at the end of the class. For this reason, provision for

online assignment and assessment in Classroom is perhaps the most useful feature of the Classroom app as it allows the teacher to measure and track learners' progress and modify their teaching strategy as need be.

This feature enables the teacher to design worksheets and assessments specific to learners' needs. The platform also differentiated assessment and support as it allows the teacher to design learner-specific worksheets.

The types of questions the teacher can create include short answer, paragraph, multiple choice, checkboxes, dropdown, multiple choice grid, etc. The app also comes with a built-in auto-grader. Moreover, it allows the teacher to provide learners with feedback on a learner's response to individual questions.

◆ Sharing and managing resources

The platform allows the teacher to share resources in a variety of file formats with learners. A most useful feature is perhaps the ability to schedule the release of materials and assessment at specific times in the future.

◆ Incorporating YouTube videos

Classroom allows the teacher to incorporate YouTube video into assignment and quiz and design questions around it. The video can be played as the learner is working on the assignment or the quiz.

◆ Managing grades

Much of the grade management is automatic but the teacher has full control over changing grades as need be.

◆ Managing people in class

The app gives the teacher complete authority to remove anyone from the class. This is an important provision as it allows the teacher to remove suspicious accounts that may compromise the online safety and privacy of learners.

◆ Online collaborative learning

The classroom is compatible with other Google products including Google Docs, Google Sheet, Google Slides, etc. that can be used to design a number of assignments that require learners to work collaboratively.

Objective 3 To assess the 10th standard student's extent of satisfaction towards the teaching learning process during the pandemic. Students have high extent of satisfaction with online teaching learning process.

Objective 4 To assess the difficulties of the 10th standard students taught through the ETV programs and through online platforms

◆ **Organization of work processes & time management**

The teachers are supposed to move their classes online right away having no additional training and extra budget. A comprehensive learning management system usually cost an arm and a leg, so teachers have to use numerous digital tools to deliver e-learning. They start their day by opening multiple tabs for multiple purposes, switching between them.

They attend virtual school, parents, and student meetings, trying to handle the amount of information we're facing right now and decide on the teaching

strategy. They should grade the assignments coming from different places. They stay online 10 hours per day to clean up this mess, set up, streamline the processes making online learning more efficient. And this isn't the full list of challenges in online teaching.

◆ **Gadgets shortage & crashing systems**

Not every student & teacher has a personal gadget to use for online learning. Many of them are supposed to share the laptops and computers with their parents, sisters/ brothers to stay on track. Another problem everyone's faced is a computer crash that usually happens at the most unexpected moment.

◆ **Connectivity**

Millions of people around the world are experiencing technical difficulties because of the high usage rate of online learning systems, video streaming software, & other digital tools. The platforms are overloaded: poor quality video and audio, internet problems. Internet connection is either unstable or the current data plan is not enough to cover the progressive e learning needs. Students in both urban and rural areas are struggling with the "homework gap". Teachers are trying to manage the bad internet connection during the online lessons.

◆ **Computer literacy**

It's hard for teachers, students, and parents to start using a learning management system or any other digital tool out of nowhere without additional

training. They could be overwhelmed by the amount of data they deal with trying to go digital, as well as frustrated facing the unknown.

◆ **Deaf or hard of hearing students**

The deaf and hard of hearing students were taken from their offline classes with interpreters and put home with poor ability to adjust the remote learning to their needs as well as amplify these adjustments. Provided that online learning is already a kind of challenge for the students, those deaf or hard of hearing facing a double problem multiplying the chances of falling behind.

◆ **Data privacy**

From the very beginning of school shutdown, teachers and students have been connected using multiple digital tools without paying due attention to the amount and nature of the personal data they collect. Reaching the main objective of a quick transition to online learning, we had to neglect our privacy, especially when large e-learning software suppliers offer temporary free subscription plans.

The recent case of Zoom, a remote conference services company that has appeared to store all video conference recordings on storage space without a password, proves we have to thoughtfully approach choosing the digital tools for online learning delivery.

◆ **Security**

The covid-19 outbreak, as well as any other crisis, is a fertile ground for cyber criminals, unleashing the wave of cyber attacks. Keeping the sensitive data

from being stolen is a number one priority for digital tools that help deliver e-learning.

◆ **Isolation**

This rather psychological factor is still highly affecting students' motivation and learning progress. Being in the classroom, students got used to instant eye-to-eye communication with each other allowing reacting together, sharing the experience, joking, & making a non-verbal contact, strengthening the social skills. For many students, a classroom has been a kind of sanctuary, which is now taken away. It's not a surprise most of them feel isolated, scared by the pandemic, parents' job loss, friends' disconnection.

