

**An Investigation of Why India is still lacking to Use of
EdTech in School Education**

by

**Jay Chaturbhai Kakadiya
Student Id: 2230044**

Submitted to the University of Wales Trinity Sant David

Lecturer: Dr. Terry Walcott

Master's Research Proposal

Abstract

The purpose of this research proposal is to investigate the barriers to the use of EdTech (Educational Technology) in school education in India. Despite the growing availability of digital devices and technology, the adoption of EdTech in Indian schools is still limited. This proposal includes previous studies related to educational technology in India. The study will use a mixed-methods approach to collect information from educators, and students in education in various parts of India. This will include surveys, questionnaires, and teachers' preferences about educational technology. Furthermore, this proposal will discuss the methods how we collect data. The data collected will be analyzed to identify the most significant barriers to the use of EdTech in Indian schools and to recommend strategies to address these challenges. The findings of this study will be useful for policymakers, educators, and other stakeholders who are interested in promoting the use of EdTech in school education in India.

Table of Contents

Glossary	6
Chapter 1: Introduction	7
1.1 Background	7
1.2 Introduction	7
1.3 How Data Science will be Helpful in Indian School Education.....	8
1.4 Advantages and Disadvantages of EdTech	9
1.4.1 Advantages of EdTech	9
1.4.2 Disadvantages of EdTech.....	10
1.5 Evolution of EdTech in India	11
1.6 Benefits and Problems.....	11
1.7 Justification for Research	12
1.8 Major Issues	12
1.9 Aim and Objectives of Research	13
1.10 Significance / Importance of Research	13
1.11 Conceptual Structure	13
1.12 Research Questions.....	14
1.13 Boundaries of this study.....	14
Chapter 2: Literature Review.....	15
2.1 Introduction	15
2.2 EdTech Adoption in Post Covid-19 Pandemic.....	15
2.3 EdTech Market in India.....	15
2.4 Literature Review	16
2.5 Research Gap	18
2.6 Conceptual work.....	18
Chapter 3: Methods	19
3.1 Introduction	19
3.2 Research Design.....	19
3.3 Selection of the study area	19
3.4 Details about the study area	19
3.5 Sample and Sample Size.....	20
3.6 Data Typology	20
3.7 Data Collection Methods.....	20
3.7.1 Surveys	20

3.7.2 Questionnaire	20
3.8 Data Analysis and Data Presentation	21
Chapter 4: Possible Results.....	22
4.1 Types of Data	22
4.2 Statistical Procedures	22
Chapter 5: Evaluation	23
5.1 Limitations of the Research	23
Chapter 6: Timeline for Research	24
Reference list	26

List Of Figures

Figure 1: EdTech App Usage During COVID-19 Pandemic	17
Figure 2: Gantt Chart.....	24
Figure 3: Table of Research Tasks	25

List Of Tables

Table 1: EdTech Business Investment in India.....	16
--	-----------

Glossary

EdTech	Educational Technology
AI	Artificial intelligence
ML	Machine learning
ICT	Information and Communication Technology
IIT	Indian Institute of Technology
TIFR	Tata Institute of Fundamental Research
ERP	Enterprise Resource Planning
LMS	Learning Management System

Chapter 1: Introduction

1.1 Background

India is the world's second most populous country, with a large and diverse education system. With the launch of the Indian government's Digital India initiative and numerous private sector initiatives encouraging the use of EdTech in classrooms, there has been an increased focus on the integration of technology in education in recent years. Despite these efforts, however, EdTech adoption in Indian schools remains limited. This has far-reaching implications for student learning outcomes, as access to technology and digital resources is crucial to acquiring critical 21st-century skills.

Educational Technology was not so popular in India before the COVID-19 pandemic (2020). During that time millions of people lost their lives, but most of the children and youngsters were able to fight against the coronavirus. The government of India declared a lockdown and due to this step, students and teachers were not able to attend schools and universities. So, after some time, most of the schools were forced to use technology in their education system.

To enhance student learning outcomes, it is important to understand the barriers to EdTech adoption in Indian schools and to develop strategies to address these challenges. This research proposal seeks to investigate the key barriers to the use of EdTech in Indian schools and to recommend strategies to promote its adoption and use in classrooms.

1.2 Introduction

Nowadays providing the best quality of education is crucial for any country as it brings a plethora of benefits. There was a great history of the Indian education system when India was under British rule. Over the period, the way we study has changed and turned to virtual learning. The practice of using information and communication technology tools in the classroom to provide more interactive, inclusive, and personalized learning experiences is known as "EdTech," or education technology (Daley, S., 2019). This education system has changed over time and In the past few years, the use of educational technology (EdTech) has been increasing in schools of India. Nowadays the use of technology is crucial for our day-to-day life, and we can see a rapid increase in technology in every sector such as Artificial intelligence (AI), Machine learning (ML), Automation, Robotics, and many more. In this technological world, It's very easy to learn and acquire knowledge. However, it's all depending on

the ideologies of the individual. Teachers and students now have access to a wide range of tools and resources that were previously unavailable or difficult to get. Technology therefore significantly affects student achievement. The effect of technology on student achievement is a contentious issue among academics. There are many online learning platforms available in India such as Google Meet, Zoom, Google Classroom, Skype, and many more. EdTech includes things like interactive whiteboards and projection screens in the classroom, online material delivery, and Massive Open Online Courses (MOOCs).

