Student Name: Shourjya Sengupta

Student ID: x23113022

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Lecturer: Tara Cheevers

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Unravelling the Complexities: A Comparative Exploration of Factors Influencing Volatility in Indian EdTech Start-ups

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AI Acknowledgement Supplement

Research Method & Dissertation

Unravelling the Complexities: A Comparative Exploration of Factors Influencing Volatility in Indian EdTech Start-ups

Your Name/Student Number	Course	Date
Shourjya Sengupta/x23113022	MSc. In International Business	09/08/2024

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AI Acknowledgment

This section acknowledges the AI tools that were utilized in the process of completing this assignment.

Tool Name	Brief Description	Link to tool
Grammarly	Used for grammatical errors	https://app.grammarly.com/
ChatGPT	To understand a basic structure or framework of any topic. Also, used to formulate google questionnaire for survey.	https://chatgpt.com/

Description of AI Usage

This section provides a more detailed description of how the AI tools were used in the assignment. It includes information about the prompts given to the AI tool, the responses received, and how these responses were utilized or modified in the assignment. **One table should be used for each tool used**.

ChatGpt	
Used to frame google questionnaire and also used to understand the framework the subtopics.	
what should be the structure of google questionnaire framework for thesis survey?	Designing a Google Forms questionnaire for your thesis survey requires a structured approach to ensure that you gather comprehensive and relevant data. Here's a recommended structure for your Google Forms questionnaire:

Grammarly	
Used for grammatical errors	
In order to	To

Evidence of AI Usage

This section includes evidence of significant prompts and responses used or generated through the AI tool. It should provide a clear understanding of the extent to which the AI tool was used in the assignment. Evidence may be attached via screenshots or text.

Additional Evidence:
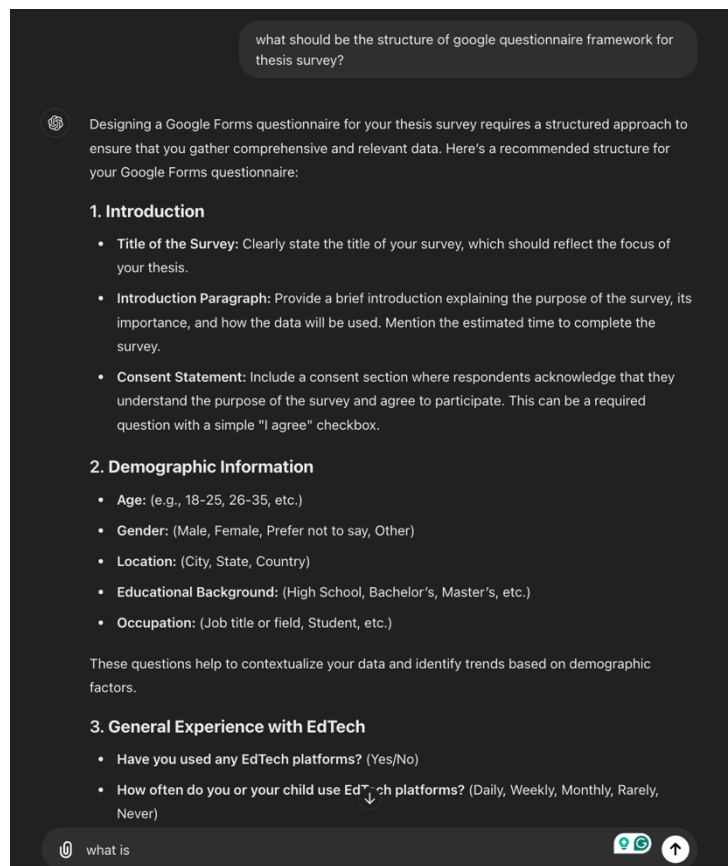
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Unravelling the Complexities: A Comparative Exploration of Factors Influencing Volatility in Indian EdTech Start-ups

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Chapter 1: Introduction

The goal of this study is to investigate and contrast the several elements that affect the volatility of EdTech startups in India. The research attempts to offer insights that help guide strategic decision-making and support the long-term growth of the Indian EdTech industry by investigating the fundamental causes of this volatility. This study looks closely at several EdTech paths in an effort to find trends and important components that greatly add to the unpredictability of the industry. The study's conclusions provide investors, policymakers, and entrepreneurs with priceless insights into the complex dynamics influencing the volatility of the EdTech sector. The research intends to assist individuals in promoting durability and sustainable growth within this quickly changing industry despite the possibilities and challenges given by the Indian market by highlighting the strategic implications gained from this analysis.

Background of the study:

The education technology (EdTech) sector in India has expanded at a phenomenal rate (Surabhi Gupta, 2023). Over the past ten years, India has developed into one of the largest and fastest-growing EdTech marketplaces globally. This growth has been attributed to a number of factors, including the accelerating pace of digitalisation, the increasing use of smartphones, the rising rate of internet access, and the growing desire for top-notch education across the country (Aman Jindal, 2018). The COVID-19 epidemic, which forced traditional educational institutions to transition to digital learning due to its prolonged closure of schools and colleges, further accelerated this tendency (Madanjit Singh, 2021). This led to unexpected growth in user adoption, investment inflows, and market expansion for EdTech companies in India.

Nevertheless there have also been a lot of challenges brought about by the EdTech industry's quick expansion, especially in terms of market volatility. The Indian EdTech ecosystem exhibits notable volatility due to its ever-changing valuations, intense competition, diverse consumer preferences, and substantial financial obstacles like elevated cash burn rates. The general stability and expansion of the EdTech industry as well as the viability of individual EdTech firms are at danger due to this instability. It is critical that entrepreneurs, investors, lawmakers, and educators who are interested in the long-term success of the EdTech ecosystem in India understand the factors contributing to this volatility.

(Marathe, 2018) The EdTech industry in India is a part of the global trend towards the digitisation of education. The traditional, classroom-based teaching methods that prioritise memorisation and standardised assessment have long been the foundation of India's educational system. Digital technology, on the other hand, has begun to upend this conventional wisdom by offering innovative, creative methods of delivering education that are more adaptable, reachable, and customised. (Meenu Gupta, 2022) This change has been especially noteworthy in a nation like India, where many people still struggle to have access to high-quality education, particularly in rural and isolated places.

There has been a notable increase in the quantity of startups providing an extensive array of educational products and services in the Indian EdTech sector in recent times. Many EdTech companies have grown and scaled quickly as a result of the sector's strong attraction of both

domestic and foreign investment (Williamson, 2022). The Indian EdTech industry is seeing fast expansion, but it is also unstable due to a number of issues (K. Jafar, 2023). These difficulties include the heterogeneous and fragmented nature of the Indian market, in addition to regional differences in socioeconomic disparity, internet accessibility, and technical proficiency (K. Jafar, 2023). The sector is renowned for its intense competition as well, with numerous companies vying for a share of the market in a crowded and ruthless field. As a result of their costly marketing and user acquisition campaigns, a large number of EdTech companies are facing financial instability and high capital burn rates. The industry is more volatile and uncertain as a result of the absence of well-defined and uniform regulatory frameworks (Kadam, 2021). Furthermore, there is a constant movement in the ways that parents and students view and use digital education solutions, which is reflected in the preferences and behaviours of consumers in the EdTech industry. The Indian EdTech environment is volatile due to a combination of these characteristics, making it a dynamic and challenging industry to work in.

Rationale for the Study:

In India, the EdTech sector is growing at a rate that has never been seen before, offering unprecedented opportunities for teaching innovation and accessibility. However, there has also been a significant deal of instability as a result of this expansion, with many start-ups facing challenges like high financial burn rates, erratic user engagement, and fierce competition. A comprehensive understanding of the causes creating this instability is crucial for stakeholders, including investors, educators, and legislators, to make strategic decisions that enhance the sustainability and efficacy of EdTech endeavours. The motivations behind this study include the necessity to objectively assess these contributing factors, ascertain whether the Indian market is ready for EdTech solutions, and identify the underlying causes of the industry's financial instability. The goal of the research is to offer important insights that can direct the creation of a more robust and stable EdTech ecosystem in India by offering a comparative examination of these processes.

Research Aims & Objectives:

This study aims to investigate, through comparative analysis, the variables affecting the volatility of EdTech startups in India. The goal of the study is to pinpoint and examine the main causes of this volatility, with an emphasis on how these elements affect the expansion, long-term viability, and strategic choices made by Indian EdTech companies. By tackling these problems, the study hopes to provide insightful information that will help decision-makers in the EdTech space—such as investors, entrepreneurs, lawmakers, and educators—make wise choices that will promote the sector's stability and long-term prosperity.