◆ **Lack of interaction**

During the online lectures, it's hard to keep students engaged without a teacher's physical presence and face-to-face contact. Moreover, a key concern is connected to science labs (physics, chemistry, etc.), impossible to put into practice without in-person instructions and courses relying mostly on hands-on work (i.e. art classes).

Objective 5 To identify the board of examination differences on the coverage of content of 10th standard students during the pandemic situation

The Central Board of Secondary Education, board has rationalized the class 10 syllabus of all subjects up to 30% and Kerala state board has rationalized the class 10 syllabus of all subjects up to 20%.

Key highlight of the CBSE and Kerala state board class 10

- ◆ No reduction in units included in each subject
- ◆ A few topics from the each unit eliminated to reduce the syllabus

Objective 6 To compare the academic achievement of 10th standard students in pre-phase and peri-phase of Covid-19.

There has been lot of improvements in students academic achievements in 2020 compared to 2019.

Objective 7 To find out whether there exists any significant difference in the online learning satisfaction of 10th standard students in the subsamples based on:

(a) Gender (b) Board of Examination (c) Medium of Instruction

Gender

The critical ratio for the test of significance of difference in the mean of online learning satisfaction of Girls and Boys is found to be 1.11 which is less than the table value 1.96 at 0.05 level of significance. This reveals that there exists no significant difference in the mean of online learning satisfaction of Girls and Boys students.

Board of Examination

The critical ratio for the test of significance of difference in the mean of online learning satisfaction of both groups is found to be 1.26 which is less than the table value 1.96 at 0.05 level of significance. This reveals that there exists no

significant difference in the mean of online learning satisfaction of both groups of students.

Medium of Instruction

The critical ratio for the test of significance of difference in the mean of online learning satisfaction of both groups is found to be 1.21 which is less than the table value 1.96 at 0.05 level of significance. This reveals that there exists no significant difference in the mean of online learning satisfaction of both groups of students.

Findings Related To Interview Schedule

Majority of teachers (85%) are satisfied new teaching method. The lockdown has compelled many educational institutions to cancel their classes, examinations, internships etc. and to choose the online modes. Initially, the students were quite confused and didn't understand how to cope up with the situation of this sudden crisis that compelled closure of the educational activities. But latter on all realized that the lockdown has taught so many lessons to manage with the emergence of such pandemics.

Positive impact of Covid-19 on education

- ❖ Move towards blended learning
- ❖ Rise in use of learning management system
- ❖ Improvement of collaborative work
- ❖ Better time management

- ❖ Worldwide exposure

Negative impact of Covid-19 on education

- ❖ Impact on employment
- ❖ Unprepared teachers/students for online education
- ❖ Access to digital world
- ❖ Loss of nutrition due to school closure
- ❖ Access to global education

Tenability of Hypotheses

- ❖ The first hypothesis states that there is no significant difference in the academic achievement of 10th standard students in 2019 and 2020 year batch. Finding of the study reveal there is no significant difference in the academic achievement of 10th standard students in 2019 and 2020 year batch. So the first hypothesis is accepted.
- ❖ The second hypothesis there is no online learning difference in the academic satisfaction 10th standard students in the subsamples based on gender, board of examination, medium of instruction. Findings of the study reveal that there is no academic satisfaction 10th standard student in the subsamples based on gender, board of examination, medium of instruction. So the second hypothesis is accepted.

Educational Implications

- ❖ The Covid-19 pandemic has affected educational system around the world which has led to temporarily closure of an educational institution. As a result, new alternatives for academic delivery and virtual classes have been boosted in the present scenario. Educational institutions clauses not only on students, teachers.
 - i. Everyone in the country could not afford gadgets for online education
 - ii. Use of mobiles and laptops are not comfortable in all causes for students for all ages
- ❖ Covid pandemic has transferred century old, chock-board teaching model by technology. Network issue, less attendance, lack of personal touch is the major drawback of virtual classes.
 - i. Grade 10th students are more worried
 - ii. Low –income private and Govt. school have completely showdown for not having assess to e-learning
- ❖ Teaching learning process aims to bring changing behaviour of the students, not just accumulation knowledge.
- ❖ In the regular/ conventional educational system/ environment there will be an active intellectual communication between students and teachers and also in between the students.

- ❖ This intellectual and productive communication result in a more effective and active learning. This will in turn create more enthusiasm for learning.
- ❖ Utilizing the new technologies like augmented reality in online class room can bring new visual treat for students but definitely lack in creating an educational atmosphere, which can influence to improve both learning process and personality traits of a students and help to evolve as a ideal person for the society. Whereas the online education system fall far behind to create such persons.