India is a diverse country and still lacking in educational technology. In India, EdTech is gaining momentum to reduce the challenges. Many schools have started to accept technology to deliver the best quality of education. It is beneficial for students as well as teachers as they can know about the latest technology.

This chapter includes the evolution of EdTech in India, Advantages and Disadvantages of Educational Technology, Benefits and Challenges, justification of the research, Major issues, Aims and Objectives of the research, Significance / Importance of Research, Conceptual Structure, Research Questions, and Set boundaries for research.

1.3 How Data Science will be Helpful in Indian School Education

Data science can be incredibly helpful in improving Indian school education in several ways. Here are a few examples:

Identifying areas for improvement: Academic performance data, attendance records, and other appropriate metrics can be examined using data science to pinpoint areas where students are having difficulty or where the school may need to concentrate its efforts to enhance student outcomes.

Predictive analytics: Data science can be used to forecast student outcomes, like their likelihood of dropping out, and to find potential risk factors. This can assist schools in taking quick action and giving at-risk pupils specific support.

Allocating resources: By examining data on student achievement and resource usage, data science can assist schools in allocating resources more wisely. For instance, the school can reallocate resources to more effective programs if data science reveals that a certain program or resource is not increasing student outcomes.

Overall, data science can offer helpful information and assistance to enhance Indian schooling. However, it's crucial to make sure that data is used ethically and with respect for kids' and instructors' confidentiality and privacy.

(School., 2021)

1.4 Advantages and Disadvantages of EdTech

The use of technology to improve teaching and learning in various educational environments is referred to as "education technology," or "EdTech". While EdTech provides many benefits, certain disadvantages need to be taken into account. This section will discuss the positive and negative effects of educational technology.

1.4.1 Advantages of EdTech

The advantages of EdTech are a plethora in education and it is difficult to list all of them. Here we discuss some general advantages of EdTech which are listed below:

Automation:

EdTech apps are automated to avoid human errors in accounting, registration, employment, and other areas of educational foundations. Using enterprise resource planning (ERP) software, you can categorize student data, compute staff salaries, track vehicles, keep tabs on faculty and student attendance, and even generate fee receipts. (shreshtaraina, 2022)

Improve Imagination and Visualisation:

Theoretical disciplines like history, science, and math are simpler for pupils to understand when they are taught via visuals, movies, and animations. Teaching subjects using visual arts is better than using textbooks. With the use of Edtech tools, students can more efficiently use the internet and online resources to conduct research, prepare presentations, complete homework, learn using a learning management system (LMS), and participate in more imaginative activities. (shreshtaraina, 2022)

Reduce Paperwork:

Making the switch to paperless operations is a popular and beneficial way for educational institutions to save money. By utilizing modern resources like the Internet, ERP software, and mobile applications, teachers may deliver lessons more efficiently and with less wasted time. There is less need for paper because they can print significant articles and papers (such as timetables, academic curricula, report cards, attendance sheets, etc.) onto smart devices in electronic formats. (shreshtaraina, 2022)

Personalized Learning:

Finding out what each child needs might be difficult, especially if you're distracted by students, confused by new faces, and badly understaffed. There are numerous adaptive learning tools that track students' progress and figure out what makes a particular subject easier for them to understand, such Educater, ActivTrak, Teramind, etc. You can better understand each student in your class by using adaptive software,

which can then be used to develop lesson plans that are suitable for them. (Lynch, 2017b)

Save Money:

By welcoming EdTech, students, teachers, and institutes can save money in many different ways. To begin with, students no longer need to spend money on pricey textbooks or workbooks because they can access free educational resources online. Second, EdTech resources can help teachers develop customised lesson plans and learning experiences, reducing the need for pricey tutoring or additional classes. Third, by lowering the amount of paper used in the classroom, EdTech can assist schools in saving money on paper and printing. Finally, EdTech can help schools manage their equipment and resources more effectively, lowering the need for expensive maintenance or replacements. (Lynch, 2017a)

1.4.2 Disadvantages of EdTech

On the darker side, we cannot ignore the drawbacks of EdTech which are discussed below:

Student Distraction:

Students will be attracted to play with their resources rather than stay on task if boundaries are not set for them or appropriate filtering tools are not deployed right away. Students may lose their focus and engage in inappropriate websites. More often than not, a few students in a classroom will know more about computers than their teacher and can find ways to avoid blocking software. (Lynch, 2017)

Less Interaction with Teachers:

Some students may prefer face-to-face interaction with their teachers. Some teachers completely rely on educational tools for lessons, which can make students feel alone in their studies and impact their results. Moreover, students can learn new things by attending a physical class as they make new friends compared to online learning platforms. Moreover, the interaction between students and teachers is crucial for extracurricular activities like sports, community service, and arts. (Lynch, 2017)

High Cost of Implementing EdTech:

It is expensive to install technological tools in the classroom or buy packages for use tools because nothing is free in this modern world. Moreover, maintenance of this technology is also costly as hardware and software are expensive to buy. Therefore, some institutes can not adopt technology in their education system.