Research Objective:

There are multiple goals for this study, all aimed at providing a thorough understanding of the volatility in the Indian EdTech sector.

- *To recognise and evaluate the main causes of the instability in the Indian EdTech market.*
  The goal of this objective is to investigate the several elements that lead to the dynamic and frequently surprising character of the Indian EdTech industry. Those considerations might include market trends, competitive dynamics, consumer conduct, technical progress, regulatory obstacles, and financial limitations.

- *To assess India's readiness to adopt and sustain the EdTech ecosystem.*
  This goal is to assess how well the Indian market is now positioned to accept and foster the expansion of the EdTech industry. This entails evaluating the state of the infrastructure, customer acceptability, digital literacy, and the influence of policy from the government on the EdTech sector.

- *To explore the fundamental causes of the high cash burn rate among Indian EdTech firms.*
  This goal looks into the fundamental causes of the significant cash burn rates that many Indian EdTech companies have been observing. This entails examining the revenue models, investment plans, and cost structures of EdTech companies as well as the effects of these monetary difficulties on their expansion and sustainability.

- *To examine how these causes affect the strategic decision-making processes within the industry.*
  This goal is to investigate how EdTech companies' strategic choices are impacted by financial difficulties, namely significant cash burn rates. Decisions about investment, growth, scaling, profitability, and long-term sustainability fall under this category.

Research Questions:

The following research questions have been developed in order to fulfil the research goal:
- What are the factors that influences the volatility of Edtech ecosystem in India?
- Is India ready to adapt the Edtech Ecosystem?
- What are the fundamental causes influencing the cash burn rate of Indian EdTech firms, and how do these causes affect the industry's strategic decision-making processes?

The goal of this topic is to list and evaluate the several elements that affect how volatile the Indian EdTech market is. Regulatory obstacles, financial restraints, consumer behaviour, market dynamics, and technology improvements are a few examples of these variables.

This investigation aims to assess how ready the Indian market is to embrace and assist the EdTech ecosystem. This involves evaluating the infrastructure of the country, the level of digital literacy among the general public, consumer acceptability, and the degree to which government policies facilitate or obstruct the growth of EdTech in India.

Investigating the root causes of the high cash burn rates seen in numerous Indian EdTech businesses is the goal of this issue. It also looks at how these monetary difficulties affect the

strategic choices that EdTech companies make, especially when it comes to investment, growth, scalability, and profitability.

Research Methodology:

A mixed-method approach will be used, incorporating both qualitative and quantitative research tools, to study these research issues. A thorough investigation of the study problem is made possible by the application of a mixed-method approach, which offers both breadth and depth of analysis.

Primary data will be gathered using a Google Form questionnaire in order to analyse this study. In addition, other trustworthy secondary data sources might be used to gain a deeper comprehension of the topic. The purpose of the survey is to gather information on participant views, experiences, and behaviours pertaining to the EdTech ecosystem. Both closed-ended and open-ended survey questions will be included, enabling both quantitative and qualitative data analysis and insight gathering. Microsoft Power BI and MS Excel are two examples of data visualisation tools that will be used to analyse the quantitative data.

Research Structure:

The study is organised into multiple essential chapters, with each chapter focussing on different aspects of the investigation. The introduction, study background, presentation, and interpretation of the research findings are all arranged in a way that makes sense within the structure.

A summary of the research question, including the study's history, purpose, and research questions, is given in the first chapter. It also describes the goals of the study and the research tool. By presenting the main problems and difficulties associated with the instability of the Indian EdTech industry, this chapter establishes the framework for the next chapters. The second chapter examines the body of research on the EdTech industry, both domestically and internationally. The elements driving the EdTech industry's volatility—such as customer behaviour, market dynamics, competitive pressures, legal issues, and budgetary limitations—will be the main topics of the literature review. The chapter will also go over the models and theoretical frameworks that have been applied to other industries to study volatility, and how the EdTech sector might benefit from them. The research methodology, including the research design, data gathering strategies, and analysis approaches, are described in the third chapter. The chapter will provide information on the qualitative and quantitative research instruments utilised in the study as well as the justification for employing a mixed-method approach. The data gathered using both qualitative and quantitative research tools is presented in the fourth chapter. The sample population, the procedure for gathering data, and the techniques employed for data analysis will all be covered in great detail in this chapter. The research findings will be presented in this chapter, arranged according to the research topics, and a detailed examination of the variables influencing the volatility of the Indian EdTech industry will be provided. The implications of the research findings in relation to the body of current literature and the theoretical frameworks covered in the literature review will be covered in the fifth chapter. This chapter will examine how the data advance knowledge of the variables affecting the instability of Indian EdTech companies and provide an inside look at the industry's strategic

decision-making procedures. The readiness of India to integrate into the EdTech ecosystem will also be discussed, and the efficiency of the current regulatory framework in promoting the sector's stability and expansion will be assessed. The research will be concluded in the last chapter with a summary of the major discoveries and implications for the Indian EdTech industry. Furthermore, this chapter will offer suggestions for managing volatility and promoting the industry's sustainable growth to stakeholders such as investors, legislators, educators, and EdTech entrepreneurs. The research's observations will inform the suggestions, which will focus on methods for boosting consumer acceptance, strengthening financial stability, and overcoming regulatory obstacles in the EdTech industry. In addition to outlining the shortcomings of the current study and proposing possible directions for future research, the chapter will make recommendations for future study areas.

Conclusion

In summary, the goal of this study is to offer a thorough investigation of the variables affecting volatility in the ecosystem of Indian EdTech startups. The goal of the study is to provide insightful information that will help EdTech businesses, investors, legislators, and educators make strategic decisions by analysing the opportunities and difficulties present in this rapidly evolving industry. The study is based on a strong methodological framework that integrates qualitative and quantitative techniques, ensuring a comprehensive and thorough examination of the relevant problems. By doing this research, we hope to advance knowledge of the Indian EdTech market and promote the long-term expansion and advancement of this important industry for the country's economy.

The study is divided into multiple important chapters, each of which focusses on a distinct component of the investigation. The context is established in the introduction chapter, which also outlines the goals, aim, and questions of the study. The body of research on the variables impacting volatility in India's EdTech industry is covered in the literature review chapter. The mixed-method approach employed in the study, together with the tools for both qualitative and quantitative research as well as the methods for gathering and analysing data, are described in the research methodology chapter. The research findings are presented in the data collecting and analysis chapter, and their implications for the Indian EdTech sector are examined in the discussion chapter. Ultimately, the main findings from the study are summed up in the conclusion and recommendations chapter.

Given the rapid growth and expansion of the EdTech industry in India, this study is relevant and immediate. The report intends to assist the sustainable development of the EdTech ecosystem and add to the ongoing conversation about the future of education in India by offering a thorough understanding of the variables causing volatility in this sector.

Chapter 2: Literature Review

Introduction:

India is not an exception to the way the educational technology (EdTech) sector is quickly changing the global educational environment. India, one of the world's fastest-growing economies and home to a large number of young people, offers ideal conditions for the spread of EdTech products. Technology integration in education plays a critical role in modernising educational facilities by addressing persistent issues like fairness, quality, and access. This study of the literature aims to investigate the present situation of the EdTech sector in India by offering a thorough examination of its development, significance, and potential futures. This section includes a thorough analysis of several periodicals and extensively examined studies that address every facet of the study topic. These historical studies have had a significant impact on the research work's inspiration. Seventeen papers that are mostly related to the three main focuses of this study have been selected and examined from a variety of online sources.

Across a wide range of socioeconomic and geographic conditions, India's massive and intricate educational system serves over 1.4 billion people. Due to a lack of funding, problems with the infrastructure, and unequal access, traditional education institutions have frequently found it difficult to satisfy the rising expectations for high-quality education. EdTech appears to be a disruptive force that can close these gaps. EdTech solutions can improve learning results, democratise access to education, and enhance learning experiences by utilising digital platforms, interactive material, and cutting-edge technologies. Policymakers, educators, and investors who want to use this industry's potential to propel educational change in India needs to understand its dynamics.

What is Ed-tech?