Suggestions for further study

- ❖ The findings of the study and limitations encountered in the present study helped the investigator to suggest the following for further research.
- ❖ Same study can be replicated at higher secondary, post-graduate and student teachers level.
- ❖ The same study can be extended to all classes of students
- ❖ The present study can be extended to other districts in Kerala.
- ❖ The study can be repeated in physically disabled students.

Conclusion

The present study is designed to know Impact of Covid-19 on the teaching learning process of 10th standard students in Kerala. This is the first attempt by the researcher taking teachers, parents, and students from Kozhikode and Malappuram districts as sample of the study and to accomplish the same the researcher has developed a standardize tool.

The study will be useful in the students who aren't privileged like the others will suffer due to the present choice of digital platforms. It is need of the hour for the educational institutions to strengthen their knowledge and Information Technology infrastructure to be ready for facing Covid-19 like situations. As online practice is benefiting the students immensely, it should be continued after the lockdown. Further detailed statistical study may be undertaken to explore the impact of Covid-19 on education system of India.

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APPENDICES

APPENDIX I

FAROOK TRAINING COLLEGE

Research Centre in Education

ONLINE LEARNING SATISFACTION SCALE FOR STUDENTS (ENGLISH)

Dr. Anees Mohammed C

Assistant Professor

Farook Training College

Geethu. P

M.Ed Student

Farook Training College

INSTRUCTIONS

Confidentiality of your responses will be ensured. It will be used only for research purposes. Answer all questions. Even though there is no time limit, give the first thing that comes in your mind as responses. After reading statements carefully, put a tick mark in the most appropriate column.

Sl.No	Statements	Always	Often	Sometimes	Rarely	Never
1	Feeling tired when doing learning process alone					
2	Studying online is stressful for me					
3	Network issues significantly affect my learning					
4	The presence of teacher is essential for learning to be correct					
5	Online learning seems to be better than the usual learning method					
6	I often miss schools and classrooms					
7	Online study has changed my lifestyle					
8	If the teacher wants the work to be done on time, it will not be possible					
9	Increase content in online classes					

	from regular classes					
10	The teachers shows live the experiments mentioned in the test books on science subjects					
11	The relationship between me and the teacher may be declining in the current learning style					
12	I am happy with the new learning style					
13	Teachers often ask me if I have the facilities to study online					
14	I believe I can excel as a result of online classes					
15	Teachers are able to conduct exams on time					
16	Learning processes can do nothing without friends					
17	Teachers occasionally do other learning activities in the classroom					
18	The teacher has to take classes using new learning method					
19	At regular intervals, teachers discuss the learning excellence with parents					
20	I feel that my knowledge has improved as a result of the new learning method					

APPENDIX II

FAROOK TRAINING COLLEGE

Research Centre in Education

ONLINE LEARNING SATISFACTION SCALE FOR STUDENTS (MALAYALAM)

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നിർദ്ദേശങ്ങൾ

നിങ്ങളുടെ പ്രതികരണങ്ങൾക്ക് രഹസ്യ സ്വഭാവം ഉറപ്പ് നൽകുന്നു. അവ ഗവേഷണ ആവശ്യത്തിനുവേണ്ടി മാത്രമേ ഉപയോഗിക്കുകയുള്ളൂ. എല്ലാ ചോദ്യങ്ങൾക്കും ഉത്തരം നൽകുക. സമയ പരിധി ഇല്ലെങ്കിലും അധികസമയം ഉപയോഗിക്കാതെ മനസ്സിൽ ആദ്യം വരുന്ന ഉത്തരം നീതിപൂർവ്വം നൽകേണ്ടതാണ്. പ്രസ്താവനകൾ ശ്രദ്ധാപൂർവ്വം വായിച്ചതിനു ശേഷം ഉചിതമായി തോന്നുന്നതിന് ടിക് മാർക്ക് രേഖപ്പെടുത്തുക.

നമ്പർ	ചോദ്യങ്ങൾ	എല്ലായ്പ്പോഴും	മിക്കപ്പോഴും	ചിലപ്പോൾ	പ്രാപ്തമാകില്ല	ഒരിക്കലുമില്ല
1	പഠന പ്രക്രിയകൾ ഒറ്റയ്ക്ക് ചെയ്യുമ്പോൾ മടുപ്പ് തോന്നുന്നു.					
2	ഓൺലൈൻ പഠനം എനിക്ക് സമ്മർദ്ദം ഉണ്ടാക്കുന്നു.					
3	നെറ്റ് വർക്ക് പ്രശ്നങ്ങൾ എന്റെ പഠനത്തെ കാര്യമായി ബാധിക്കുന്നു.					
4	പഠനം ശരിയാവണമെങ്കിൽ അധ്യാപകരുടെ സാന്നിധ്യം അനിവാര്യമാണ്.					