1.5 Evolution of EdTech in India

In India, EdTech usage has 2 phases: Pre COVID-19 pandemic and Post/During the COVID-19 pandemic. EdTech was not popular before 2020 in India, however, during the lockdown, it was the fastest-growing sector. The journey of Indian Edtech began in 2004 with the introduction of satellite-based learning and smart study rooms. E-learning began in 2008, with players such as Extramarks and Khan Academy entering the market to provide online education. 2015 was a watershed moment in Edtech, with over 1,000 start-ups raising more than \$125 million in funding. Growing awareness and disposable income fueled the growth of the EdTech market, attracting large investments. Byju's, an Indian Edtech firm, became a unicorn in 2018 and now ranks first among the world's 19 EdTech unicorns. Between 2015 to 2019, more than 3600 ETech companies started, and the funding amount was 1.7 billion US dollars, of which 70% of the funding was from Bangalore city and 30% of funding was from Mumbai, Delhi, Hyderabad, and Chennai. (Gupta, A., 2020)

1.6 Benefits and Problems

India is using Information and Communication Technology ICT to accelerate economic growth in key areas like healthcare, education, infrastructural facilities, financial management, agricultural production, production, and governance. ICT is used to deliver critical goods and services to people. Indian citizens number in the hundreds of millions. While many sectors, such as infrastructure and communications, have already seen significant improvements as a result of innovative ICT use, the education sector has struggled to maximize the potential of ICT for enhancing educational experiences. Educational technology, or EdTech, is a rapidly developing field that uses technology to enhance education and learning. The incorporation of technology into education has been shown to have several benefits, including increased student engagement, personalized learning experiences, and increased access to educational resources. EdTech tools can include a wide range of technological devices, application programs, and internet sites that may be utilized to produce information, facilitate collaboration, and assess student learning. In recent years, the use of EdTech in education has grown in importance, particularly as the COVID-19 pandemic has forced many schools and universities to adopt online and hybrid learning models. While the pandemic has presented significant challenges for both students and educators, it has also highlighted EdTech's potential to provide flexible and effective learning opportunities that can be accessed from everywhere. Despite the benefits of EdTech, there are concerns about the potential negative effects of technology. As a result, it is critical to carefully assess the use of EdTech in education and ensure that it is carried out in a manner that maximizes potential benefits and reduces risks (The World Bank., 2017).

This research is focused on technology used in schools of India. Hardware and software created to improve teacher-led learning in classrooms and raise student academic achievement are referred to as EdTech (a mix of "education" and "technology") The study aims to find the usage of technology in schools of India. For that, this study will collect data from different surveys and analyze it and after that, this study will discuss why India is still lacking in educational technology. Moreover, we find the problems of EdTech usage and provide suggestions.

1.7 Justification for Research

It is undeniable fact that technology is increasing day by day and it has changed people's lifestyle and their way of living. In education, the use of technology can be instrumental in reducing teacher workloads, reducing costs, promoting inclusive teaching practices, and improving pupil outcomes. This applies both within classrooms and in the event of emergency measures, such as those caused by COVID-19 closures, in which virtual teaching practice can be used (Department for Education, 2021). By doing this study we will be able to know what is the limitation and benefits of EdTech in Indian schools. Furthermore, this study also discusses available EdTech in Indian schools. At the end of the research, we will know the reasons why India is not popular with the use of EdTech in education and provide possible solutions to resolve the problems.

1.8 Major Issues

Students cannot perform well due to some issues regarding technology. And that is why this research provides some solutions to that problem. First issue availability of computers in institutes. Still, there are many schools available in India with limited tools as the student cannot use technology properly. As per personal experience, Schools allotted limited time to students to use a computer and that is why students cannot perform well in their studies. Another issue we address is not sufficient internet access in the schools. It is impossible to implement computer technology if there is a poor internet connection because it is the reason for lacking computers. As a result, students as well as teachers, cannot perform well to gain knowledge and provide quality education respectively because the Teacher's skills and understanding of using technology are also related to student performance. Nowadays, students are more intelligent in terms of using technology compared to their tutors because most teachers were using limited technology in past. So, it is quite difficult for teachers to adopt advanced technological tools. (Johnson, 2016) In this study, we will discuss these problems in depth and provide possible solutions to tackle them so students and teachers can perform well.

1.9 Aim and Objectives of Research

The research aims to find out the usage of EdTech in schools of India and provide a recommendation to adopt technology in order to improve the learning experience which will be helpful for students and teachers. Moreover, this investigation will discuss problems and provides relevant solutions.

The research has the following objectives:

- To recognize the most frequently used EdTech tools and resources in education. (Shadrack, K., 2019).
- To understand the EdTech market in India.
- To give some solutions in order to adopt more and more EdTech in schools so students can perform well.