The term "edtech," or educational technology, refers to a digital method of instruction that strives to increase student involvement, accessibility, and academic results. It accommodates a range of learning requirements and preferences by merging technology and education. Personalised learning, increased accessibility, motivation and engagement, ease of use and efficiency, and data-driven insights are just a few of the many advantages that EdTech provides (Åkerfeldt, 2019). However, technology also brings with it problems such as the digital divide, teacher preparation, efficacy and quality, security and privacy, cost and sustainability, and quality (Deka, 2021). While teacher preparation is necessary to ensure that students are proficient in using technology, the digital divide has the potential to worsen educational disparities. Achieving the intended learning objectives requires both quality and efficacy, and using digital platforms raises privacy and security issues. Since it can be expensive to develop and maintain EdTech infrastructure, cost and sustainability are also important considerations (Madanjit Singh, 2021). Notwithstanding these obstacles, EdTech has the power to completely transform education by raising its standard, making it more accessible, and increasing student involvement. EdTech will probably play an even bigger part in determining the direction of education in the future as technology develops.

(Abhishek Bansal, 2023) With the use of computers in education being an expected outcome of scientific and technical breakthroughs, ed-tech has changed dramatically throughout the years. Copiers and media learning were among the available developments that schools and preparatory offices started utilising by the middle of the 20th century. It was projected that over six million American students would be enrolled in online courses by 2010 (Abhishek Bansal, 2023). With the widespread availability of the internet, online education became more and more popular. The Open University in the United Kingdom and the University of British Columbia in Canada were among the first institutions to introduce interactive online learning.

Background/Roots of Edtech:

India's history with regard to educational technology (EdTech) is closely linked to the advancement of information and communication technology (ICT) and the changing demands of the nation's educational system. ICT was incorporated into the Indian educational system in the early 2000s thanks to government programmes like the Computer Literacy and Studies in Schools (CLASS) project (Nirupam Bajpai, 2019), which gave schools access to hardware and training. Originally, technology was utilised to augment traditional teaching techniques and increase administrative efficiency; however, because of inadequate internet access and infrastructure, its impact was limited. The rise of EdTech has been significantly aided by the policies and initiatives implemented by the Indian government. Launched in 2009, the National Mission on Education through Information and Communication Technology (NMEICT) seeks to use ICT to improve education quality and increase access to educational materials. Virtual labs, e-content for a range of courses, and broadband access to educational institutions were among the main projects undertaken under this programme.

The Indian Institutes of Technology (IITs) and the Indian Institute of Science (IISc) collaborated on the National Programme on Technology Enhanced Learning (NPTEL), a project that aimed to democratise access to high-quality education and pave the way for the adoption of digital learning resources by producing web courses and high-caliber video lectures for engineering and science students (Aman Jindal, 2018).

Impact of COVID-19 in Edtech:

In India, during the COVID-19 epidemic, there was a quick and broad shift to digital education. Pradeep Kumar Deka's study examines the various aspects impacting students' participation in online learning during this period. The importance of technology infrastructure, instructional design, and socioeconomic issues in determining student involvement is highlighted by Deka's research. Students from rural and economically underprivileged areas faced major hurdles as a result of the abrupt transition from traditional classroom settings to online platforms. This revealed enormous inequities in access to technology. These students frequently experienced poor internet access and a dearth of suitable gadgets, which made it extremely difficult for them to engage in online learning (Deka, 2021).

(Deka, 2021) emphasises how crucial technological infrastructure is to encouraging student participation in online education. It was shown that students are more likely to interact with online learning resources when they have access to high-speed internet and personal devices. On the other hand, people using shared devices or low-bandwidth connections frequently

encounter disturbances, which cause them to lose interest. The digital gap emphasises the necessity of focused measures to guarantee that people from a range of socioeconomic backgrounds have fair access to online learning materials. Additionally important is the calibre of instructional design, which includes multimedia and interactive components. Live classes combined with both synchronous and asynchronous learning techniques make for more interesting courses. Home environment and family support are socioeconomic factors that also affect student participation. The pandemic has had a detrimental impact on engagement and motivation, as well as raising stress and anxiety levels.

Moreover, Deka's study highlights the importance of addressing technology inequities, improving instructional design, and taking socioeconomic circumstances into account while examining student engagement in online learning during the COVID-19 pandemic in India. It asks for cooperation between tech companies, lawmakers, and educational institutions in order to close the digital gap and develop inclusive experiences (Deka, 2021). This is further reinforced by (Arnab Kundu, 2021) in his paper, where the researcher interviewed 200 teachers via heterogenous purposive sampling. The study discovered a significant relationship between teachers' perceptions of the suitability of online teaching and learning infrastructure and their level of self-efficacy. Instructors who had faith in their capacity to teach online tended to be less worried about shortcomings in the infrastructure and more concerned with making the most of what was already in place. Although teachers responded favourably to the pandemic's change to online learning in terms of its effectiveness, a major obstacle still exists in the form of inadequate infrastructure. To guarantee a more robust and inclusive education system in India, future research should examine long-term plans and evaluate the efficacy of interventions.

E-learning in Indian higher education has been profoundly affected by the COVID-19 epidemic, bringing with it both potential and challenges. Synchronous and asynchronous learning were made possible by the quick uptake of digital platforms like Zoom, Microsoft Teams, and Google Classroom, which permitted the continuation of educational activities during lockdown. However, the level of digital literacy among teachers and students determines how beneficial these platforms are. While some institutions had difficult learning curves and implementation issues, others were better equipped to adjust since they had past experience with digital infrastructure and training. The pandemic encouraged a global perspective in education by giving pupils access to a multitude of tools and materials. Online tests and feedback systems made it possible to evaluate student performance quickly and individually, while multimedia content and interactive tools improved student engagement and learning outcomes (Meenu Gupta, 2022).

(Meenu Gupta, 2022) articulate the challenges of e-learning, including the digital divide, lack of faculty preparedness, and the psychological impact of the pandemic. The digital divide, particularly among students and teachers from rural and economically disadvantaged backgrounds, exacerbates existing educational inequalities (Bindu, 2016). The absence of sufficient infrastructure has been noted as a significant obstacle. Inadequate ICT resources, like computers, projectors, and dependable internet connections, are found in many schools in Kerala. It is challenging for educators to successfully integrate technology into their lesson plans because of this infrastructure mismatch. Faculty struggled with designing and delivering online courses, highlighting the need for professional development programs (Bindu, 2016). The lack of physical interaction and impersonal nature of online learning also posed challenges. By addressing these barriers through a combination of infrastructural improvements, professional development, and supportive policies, the integration of ICT in teaching can be significantly enhanced, leading to more effective and engaging learning experiences for students.

Due to the COVID-19 epidemic, education has shifted towards internet-based EdTech platforms, creating a digital divide and uprooting students from marginalised families and remote areas (Munendra Koli, 2020). As a result of this transition from in-person learning to online education, there persists a huge range of varied perceptions among the student and the teachers – while some students appreciated the flexibility in terms of time management, remote accessibility and showed optimism to adapt digital literacy as a skill development opportunity, on the contrary, several students showed frustrations for technical glitches, limitations to interact with peers and mentors (T. Muthuprasad, 2021). EdTech interventions to mitigate the issue are justified by the learning loss resulting from school closures, which is predicted to produce an income loss of $21 trillion worldwide (Yusuf Sayed, 2024). The exponential growth of EdTech during the pandemic, with a market value of $6 billion in 2022 and a projected growth of 30% by 2026, affirms Edtech's capture of the policy imaginary as a solution to educational challenges. However, EdTech models have important educational consequences, such as replacing digital technologies with information and communication technologies in education, appealing to governments seeking to reduce teacher costs, and promoting cost-effective, high-quality interventions for out-of-school children.

Government policies & Initiatives:

Global education systems have undergone significant change as a result of the COVID-19 pandemic (Sikandar, 2022), which has accelerated the transition to online learning and brought attention to the vital role that technology plays in education. This change presented both a difficulty and an opportunity for India, which was rapidly adopting EdTech solutions while also battling concerns of digital equity and access. In order to promote and improve online education, the Indian government announced a number of measures both during and after COVID-19. These initiatives served to both address immediate demands and create the foundation for a more resilient educational environment.