5	സാധാരണ പഠനരീതിയിൽ നിന്നും ഓൺലൈൻ പഠനം മികച്ചതായി തോന്നാറുണ്ട്.					
6	സ്കൂളുകളും ക്ലാസ് റൂമുകളും എനിക്ക് വല്ലാതെ മിസ്സ് ചെയ്യാറുണ്ട്.					
7	ഓൺലൈൻ പഠനം എന്റെ ജീവിതരീതിയിൽ മാറ്റം വരുത്തി.					
8	അധ്യാപകൻ തരുന്ന വർക്കുകൾ കൃത്യസമയത്തു തന്നെ ചെയ്തു തീർക്കണം എന്നുണ്ടെങ്കിലും സാധിക്കാതെ പോവുന്നു.					
9	സാധാരണ ക്ലാസ്സുകളിൽ നിന്നും ഓൺലൈൻ ക്ലാസ്സുകളിൽ കണ്ടെന്റുകൾ വർധിക്കുന്നു.					
10	സയൻസ് വിഷയങ്ങളിൽ ടെക്സ്റ്റ് ബുക്കുകളിൽ പറഞ്ഞ പരീക്ഷണങ്ങൾ അധ്യാപകൻ ലൈവ് ആയി കാണിച്ചു തരാറുണ്ട്					
11	നിലവിലുള്ള പഠനരീതിയിൽ ഞാനും അധ്യാപകനും തമ്മിലുള്ള ബന്ധം കുറയാൻ ഇടയാക്കുന്നു.					
12	പുതിയ പഠനരീതിയിൽ ഞാൻ സന്തുഷ്ടനാണ്.					
13	ഓൺലൈൻ പഠനത്തിനാവശ്യമായ സൗകര്യങ്ങൾ എന്റെ വീട്ടിൽ ഉണ്ടെന്ന് അധ്യാപകർ അന്വേഷിക്കാറുണ്ട്.					
14	ഓൺലൈൻ ക്ലാസ്സുകളുടെ ഫലമായി എനിക്ക് മികവ് തെളിയിക്കാൻ കഴിയും എന്ന് വിശ്വസിക്കുന്നു.					
15	അധ്യാപകർക്ക് കൃത്യ സമയങ്ങളിൽ പരീക്ഷ നടത്താൻ സാധിക്കാറുണ്ട്.					

16	സുഹൃത്തുക്കൾ ഇല്ലാതെ പഠന പ്രക്രിയകൾ ഒന്നും തന്നെ ചെയ്യാൻ സാധിക്കുന്നില്ല.					
17	അധ്യാപകർ ഇടയ്ക്കിടെ മറ്റ് സഹ പഠാധ്യ പ്രവർത്തനങ്ങൾ ക്ലാസ്സിനിടയിൽ നടത്താറുണ്ട്.					
18	അധ്യാപകൻ പുതിയ പഠനരീതികൾ ഉപയോഗിച്ചാണ് ക്ലാസ്സുകൾ എടുക്കാറുള്ളത്.					
19	കൃത്യ സമയങ്ങളിൽ അധ്യാപകർ മാതാപിതാക്കളുമായി പഠന മികവിനെ കുറിച്ചു ചർച്ച നടത്താറുണ്ട്.					
20	പുതിയ പഠന രീതിയുടെ ഫലമായി എൻറെ അറിവ് മെച്ചപ്പെടുന്നതായി എനിക്ക് തോന്നാറുണ്ട്.					

APPENDIX III

FAROOK TRAINING COLLEGE

Research Centre in Education

INTERVIEW SCHEDULE FOR TEACHERS

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1. Which learning methods are used to take classes?
2. Why did classes start to switch to the above mentioned online learning method?
3. What are advantages of such learning method? What are the disadvantages?
4. What are the difficulties experienced in the learning method?
5. Does the new learning method improve children's knowledge? Or going backwards? Can you explain the reason?
6. Can you tell us about the current development of children in the social and emotional sphere?
7. What about their excellent when compared to last year's SSLC students and this year's SSLC students?
8. How to teach them practical and other difficult topics on online?
9. Do children ask questions? When to give time to ask questions?
10. Are students able to take exams on time? How the exam papers are valued?

11. Can you explain why the learning resources related to the school institution are not used?
12. What do you say about the learning facilities that children need at home?
13. Are you discussing with parents about their children's learning excellence?
Which way to tell them things is to understand?
14. What do you think should be the nature of education during this period?
15. Sir, are you satisfied with the new learning method? Why?