1.10 Significance / Importance of Research

The use of educational technology in Indian schools has great potential to increase equality, access, and educational quality (Miglani and Burch, 2018). It can enhance educational outcomes and student engagement while helping in overcoming financial and geographic barriers. Moreover, EdTech can offer more individual learning opportunities and support learning continuity during school closures. The Indian government has utilised EdTech to enhance primary education after seeing its potential. (Miglani and Burch, 2018)

1.11 Conceptual Structure

The conceptual study is declared what I want to study, and which attributes are important to complete the research. This study is based on computer technology usage in Indian schools. This study includes some dependent and independent variables. In this study, independent variables are the number of available computers and internet connections. Dependent variables include teachers' perceptions of the usage of educational technology, devices used by schools, and teachers' training. After getting these pieces of information, we will be able to find a relationship between educational technology and teachers' preferences, which will help to find reasons why Indian EdTech is not popular in schools. This study will mention schools and the number of technologies used by them. To complete this research, we need to find reasons why EdTech is not popular in Indian schools and we need to collect data from the surveys. After the analysis of the data, we provide some recommendations to improve Indian school education.

1.12 Research Questions

To what extent is EdTech being used in Indian schools?

What are the perceptions of teachers on the effectiveness of EdTech in enhancing student learning outcomes?

What are the difficulties and opportunities for further integrating EdTech in Indian schools?

How data science will improve school education in India?

Why India is still lacking in educational technology?

1.13 Boundaries of this study

It is essential to set boundaries for this research because it is a challenging task to collect the data and perform interviews with every school. So, this study will focus on limited data or selected state to find reasons why Indian schools are using a limited number of educational tools.

The proposed research will focus on the following boundaries:

- 1) The current situation of education technology in India and its growth in recent years.
- 2) The impact of COVID-19 on the EdTech industry in India.
- 3) The challenges faced by schools in adopting and integrating EdTech into their curriculum.
- 4) How government programs and policies may encourage the use of educational technology in classrooms
- 5) How well education technology can help students study more effectively and teachers perform better.

The research intends to shed light on the barriers preventing EdTech adoption in Indian schools and will offer viable solutions to these problems by examining limitations.

Chapter 2: Literature Review

2.1 Introduction

It is wrong to say that EdTech has no impact on student performance, and it is a very important component in modern education. The use of educational technology in school education has been a topic of discussion in India for several years. However, despite the potential benefits of EdTech, India is still lacking in its use in school education. This chapter discusses previous findings from research on technology investment and usage in schools of India, so we can understand the EdTech market in India. There are various sources and studies available to find the usage of technology in school education of India.

2.2 EdTech Adoption in Post Covid-19 Pandemic

For the first time, overnight, many schools and higher education institutions started offering education in the virtual world. That was not easy to move offline to online education because students and staff faced many difficulties to adopt the technology as they were not trained. To better understand their students using the technologies at their disposal, many educators tried to convert the classrooms and laboratories. In order to improve effectiveness and address accessibility difficulties in education for remote areas, many institutions have begun making significant investments in technology-driven procedures such as hardware, software content, and training to create online and hybrid modes. Today, most of the institutes are using technology to deliver the best quality of education (Sikandar M.A., 2022). Before the epidemic, India's families and schools had extremely limited access to EdTech, which varied depending on the financial status of the household and the type of school. Despite this, the growth of distance education and the growth of the global EdTech industry indicate that EdTech usage in Indian schools following the COVID-19 pandemic is expected to increase. (Fowler, 2021)

2.3 EdTech Market in India

The rise of online schooling was sped up by the pandemic. Due to the rising attitude of students and parents to complete their education from home using various online educational platforms, lockdowns have resulted in a large increase in investment in the EdTech sector. The major players of the EdTech market in India are Byju's, Unacademy, and Vedantu. The EdTech industry has attracted \$15 billion-valued companies like Byju's over the past five years thanks to private investments totaling

around \$4 billion. Market leaders including Byju's, Unacademy, upGrad, Vedantu, and others have also recently emerged. The EdTech market is anticipated to reach \$700 million to \$800 million in 2021 and is predicted to reach \$30 billion in the following ten years. Furthermore, India's EdTech market is expected to develop significantly and reach \$10.4 billion in 2025 with 37 million paid users. (Zheltoy, 2022)

The Edtech market is getting more complicated as a result of the dynamic market and constant change brought about by various stakeholders, including distributors, technology platform providers, content creators, teachers, and students, as well as institutions as customers, investors, and governments. With major firms like Byju's and small start-ups trying their luck in India, the Edtech sector is diversified. Every day, demand is increased by the availability of inexpensive internet connections with enough bandwidth through digital platforms. (Sikandar M.A., 2022)

2.4 Literature Review

Before the Covid-19 pandemic, the use of EdTech in India was not widespread. India used to deliver physical education, but it has changed during the pandemic lockdown. According to a study by R and Shanmugam (2022), India has a large network around the world with around 260 million students in 1.5 million schools and approximately 40,000 private institutes. Moreover, below table 1 shows a significant increase in EdTech investment in India. In 2015, Investment in the EdTech business was 81 million US dollars which increased and reached approximately 1 billion dollars in June 2020. However, There was a slight decline in 2017 which was 18 million dollars compared to 2016. After that, it increased dramatically and reached 664, 404, and 998 million dollars in 2018, 2019, and 2020 sequentially.