Through the use of the Digital India framework, the report (Biswas, 2021) offers a thorough analysis of the government's response to the interruption of education brought on by the epidemic. The study addresses both the short-term issues and the long-term consequences for digital learning, highlighting the crucial role that government initiatives had in converting the old education system to an online one. It highlights the significance of the 2015-launched Digital India initiative. This initiative's main players, such **BharatNet and PM-WANI**, were crucial in boosting digital infrastructure, especially in rural areas (Bhattacharya, 2023). The PM-WANI scheme's provision of public Wi-Fi networks and BharatNet's goal of connecting all gramme panchayats with high-speed broadband played a critical role in improving internet accessibility, which is essential for online education. The research identifies the PM eVIDYA programme as a leading pandemic response initiative that brings disparate digital education initiatives under one roof. This programme included platforms like as SWAYAM, which offers online courses for higher education, and DIKSHA, which offers e-content for school instruction in several languages. (Biswas, 2021) assesses these platforms' efficacy severely and points out that although they have greatly increased access to educational materials, they have also exposed glaring differences in digital access. (K. Jafar, 2023) One of the primary factors identified is the availability of digital devices. Many students, particularly those from economically disadvantaged backgrounds, lack personal devices such as laptops, tablets, or smartphones necessary for online learning. Instead, they often rely on shared family devices, which limits their ability to participate effectively in online classes. Another major factor is

internet connectivity. The study highlights that while urban areas in Tamil Nadu generally have better internet infrastructure, students in rural areas face significant challenges due to poor or unreliable internet connections. This digital divide is further compounded by socio-economic factors, where students from lower-income families are less likely to afford high-speed internet or multiple data packs required for sustained online learning. An important obstacle to fair online education was the digital divide, which is more noticeable in rural and economically underprivileged areas. Even with programmes like giving laptops and tablets to poor pupils, there were still issues with unequal access to digital devices and dependable internet service.

(Nambiar, 2020) (Amit Joshi, 2021)The literature emphasises how vital it is for teachers to receive training in order to effectively use digital teaching tools. Projects such as NISHTHA and ICT training programmes play a major role in this regard. (Kalyani, 2024) examines the effects of enhancing teaching strategies and educational practices in India through the National Initiative for School Heads' and Teachers' Holistic Advancement (NISHTHA). NISHTHA is a flagship programme that was introduced in 2019 by Indian government Ministry of Education with the goal of enhancing school education quality by means of integrated teacher training. It focuses on developing the competences of educators and principals of schools to provide an environment that is inclusive, creative, and conducive to learning. These programmes' uneven efficacy, however, emphasises the necessity of ongoing professional growth. The transition to online learning has also had social and psychological effects, with students' mental health being negatively impacted by more screen time and isolation. (Dr.V.Sureshkumar, 2023) In response to the COVID-19 pandemic and the move to online learning, the Government of India launched the Manodarpan initiative, which includes a national helpline that provides tele-counseling services by qualified mental health professionals, ensuring immediate psychological assistance. The initiative aims to address the psychological well-being and mental health of students, teachers, and families. Manodarpan and similar initiatives offer psychological help, but more substantial resources are required. The paper (Biswas, 2021) strongly supports policies that address the digital divide, a mixed education paradigm, and ongoing investments in digital infrastructure.

(Madanjit Singh, 2021) place the pandemic's effects on India's higher education system in context, emphasising how schools were forced to close suddenly and how online learning took over. The authors highlight the proactive approach taken by the Indian government in addressing the situation by utilising the country's current digital infrastructure and initiating new projects. The PM eVIDYA programme, which combined various digital platforms and resources to promote both school and higher education, is one of the important initiatives covered. With over 1,900 courses covering a wide range of disciplines, the program's inclusion of the SWAYAM platform was essential in ensuring that students have access to high-quality instructional materials even during the lockdown. The report mentions the National Digital Library of India (NDLI), a sizable collection of scholarly materials available to educators and students. During the shift to online learning, the NDLI's vast library of e-books, periodicals, and multimedia content offered invaluable academic support. The authors also emphasise the usage of SWAYAM Prabha, a collection of 32 DTH channels devoted to transmitting educational programming, which has shown to be very helpful for students in areas with poor internet access.

(Madanjit Singh, 2021) articulates the government's response highlighting how important it was to prioritise teacher preparation and capacity building. Programmes like the National Initiative for School Heads' and Teachers' Holistic Advancement (NISHTHA) and other ICT training courses were designed to give teachers the tools they needed to effectively instruct

students online. The authors contend that although these training programmes had a significant role in the swift transition to digital education, there were obstacles because of the different degrees of digital literacy among teachers, which called for ongoing professional development. The article notes the digital divide and socioeconomic inequities that restrict access to online education while discussing the difficulties and constraints facing Indian e-learning projects. Significant obstacles face students from economically disadvantaged and rural backgrounds, and while efforts to increase internet availability and distribute digital devices have been made, these steps are not enough (Madanjit Singh, 2021). The necessity for comprehensive support systems is underscored by the psychological and social effects of extended online learning, including increasing screen time and isolation. In order to improve the efficacy of e-learning initiatives in the post-pandemic era, the author makes a number of recommendations. These include building a strong digital infrastructure, funding teacher preparation programmes, producing interesting digital content, and combining online and offline learning modalities to create a more adaptable and resilient educational system. In overall, the article evaluates the Indian government's e-learning initiatives during the COVID-19 crisis, acknowledging progress but also highlighting challenges. The authors offer valuable insights for shaping India's future online education, emphasizing inclusive, adaptive, and sustainable digital learning approaches, emphasizing the need for continuous improvement.

User Adoption & Retention:

(Bargavi Ravichandran, 2023)The degree to which educators, students, and educational institutions have embraced and incorporated technology-based educational tools and platforms into their teaching and learning processes is referred to as user adoption of EdTech in the Indian market. (Sandeep Kumar Mathivanan, 2021)The teaching-learning process may become more inventive, adaptable, and focused on the needs of the student with the help of online learning. Internet-connected devices, such as smartphones, computers, and tablets, may provide synchronous and asynchronous learning experiences. This is known as online learning. The reason for the structure of the synchronous learning platform is that students participate in live lectures and have direct access to lecturers. While asynchronous learning platforms lack sufficient organisation, synchronous learning platforms have the potential to provide fast feedback.

(Chaudhuri, 2023)There are more than 4,500 edtech companies in India, and BYJUs being the top player in the list of Edtech industry followed by Unacademy, Vedantu and several others. The pandemic outbreak has resulted in exponential growth for ed-tech enterprises. Byjus has added 7.5 million new users to their portal since it started giving out free content. Some additional firms that have witnessed three times as much development as this, are Unacademy, Vedantu, and Toppr. (Dr Pooja Mahajan, 2023) Since 2016, there has been an exponential increase in the number of people in our nation using the internet, and data consumption has surged in parallel with the growing number of Indians using smartphones. On the contrary, rise in data consumption in our nation has also led to individual content creators offering their work for free on websites such as YouTube, Vimeo, and so on. (Dr Pooja Mahajan, 2023)They directly rival the EdTech platforms in market share. For students living in areas where access to high-quality offline education is limited, the EdTech sector provides high-quality education. In order to capitalise on the enormous development potential in India, the EdTech sector in our nation must simultaneously concentrate on raising awareness among parents and students about the calibre of material available on these platforms.

(Bhairi Swarna Lakshmi, 2023) extensively highlighted on customer adoption and engagement which leads to customer retention which is another concerning parameter for any start-up related to selling products or services. If the customers are content they are more likely to repurchase the product or the service which is referred to as customer retention and in the Ed-tech industry in particular consumers are using customer satisfaction as a reference or indicator to measure its performance.
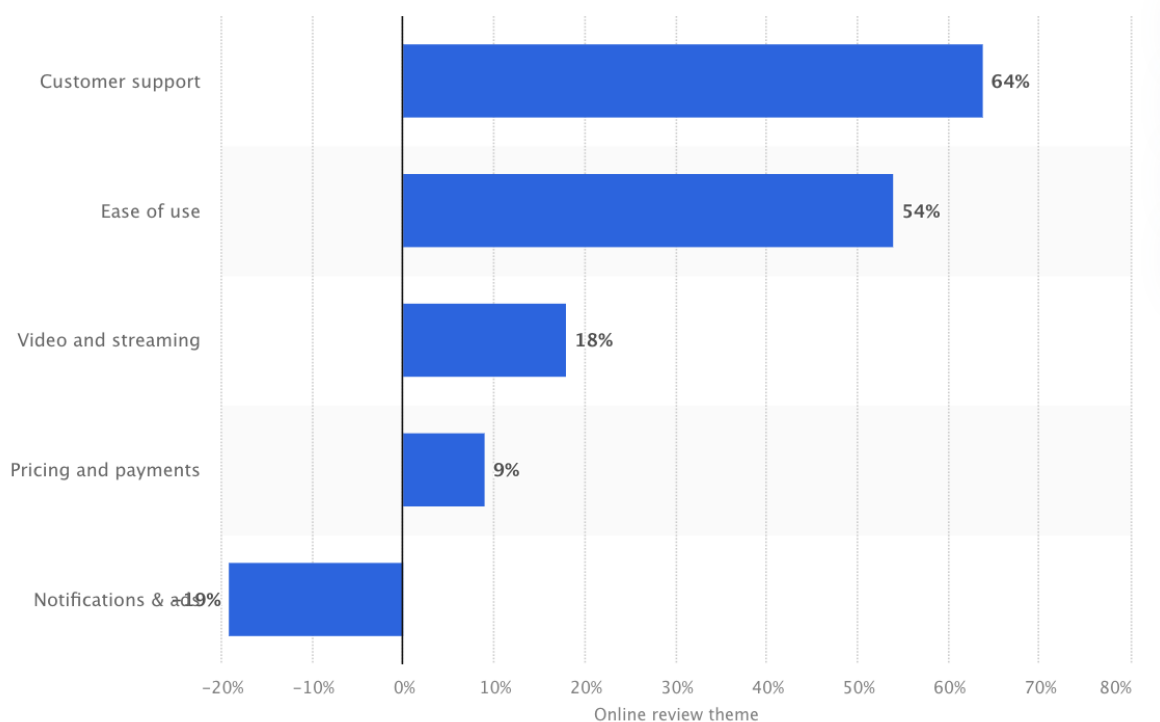

Figure 1: Factors influencing customer retention (Redseer; Omdiyar Network, 2020)

As per fig. 1, Customer service is the most important factor driving good attitude among EdTech consumers in India in 2019 (64 percent). Conversely, at -19 percent, alerts and adverts had the most unfavourable sentiment drivers. Another factor influencing very good mood was ease of use, although responses to price and payment methods were just somewhat positive (Minhas, 2022).

(Sonal Daulatkar, 2022) note the drastic transition in learning required due to the pandemic-induced lockdowns from traditional in-person instruction to online platforms. The authors used sentiment analysis to determine how different stakeholders, such as parents, teachers, and students, felt about the sudden move to online learning and its consequences. They draw attention to how, despite being necessary to preserve educational continuity, this shift presented substantial difficulties because different institutions and people were not prepared for the digital age in the same way. (Sikander, 2022) in his paper referred this as "digital challenge" which is further categorised between traditional learning and distance learning. Moreover, this digital challenge is primarily noted in traditional institutes compared to institutes providing distance learning. The authors stress that a number of elements, such as technological infrastructure, digital literacy, accessibility, and the flexibility of educational institutions, all have an impact on the success of online learning. (Daulatkar & Deore, India) Diverse opinions about the online learning environment are shown by the study's sentiment analysis. Positively,

a lot of students valued the ease and flexibility of online learning, which gave them better control over their schedules and access to a wider selection of materials. The opportunity to use a variety of digital tools and multimedia information in the classroom has been valued by educators as well since it can improve learning results and student engagement. But the survey also finds a lot of unfavourable opinions, especially when it comes to the digital divide and accessibility problems. Significant obstacles experienced by students from economically poor and rural areas included insufficient access to digital devices and unreliable internet connectivity (Daulatkar & Deore, India). These difficulties made already-existing educational disparities worse, which made impacted pupils angry and disengaged. The authors point out that government programmes to increase internet infrastructure and disperse devices were frequently insufficient to close the gap.

(Sonal Daulatkar, 2022) articulates the impact on mental health and social interaction. Remote learning environments led to feelings of loneliness and stress among students, as they missed face-to-face interactions. Prolonged screen time and the pressure to adapt to new learning modes also contributed to mental health concerns. Educators faced challenges in transitioning to digital platforms, with some struggling with lack of training and support. The authors argued for continuous professional development and robust support systems for teachers to navigate the digital landscape effectively.

To enhance the effectiveness of online learning post-pandemic, the study (Daulatkar & Deore, 2022) advocates for a hybrid learning model that combines online and offline education, addressing the digital divide through sustained investment in digital infrastructure and equitable access to devices and connectivity. The study concludes by highlighting the potential for online learning to transform the educational landscape in India, provided the identified challenges are systematically addressed. A collaborative approach involving government bodies, educational institutions, and technology providers is needed to create an inclusive and resilient education system.

(Dr Priya Kulkarnia, 2022) focus on how the India's teenage population is affected psychologically by the abrupt switch to online learning. (Zalik Nuryana, 2023) The authors contextualise the state of mental health prior to the epidemic, pointing out that social expectations, scholastic stress, and restricted access to mental health facilities presented serious obstacles for Indian teenagers already. These problems were made worse by the COVID-19 epidemic, which disrupted social relationships and traditional learning environments by forcing schools to close and moving instruction online.

According to the study, adolescents' emotions of loneliness, anxiety, and depression were made worse by their lack of in-person interactions and their isolation from their friends. (Dr Priya Kulkarnia, 2022) The authors point out that although online learning is vital for continuing education, it frequently results in lower motivation and engagement, which raises the stress level associated with academics. Constant screen use and the need to adjust to new learning tools increased cognitive load and negatively impacted mental health. The study investigates the impact of family dynamics on adolescents' mental health during their teenage years. It found that family tensions often increased due to confined home environments, while supportive family environments mitigated these negative impacts. Educational institutions and policymakers implemented measures like tele-counselling services, mental health webinars, and online peer support groups to provide psychological support. However, these measures have been ineffective, with many adolescents still reporting unmet mental health needs. The authors suggest that more comprehensive and accessible mental health resources are needed,

including integrating mental health education into the curriculum and training teachers to recognize and respond to mental health issues.

In summary, the study looks at how mandatory online learning affected Indian teenagers' mental health during the COVID-19 pandemic. It draws attention to how complicated these effects are and how family dynamics and socioeconomic factors play a role (Dr Priya Kulkarnia, 2022). In order to provide all students with the mental health resources and assistance they need to succeed in both online and offline learning contexts, the article promotes a comprehensive approach to adolescent mental health in educational planning.

Chapter 3: Research Methodology

Introduction:

In recent years, India's education technology (edtech) ecosystem has experienced accelerated expansion (Abhishek Bansal, 2023), driven by an expanding youth population and fast internet penetration. This thesis delves deeply into the erratic nature of the Indian Edtech industry, concentrating on the ever-changing scene of EdTech start-ups. Using a comparative approach, this study identifies the several variables that influence how unexpected these endeavours are. The technique that makes clear the direction that researchers take when doing their research is known as research methodology (ALEX OPOKU, 2016). It comprises the methodical, logical strategy the researcher chooses to address the study issue. A research technique outlines the steps the researcher takes to guarantee a trustworthy, genuine outcome in order to meet the objectives and goals of the study. The research methodology not only outlines the kinds of data that will be gathered and utilised, but also demonstrates the validity of the study by producing logical and scientific results. (ALEX OPOKU, 2016) It's the detailed strategy that ensures the researcher stays on course and that the process is efficient, controllable, and successful in its own right. Having a defined plan is usually helpful for the researcher, even though research is a large process with an ambiguous path from one point to another. A sound research approach has the following benefits: aids in the clarification of the researcher's techniques and approaches, aids in the researcher's planning of the data collection and analysis process as well as the documentation of the goals and objectives of the study, aids in determining the best research methodology, and encourages researchers to do their research using a set methodology.

Myself, as a researcher will discuss the approach and various techniques employed in this study in this chapter. There will be illustrations of the research philosophy, research design and technique, research strategy, and research instrument used in this study. This chapter will explain the study's methodology and offer a thorough description of the instruments used for the research. There will also be an explanation of the survey's design, sample selection, and data analysis.

Research Philosophy:

(Gibson Burrell, 1979) Research philosophy is defined as a set of presumptions and beliefs about how knowledge is developed. Many different kinds of assumptions are made in every study project. These presumptions influence both the study question and how the results are interpreted (Gibson Burrell, 2019). A carefully considered set of presumptions can support the methodological decision, study plan, collecting data methods, and analytic methodology. Three main categories of assumptions are used in research: ontological, epistemological, and axiological. As explained in the paper (Scotland, 2012), epistemology deals with the nature, extent, and methods of knowledge acquisition. The article outlines how the relationship between the researcher and the information being sought is influenced by epistemological positions. A positivist epistemology, which supports objective knowledge that can be measured and generalised via statistical analysis and empirical observation, predominates in the scientific paradigm. In order to achieve objectivity and detachment, this method demands a distinct separation between the researcher and the study subject. The interpretive paradigm, on the other

hand, embraces a constructivist epistemology, according to which knowledge is co-constructed by the participants and the researcher via meaningful interactions. (Scotland, 2012) The paper emphasises how researchers' approach to inquiry is substantially shaped by their ontological assumptions, which in turn impact their perception of the presence and organisation of the social world. Realist ontologies, which hold that reality exists independently of human intellect and can be objectively measured, are frequently accepted within the framework of scientific study. On the other hand, the interpretative paradigm tends towards a relativist ontology, implying that reality is socially created and changes depending on the circumstances of a person or a culture. This paradigm emphasises how different realities are shaped by the experiences and interactions of people. A transformative ontology is introduced by the critical research paradigm, which emphasises the power structures and ideological factors that create social reality in addition to acknowledging their constructed nature.