Table 1: EdTech Business Investment in India

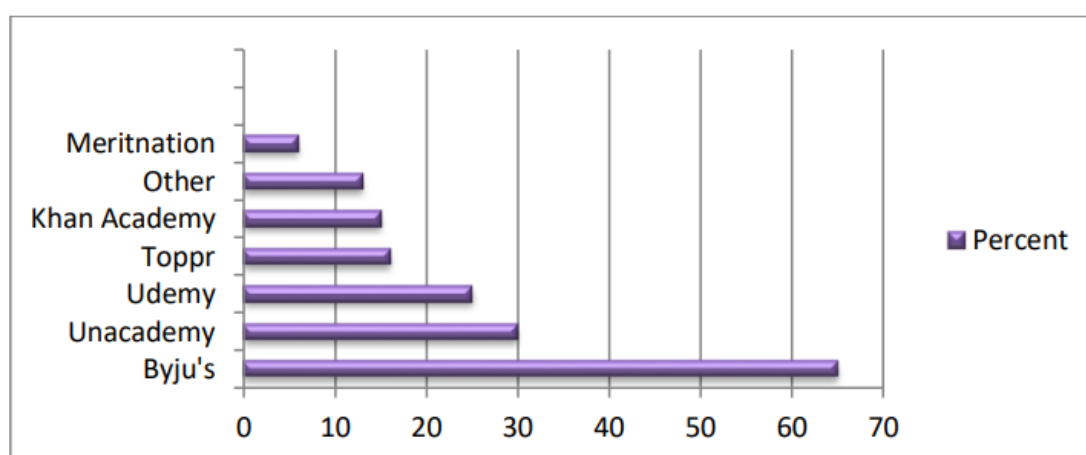
Year	Investment Amount (US \$ Million)
2020(Jan-Jun)	998
2019	404
2018	664
2017	176
2016	194
2015	81

(R and Shanmugam, 2022)

According to Sikandar M.A. (2022), after the COVID-19 pandemic, More and more investors invested in EdTech companies. According to his study, a Bangalore-based company named Tracxn Technology Limited helps investors to discover start-ups, there are currently 8768 EdTech startup companies in India. Four of them have now become unicorns including Byju's(\$16.5 billion), Unacademy(\$3.4 billion), and UpGrad(\$1.2 billion).

India started EdTech during the COVID-19 pandemic and Figure 1 shows that the most popular online learning platform was Byju's with 65% usage. Other platforms such as Unacademy and Udemy were utilized by 30% and 25% respectively. Moreover, usage of other online platforms, Khan Academy and Toppr were nearly the same which was 15%. Most of the students and parents agreed to use EdTech during the lockdown. (R and Shanmugam., 2022)

Figure 1: EdTech App Usage During COVID-19 Pandemic



(R and Shanmugam., 2022)

On the other hand, there are also some challenges faced by students and teachers during the COVID-19 pandemic. According to the study by Rannaware (2022), the first challenge is the unavailability of sources such as the Internet, Smartphone, and laptops. This issue is worse in developing countries, where access to technology and the internet is limited. Study shows that 16% of children do not have a smartphone, 95% and 19.5% of pupils do not have a laptop and internet connection respectively in their home.

Moreover, it has also some bad effects such as decreased physical activity, increased screen time in daily life, decreased social interaction, etc. Another reason is the lack of training and support for teachers in using EdTech effectively. Many teachers are not familiar with the technology and do not know how to integrate it into their teaching. Additionally, the lack of digital literacy is also a significant barrier to the adoption of EdTech in Indian schools. Many teachers and students are not sufficiently

familiar with digital technologies, which limits their ability to use digital learning resources effectively. This lack of digital literacy also leads to resistance to change, with teachers and students preferring traditional methods of teaching and learning. (R and Shanmugam., 2022)

2.5 Research Gap

For the effective use of EdTech, firstly there should be good quality internet access and Teachers' skills and knowledge are also most important in EdTech. The above research does not contain teachers' training, Schools' internet scenario, teachers' preferences about EdTech platforms, etcetera.

There are several studies show the impact of using EdTech in school education. To successfully improve educational quality, a country must implement ICT rules and regulations that are effective and strong at all levels. There is not enough indication that the use of ICT in education has had a significant impact. (Shadrack, 2019)

According to India's National Education Policy, the country's children have low foundational learning levels, with fifty percent of pupils who have spent five years in school having only basic arithmetic and literacy skills. In India, there are roughly 1.5 million schools with approximately 250 million students enrolled. According to a survey, 37% of children in rural areas and 17% of urban students do not study at all. Education should reach rural locations, villages, and low-network areas. In most of the cases, student study till high school and after that requests their parents to do a job and earn money to support their family. Moreover, 20.8% of the population lives in poverty, making it challenging for families to give a good education. Affordable education should therefore be the first objective for all startups. And in order to realise the goal of an educated India, education must be made accessible. (TimesOfIndia and Akanksha Chaturvedi, 2022)

2.6 Conceptual work

This chapter will show the details of how we tackle the problem and make research effective. This research depends on technology usage in Indian schools. We will collect data and information through surveys and questionnaires. Our research will be showing an in-depth investigation of the educational technology tools available in schools, the EdTech market scenario, Teachers' preferences about computer technology, the most used digital resources in teaching methods, and digital methods for parent engagement. After that, we find the reasons why Indian schools are not so successful to adopt educational technology tools and provide some recommendations.