An positivist approach works well for my research. This paradigm will direct my investigation into the methods for obtaining, verifying, and interpreting data regarding the variables impacting volatility, the state of readiness for the adoption of EdTech, and the reasons behind cash burn rates. It will assist a strong methodological foundation, allowing you to generate insights that the Indian EdTech ecosystem's stakeholders can rely on and use.
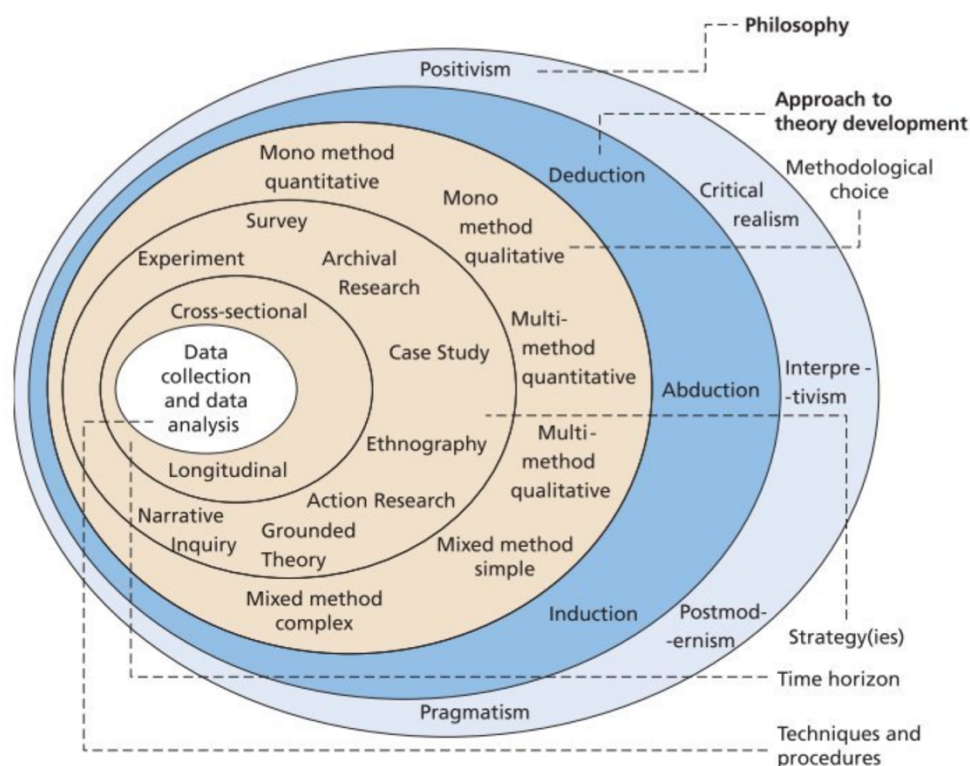
Figure 2: The Research Onion (Mark Saunders, 2019)

Depicted in Figure 2, is Saunders research onion. A research onion is made up of six layers, ranging from techniques to research hypotheses. It demonstrates methods, schedules, and opposing and supplementary hypotheses (Alan Bryman, 2015). The study employed the research onion as a framework to guide its methods and future goals, taking into account the many levels of the onion.

Realism: This scholarly viewpoint recognises existence apart from perception and theoretical conjectures (Alan Bryman, 2015). Critical realists support epistemic relativism, which holds

that social realities are created by society and that knowledge is a product of its past (Alan Bryman, 2015). Consequently, it follows that the concept of critical realism cannot be reduced to numerical methods or statistical analysis. However, this study uses a qualitative methodology, with only a small group of participants included in the initial data gathering.Historical data from studies and journals is taken into account to assess current trends and market insights.

Interpretivism: Constructivism and interpretivism go hand in hand. According to this perspective, social reality is a product of interpretation and interaction (Zikmund, 2002). Establishing new understandings and interpretations of social contexts and circumstances is the aim of interpretivism research (Mark Saunders, 2019).

Pragmatism: This strategy works best when the research question is the main predictor of epistemology. Instead of any predetermined scenarios, this method is based on acts, events, and outcomes (Louis Cohen, 2000).

Positivism: This technique, which focuses on the repercussions and consequences of causes in the study questions, is the most scientific. This method involves observing and quantifying objective reality in order to acquire knowledge (DC Phillips, 2000). This traditional research paradigm is applied to quantitative research techniques, such as questionnaires and surveys (Mark Saunders, 2019). This method has been applied for the research in order to analyse the number and percentage of participants as well as their responses to the various questionnaire items. Moreover, this method suits well with this research as Positivism emphasizes objectivity and the use of empirical data as my research aims to measure quantifiable aspects such as demographics, user adoption and acceptance, customer satisfaction and content efficiency, user adoption and awareness, factors influencing cash burn rate, etc.

Methodology followed for Data Analysis:

Research methodology's main objectives are to evaluate the rationale behind the methodological approach and support the researcher by offering a thorough strategy for the investigation's next course of action. The Knowledge Discovery in Databases (KDD) methodology is an organised approach to identify patterns and relevant information in massive databases (William J. Frawley, 1992).   This approach resonates with me and to my research. Data mining, preprocessing, transformation, interpretation, and assessment are all steps in the multi-step KDD process (Fayyad, 1997). I used each of these phases in this study in the several possible ways: by using KDD, it assisted me in finding hidden patterns, correlations, and trends in the massive amount of EdTech-related data, which helped me gain a better knowledge of the variables affecting volatility, adoption readiness, and cash burn rates. Because it is a strong and tested methodology, the KDD methodology offers a structured approach to organising and planning a data mining project. Since most tactics can be used in a variety of ways in real-world situations, it's frequently crucial to go back and follow the original sequence or reiterate an order. KDD method of approach has several advantages (Mark Gilchrist, 2012), which includes:
1. KDD offers a clear, methodical way to extracting knowledge and patterns from data.
2. The findings can be continuously improved and refined because the process is interactive and iterative. Having this flexibility makes it easier to handle challenging data analysis issues.

3. The methodology can handle high-dimensional data, which can have a very high number of properties. This is essential for deriving insightful conclusions from intricate datasets.

The KDD methodology provides a thorough and organised way to examine the intricate data associated with your study on EdTech startups in India. As a researcher, this approach allowed me to find significant insights and patterns that successfully answer my research questions.. This methodology not only strengthens the validity of my results but also furnishes stakeholders in the EdTech sector with useful insights. Figure 2 depicts a diagrammatic illustration of the methodology:
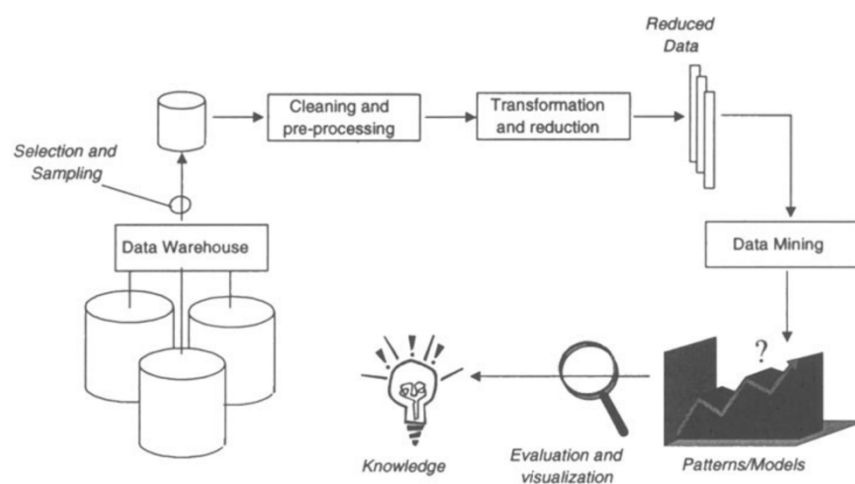
Figure 3: Steps of KDD Process (Fayyad, 1997)

Data Selection and Sampling:

Primary data are the details that the researcher gathers specifically for the purpose of doing study. The two basic types of primary data are questionnaires and interviews (Uma Sekaran, 2016).

Research Instrument:
In the beginning, survey questionnaires were employed to gather primary data. A structured data collection technique where each participant is asked the same questions is how one describes a survey (Dawson, 2009). Through the analysis of a smaller portion of the population, a survey can provide quantitative depictions of trends within the population as well as correlations between variables within the population (John W. Creswell, 2016). The primary goal of conducting a survey is to obtain data on a broad spectrum of individuals with the least amount of expense and effort. Just 13.2% of studies on collaborative consumption as of 2019 had made use of surveys (Rafael Laurenti, 2019).

Questionnaire-based data collection has proven to be an extremely helpful method in the contemporary COVID-19 era, when social alienation has become one of the conditions. This has made it possible to gather samples from a greater number of people without having to travel. Google Forms, an online survey provider, offered a questionnaire template for all of the questions that were posed to the participants. The questionnaire was then shared online with

the friends and family as well as through a number of social media sites. The survey's questions have been condensed and written in plain English to ensure that the greatest number of respondents from a wide range of backgrounds can take part. The survey questionnaire had only original questions that were not found in any other source. The goal of the study was to learn what the Indian public thought about various aspects of education technology. People of all genders and from a wide range of professions and educational backgrounds have taken part in the survey. In order to broaden the scope of the study, participants are typical individuals of any age above 18 years have been taken into consideration. The reason behind keeping this wide age range is because of 2 primary reasons: firstly, any individual using Ed-tech as a platform for their own self are welcome to put forward their opinion which works a major role in terms of user adoption, content efficiency, and several others. Also, this age range includes consumers who are parents investing for their child's education whose perspective on technological adaptability, financial decision making responsibilities play a vital role to understand the overall notion of the diverse consumer base across the country.

With a scale from Most likely to Unlikely, the survey questionnaire was designed to understand people's preferences. A few survey questions with a Most often to Rarely scale were included to find out how individuals felt about using Edtech. In certain survey questions, respondents were also provided with the ability to check multiple answers for the same question. (Acharya, 2010) In comparison to a simple yes/no or agree/disagree style, the scale provides deeper data by allowing respondents to specify the degree of their feelings or probabilities. It converts subjective experiences into numerical information suitable for statistical analysis. Keeping the ethical considerations in mind, no participant email address or other personal information was gathered during the survey.

Data Cleaning and Pre-processing:

In order to create the final dataset, the data from the raw data is prepared in this phase. In this case, choosing the right data and cleaning and transforming it are the main tasks. To produce the final dataset, any redundant data, missing values, and data containing special characters are cleaned and filtered away.

The purpose of the study was to assess how users used and preferred various aspects of Ed-tech platforms. As a result, a large variety of individuals older than 18 years were considered. More importantly, there was no upper age limit on who may take part in the study as the survey questionnaire was circulated to participants over 18years old, however this includes students and parents as well which would broaden the range of participants, as parents in India are largely involved in their child's education. Participants also include regular participants who are not professionally active in Ed-tech as well as professionals working in the field. For this survey, only people who were willing to participate and were readily available were taken into consideration. Distributing survey questions via social media is beneficial because of its broad audience, affordability, capacity to target particular demographics, possibility for high involvement, and instant feedback. Together, these elements improve the efficacy and efficiency of data collecting, which makes social media the perfect channel for disseminating the results of research in the modern era. Given that social media was the primary means of distribution for the questionnaire, finally, 105 persons made up the survey's sample size. Larger sample sizes are associated with a lower likelihood of errors in generalising the target population (Mark Saunders, 2019).

In addition, secondary data has been used for analysis and discussion in order to address certain aspects of the study issues. The data from many well-known Indian Ed-tech organisations as well as information from government websites about Indian startup database and their economic effects make up the majority of the secondary data sources. Every secondary data source has been explicitly referenced and cited.

Data transformation, reduction & data mining:

Google forms were used to distribute the original data, which was gathered via a survey questionnaire. Every participant's response was saved within the Google form. After reaching the desired participant count, all of the data have been downloaded and recorded locally in an Excel file. The participants had the ability to select more than one answer for certain questions. It was not possible to assess using the same answer file because all of the selected options were included in a single cell in the excel file. As a result, excel formulas have been used to create distinct columns for each option in order to appropriately prepare the data. During this data preparation and cleaning process, all of the dataset's missing values were also addressed. Since the timestamp of the responses was no longer useful, it was likewise deleted during the cleaning procedure. After the data was cleaned, MS Excel and Microsoft Power BI were used for analysis and visualisation. Advanced statistical analysis and interactive data visualisation are combined powerfully when Power BI is used. (Mandava Geetha Bhargava, 2018)Power BI offers dynamic and captivating visualisations that improve data comprehension and sharing. Better comprehension and more informed decision-making are made possible by this integration, which guarantees that research findings are both statistically sound and aesthetically pleasing.

Visualisation:

An essential component of any research study is visualisation. The data that was gathered, cleaned, and processed is shown visually in this section based on multiple analysis points. Bar charts are a popular way for visualisation because they are a simple, intuitive graphical representation. The equal width bar chart is the most widely used type of bar chart. The equal width bar chart's most crucial feature is how well it makes use of the screen size (Keim, 2002). In addition, bar charts make it simpler to compare data across several categories and make patterns and trends in the data easy to understand. The pie chart is another widely used visual aid. When interpreting various factors under a single category, a pie chart works well. The pie chart is reported to have been around for more than 200 years and was initially used to show the population and income of European states. Pie charts were originally utilised by William Playfair in 1801 (Spence, 2005).

Pie charts and bar charts are the main types of visualisations employed in this research. The majority of the time, Power BI and other visualisation tools are utilised to create visual representations. This research also makes use of Microsoft Power BI to some extent.

Evaluation:

The methodology's following stage is called evaluation. In research, evaluation is the process of validating the results and determining how well they support the main goal of the study. It entails evaluating the conclusions in light of the information acquired (Spence, 2005). Following the data visualisation in this study according to several parameters, I have assessed the major conclusions that can be drawn from those visualisations. The documentation of the visualization's results is dependent upon the goals and objectives of the research as well as the degree to which the findings align with them.

Knowledge:

For my study on the volatility of Indian EdTech firms, the knowledge phase of the KDD process is essential. In order to get useful insights, this stage involves analysing patterns from data mining, such as financial indicators, user growth, and market trends. It involves confirming the uniqueness and usefulness of these findings by expert assessments and cross-validation (Fayyad, 1997). The knowledge stage converts data into workable strategies for investment, adoption programmes, and policy recommendations by presenting findings through reports and visualisations. With this approach, decision-making and strategic planning are supported by a thorough understanding of the elements impacting volatility and preparedness for EdTech adoption in India.

Chapter 4: Analysis & Findings

Introduction:

This thesis's Analysis and Findings section provides a thorough analysis of the information gathered from secondary sources and surveys. This section seeks to identify the main causes of the Indian EdTech ecosystem's volatility, assess the market's preparedness for EdTech adoption, and investigate the financial difficulties that EdTech start-ups encounter. This part offers insights into the industry dynamics through a critical analysis of the data, laying the groundwork for future research areas and strategic recommendations.

Visualisation 1: Age v/s Familiarity of Edtech platforms
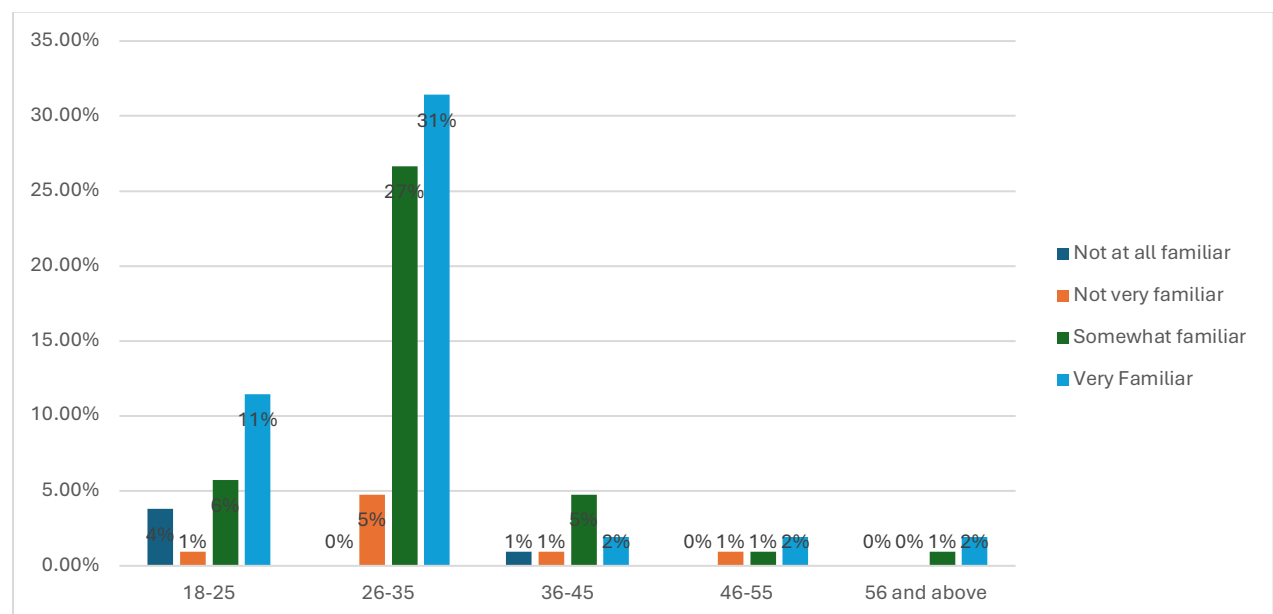
The relationship between age groups and their level of familiarity with EdTech platforms in India is depicted in the graph. 105 responses are collected individually from diverse age group above 18 year old through google survey questionnaire. The percentage of respondents is shown on the X-axis, while the age categories of respondents are categorised on the Y-axis: 18–25, 26–35, 36–45, 46–55, and 56 and above. Four levels of familiarity are further separated for each age group: "Not at all familiar," "Not very familiar," "Somewhat familiar," and "Very familiar." The research shows that different age groups have varying degrees of experience with EdTech platforms, and there are noticeable differences between them.