Chapter 3: Methods

3.1 Introduction

This chapter will demonstrate how the research will be conducted in a systematic and organized manner. This chapter will cover the study design, location of the study, sample size, sampling methods, collection of data, data analysis, and data presentation.

3.2 Research Design

To collect data from selected schools, both a quantitative and qualitative research design will be used. A quantitative approach will include several schools, the total number of teachers' preferences, and the number of technologies available in schools. Quantitative research will be used for the analysis and representation of the data. A qualitative approach will be used to find out the reasons why India is using limited educational technology in schools.

3.3 Selection of the study area

This study will collect data from Maharashtra, the second-most popular place in India. From Maharashtra, the sample includes rural and urban schools. The reason for choosing this area is because of its popularity across the world and it is the 3rd largest state of India. The state has been known for providing modern education to students. There are many popular universities available such as the Indian Institute of Technology(IIT), the Tata Institute of Fundamental Research(TIFR), the University of Mumbai, etcetera. (Wikipedia Contributors, 2019)

3.4 Details about the study area

According to research (Wikipedia Contributors, 2019), Maharashtra is a western part of India. It is spread over 118,809 sq miles with an 840 km coastline along the Arabian Sea. There are 160,000 graduates from Maharashtra's 24 universities each year. The University of Mumbai, originally known as Bombay University when it was founded in 1857 under the authority of the East India Company, is the largest institution in the world in terms of graduates. Moreover, there are many tourist attractions available that attract visitors from all over the world such as Mumbai, Ajanta, Ellora, and many more. It is also known as "The City of Dreams". Every year, three million foreigners and forty million domestic visitors visit the city.

3.5 Sample and Sample Size

A sample is known as a selected product, unit, and aspect that will help researchers to complete their findings. In this research, the sample will include, the total number of schools, teachers from selected schools, available technological tools and facilities, and random Indian students.

Maharashtra has a total of 66,750 government schools, of which about 91% are located in rural areas, 8% are situated in urban areas, and the rest of 1% is sub-classified as tribal. In this research, we will study 1000 sample schools' data, among them 912 are rural, 77 are urban and 11 are tribal schools. All the data will be collected from the survey. (Ocansey and Sharma, 2020)

3.6 Data Typology

This research will use both primary and secondary data when it will necessary. Primary data will be collected from the survey which will be useful to know the usage of technology in schools, whereas secondary data will be used to find the reasons why India is still lacking in order to use EdTech in school education. The form of secondary data will be the internet, newspaper, or magazines.

3.7 Data Collection Methods

The data collection method is a process to collect data from different fields and groups of people. There are two approaches to data collection either qualitative or quantitative. The data collection method depends on what type of data we needed, the research questions, and the time. There are several methods to collect data such as surveys, interviews, questionnaires, focus groups, polls, etcetera.

3.7.1 Surveys

Surveys are used to acquire information about the target market's tastes, opinions, decisions, and feedback regarding the products and services they offer. This study will contain surveys to know technology usage in schools of India. Moreover, we will also be able to know about Teachers' training status and their perception of technology usage. After collecting quantitative data from surveys, we will analyze it and present it in a relevant format.

3.7.2 Questionnaire

A questionnaire is a printed set of questions and is conducted within a group of people. In this research, a questionnaire will be used among students to find out why the use of technology in Indian education is not so popular. The students will give answers on

their personal knowledge, experience, and thinking. By conducting a questionnaire, we will be able to find reasons why India is still lacking in educational technology, so we can find some solutions and provide recommendations.

3.8 Data Analysis and Data Presentation

By analysis of the data, we will be able to present that data in a suitable form that will be easy to understand. In our study, there are quantitative data, which will be in a statistical manner and will include the number or percentage of data. Data will include selected schools, educational tools, and teachers' preferences about tools. By analyzing qualitative data, we will find the reasons for less usage of technology in Indian schools.

After completing the analyses, a researcher needs to present the data systematically. In this research, the researcher will present quantitative data by creating tables and appropriate graphs. After that researcher will be ready to produce results and give recommendations to tackle the problem.

Chapter 4: Possible Results

To find the accurate results of this investigation, we will collect data from surveys and questionnaires, and analyze it. The possible results depend on what kind of data we collected and the analysis process.

4.1 Types of Data

In this study, we will use both, qualitative and quantitative data. We will collect qualitative data from questionnaires and quantitative data from surveys. After collecting data, we will perform analysis methods and provide recommendations.

4.2 Statistical Procedures

The statistical procedure in a research proposal refers to the procedures and strategies used to examine the data collected during the investigation and it helps in ensuring that the study is carried out in a disciplined and systematic manner and that the outcomes are accurate and genuine (Kenneth De la Piedra, 2019). In this study, after collecting data, we will organise the data by using descriptive statistics and then we use inferential statistics to test the hypothesis which will help to find a relationship between EdTech usage and teachers' preferences. By performing descriptive statistics, we will easily understand the findings such as the number of participant schools, EdTech usage, Teachers' preferences about tools, etcetera.

At the end of the research, we will find the reasons why the usage of technology is not popular in Indian education and provide relevant solutions.

Chapter 5: Evaluation

The study will concentrate on how well education technology (EdTech) improves teaching and learning outcomes, the difficulties teachers and students have when utilising EdTech, and the long-term viability of EdTech efforts in Indian schools. The results of this study will give policymakers, educators, and EdTech firms information about how EdTech efforts are now being used in Indian schools, as well as insights into the current state of EdTech usage. This study will help to adopt technology in the Indian education system.

5.1 Limitations of the Research

- The first limitation of this research is the lack of sources to find the quality of the teacher and students' responses. There is no way to identify whether the collected data is reliable or not.
- Another limitation is finding a group of student for questionnaires who is intelligent and trustworthy. As students' opinion is based on their personal feelings, experiences, and interest. For example, Some students are interested in technology and some are interested in sports.
- Proposed research may face challenges to collect EdTech usage data from Indian schools.

Chapter 6: Timeline for Research

This section provides a timeline for each phase of research. Furthermore. This section includes a timetable and Gantt chart to complete the research. An example of a bar chart that shows a project timetable is a Gantt chart. On the vertical axis of this chart, which has time intervals on the horizontal, are the tasks that must be completed. Gantt charts show the beginning and end dates of a project's summary and terminal elements. The project's work breakdown structure is made up of terminal and summary sections. The dependence (or precedence network) links between activities are also displayed in modern Gantt charts. (Wikipedia Contributors, 2019a)

Below Figure 2 and Figure 3 illustrate the Gantt chart and the Table of research tasks with the timeframe respectively.

Figure 2: Gantt Chart

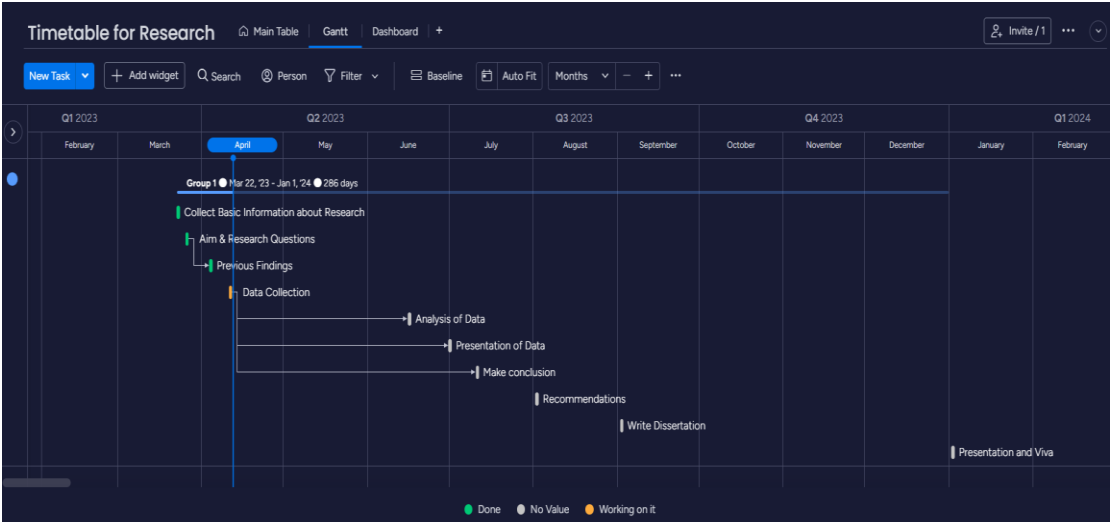


Figure 3: Table of Research Tasks

Timetable for Research

Main Table

Gantt

Dashboard

+

New Task

Search

Person

Filter

Sort

Hide

...

Group 1

	Task		Person	Status	Start Date	Dependency
☐	Collect Basic Information about Resea...			Done	Mar 22	-
☐	Aim & Research Questions			Done	Mar 25	-
☐	Previous Findings			Done	Apr 3	Aim & Research Questions
☐	Data Collection			Working on it	Apr 10	-
☐	Analysis of Data				Jun 15	Data Collection
☐	Presentation of Data				Jun 30	Data Collection
☐	Make conclusion				Jul 10	Data Collection
☐	Recommendations				Aug 1	-
☐	Write Dissertation				Sep 1	-
☐	Presentation and Viva				Jan 1, 2024	-
☐	+ Add task					

Reference list

Daley, S. (2019). *Education Technology: What Is Edtech? A Guide*. | *Built In*. [online] Builtin.com. Available at: <https://builtin.com/edtech>.

Department for Education (2021). *Education technology (EdTech) survey 2020-21*. [online] Available at: https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1057817/Education_Technology_EdTech_Survey.pdf.

Edusys (2022). *Edtech Disadvantages & Advantages (2022) - LMS, CRM, ERP*. [online] www.edusys.co. Available at: <https://www.edusys.co/blog/edtech-disadvantages-and-advantages> [Accessed 5 Apr. 2023].

Fowler, E.V., Sheral Shah, and Brian (2021). *Ed tech and educational opportunity during the COVID-19 school closures*. [online] Brookings. Available at: <https://www.brookings.edu/research/ed-tech-and-educational-opportunity-during-the-covid-19-school-closures/> [Accessed 7 Apr. 2023].

Gupta, A. (2020). *The Edtech Story #1: The Edtech Landscape: A brief Overview*. [online] NASSCOM Community | The Official Community of Indian IT Industry. Available at: <https://community.nasscom.in/communities/talent/edtech/the-edtech-story-1-the-edtech-landscape-a-brief-overview.html> [Accessed 20 Mar. 2023].

Johnson, A.M., Jacovina, M.E., Russell, D.G. and Soto, C.M. (2016). *Challenges and Solutions When Using Technologies in the Classroom*. [online] ERIC. Available at: <https://eric.ed.gov/?q=Challenges+and+Solutions+When+Using+Technologies+in+the+Classroom&id=ED577147> [Accessed 20 Mar. 2023].

Kenneth De la Piedra (2019). (PDF) *Chapter 3 Research Design and Methodology*. [online] ResearchGate. Available at: https://www.researchgate.net/publication/336285193_Chapter_3_Research_Design_and_Methodology.

Lynch, M. (2017a). *25 Ways that EdTech Benefits Teachers and Students - The*

Edvocate. [online] The Edvocate. Available at: <https://www.theedadvocate.org/25-ways-that-edtech-benefits-teachers-and-students/>.

Lynch, M. (2017b). *What Are the Pros and Cons of EdTech in the Classroom? - The Tech Edvocate*. [online] The Tech Edvocate. Available at: <https://www.thetechedvocate.org/pros-cons-edtech-classroom/>.

Miglani, N. and Burch, P. (2018). Educational Technology in India: The Field and Teacher's Sensemaking. *Contemporary Education Dialogue*, 16(1), pp.26–53. doi:<https://doi.org/10.1177/0973184918803184>.

Ocansey, T. and Sharma, A. (2020). *Maharashtra Digital Schools Survey Findings Report ICT India Working Paper CSD Working Paper Series: Towards a New Indian Model of Information and Communications Technology-Led Growth and Development*. [online] Available at: <https://csd.columbia.edu/sites/default/files/content/MaharashtraDigitalSchoolsSurveyFinalReport.pdf>.

R, B. and Shanmugam, D.K. (2022). *Education Technology Transformations during COVID-19 in India*. [online] papers.ssrn.com. Available at: https://papers.ssrn.com/sol3/papers.cfm?abstract_id=4144267.

Rannaware, A., Shaikh, U., Gaidhane, A., Choudhari, S.G. and Zilate, S. (2022). Challenges and Barriers for Accessing Online Education Amongst School Children in an Urban Slum Area of Pune, India. *Cureus*. doi:<https://doi.org/10.7759/cureus.29419>.

School, P.B. (2021). *Application Of Data Science In The School Education Sector*. [online] Analytics India Magazine. Available at: <https://analyticsindiamag.com/application-of-data-science-in-the-school-education-sector/> [Accessed 23 Apr. 2023].

Shadrack, K. (2019). A RESEARCH PROPOSAL COMPUTER TECHNOLOGY AND STUDENTS PERFORMANCE IN UNIVERSITIES. A RESEARCH PROPOSAL COMPUTER TECHNOLOGY AND STUDENTS PERFORMANCE IN UNIVERSITIES. [online] Available at: https://www.academia.edu/41117608/A_RESEARCH_PROPOSAL_COMPUTER_T

ECHNOLOGY AND STUDENTS PERFORMANCE IN UNIVERSITIES.

shreshhtaraina (2022). *Why Are Edtech Companies Under Government Scanner? - Inventiva*. [online] <https://www.inventiva.co.in/trends/edtech-companies-government-scanner/>. Available at: <https://www.inventiva.co.in/trends/edtech-companies-government-scanner/>.

Sikandar M.A. (2022). *THE RISE OF EDTECH START-UPS IN INDIA*. [online] <https://www.researchgate.net/>. Available at: https://www.researchgate.net/publication/358939954_THE_RISE_OF_EDTECH_START-UPS_IN_INDIA [Accessed 20 Mar. 2023].

The World Bank (2017). *Education and Technology*. [online] World Bank. Available at: <https://www.worldbank.org/en/topic/edutech>.

TimesOfIndia and Akanksha Chaturvedi (2022). Bridging India's education gap with the adoption of technology. *Bridging India's education gap with the adoption of technology*. Available at: <https://timesofindia.indiatimes.com/blogs/voices/bridging-indias-education-gap-with-the-adoption-of-technology/> [Accessed 20 Mar. 2023].

Wikipedia Contributors (2019a). *Gantt chart*. [online] Wikipedia. Available at: https://en.wikipedia.org/wiki/Gantt_chart.

Wikipedia Contributors (2019b). *Maharashtra*. [online] Wikipedia. Available at: <https://en.wikipedia.org/wiki/Maharashtra>.

Zheltoy, A. (2022). *Council Post: The Indian Edtech Market: What Founders Need To Know To Attract Investment*. [online] Forbes. Available at: <https://www.forbes.com/sites/forbesbusinesscouncil/2022/10/20/the-indian-edtech-market-what-founders-need-to-know-to-attract-investment/> [Accessed 3 Apr. 2023].