Key findings:
The graph illustrates a notable generational gap in India's familiarity with EdTech platforms.
- According to the graph, those in the 26–35 age range are the most familiar with EdTech platforms, with 31% ranking them as "Very familiar" and 27% as "Somewhat familiar." This implies that people in this age range are the main consumers of these technologies,

maybe because of their participation in professional development or higher education programs that make use of digital learning resources. Significant familiarity is also shown in the 18–25 age bracket, with 5% reporting "Very familiar" and 11% reporting "Somewhat familiar," suggesting a growing adoption among young individuals.

- On the other hand, familiarity declines dramatically with age, with the 36–45, 46–55, and 56 and above age groups showing the least amount of engagement. This pattern indicates a generational divide in the use of technology, with younger generations having more exposure with online learning.

The data suggests that EdTech companies can close this gap by concentrating on user awareness and developing customised engagement strategies for older demographics, all the while keeping up with innovations for the younger, more tech-savvy population. On the contrary, (Chaudhuri, 2023) (Dr Pooja Mahajan, 2023) study has given a vivid idea of Edtech usage booming across the country. There was indeed a clear gap in the literature which did not highlight that whether the consumers were getting access to the free content or they are purchasing subscription from these Edtech platforms.

Visualisation 2

Usage

Yes 32.0 (30.48%)

No 73.0 (69.52%)

Factors influencing your decision to use Edtech platforms

Factor	Percentage
Availability of live classes	43.8%
Cost of subscription	49.5%
Customer service	22.9%
Personalized learning experiences	49.5%
Quality of content	60.0%
Reputation of the company	22.9%
User-friendliness of the platform	37.1%

Participants (in %)
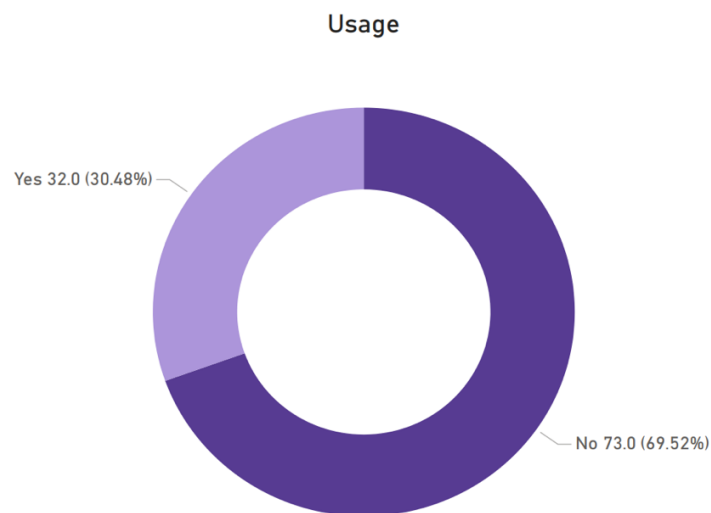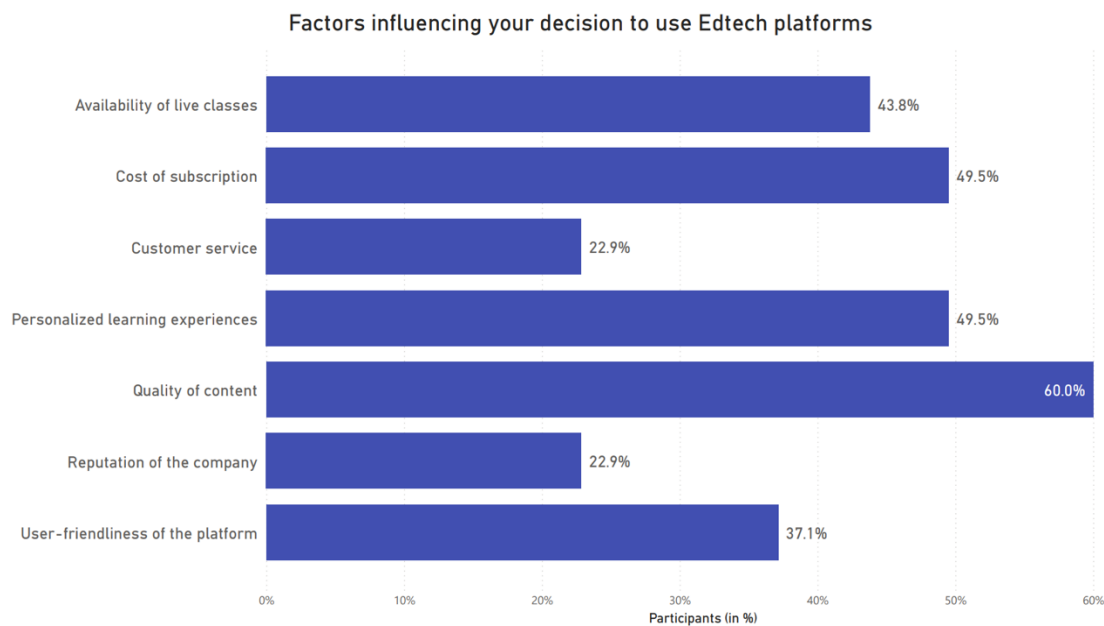
The pie chart gives a visual picture of how many people in India have used EdTech platforms, either themselves or through their children. There are two sections on the chart: "Yes" and "No." With 32 respondents, or 30.48% of the sample, answering "Yes" (shown in light purple) indicates that they have used EdTech platforms. The "No" category, denoted by dark purple, comprises 69.52% of the participants, comprising 73 people who said they have never utilised EdTech platforms. Each part of the data is properly sized to indicate the percentage of users against non-users, and the data is clearly defined.

The survey question, "What are the most important factors influencing your decision to use EdTech platforms for you or your child's education?" is represented by a bar chart that displays the responses. The percentage of participants is shown on the X-axis, and the variables influencing their decisions are listed on the Y-axis. The elements include the availability of live classes, the price of the subscription, the level of customer support, customised learning opportunities, the calibre of the content, the company's reputation, and the platform's ease of use. Each component is shown as a horizontal bar, the length of which varies according to the proportion of respondents who said the item had an impact on their decision-making.

Key Findings:
The primary findings drawn from this pie chart show that there are notable differences in India's percentage of users of EdTech platforms. Given that only 30.48% of respondents reported using these educational technologies, it is clear that the majority, 69.52%, had not done so yet. This significant gap points to a number of possible adoption barriers, including a lack of knowledge, accessibility concerns, a lack of technology competence, or even a misperception of the benefits of EdTech solutions. By removing these obstacles, EdTech companies can increase their influence and reach, as seen by the comparatively low utilisation rate. Raising awareness and showcasing the advantages of EdTech may be able to persuade non-users to become users. Additionally, the data implies a need for targeted marketing strategies and educational campaigns to engage the broader population, especially in regions or demographics with lower adoption rates and unfortunately not much of the researcher spoke about this extensively previously in their research papers. This insight can be pivotal for stakeholders as well, aiming to enhance the penetration of EdTech platforms and improve educational outcomes in India.
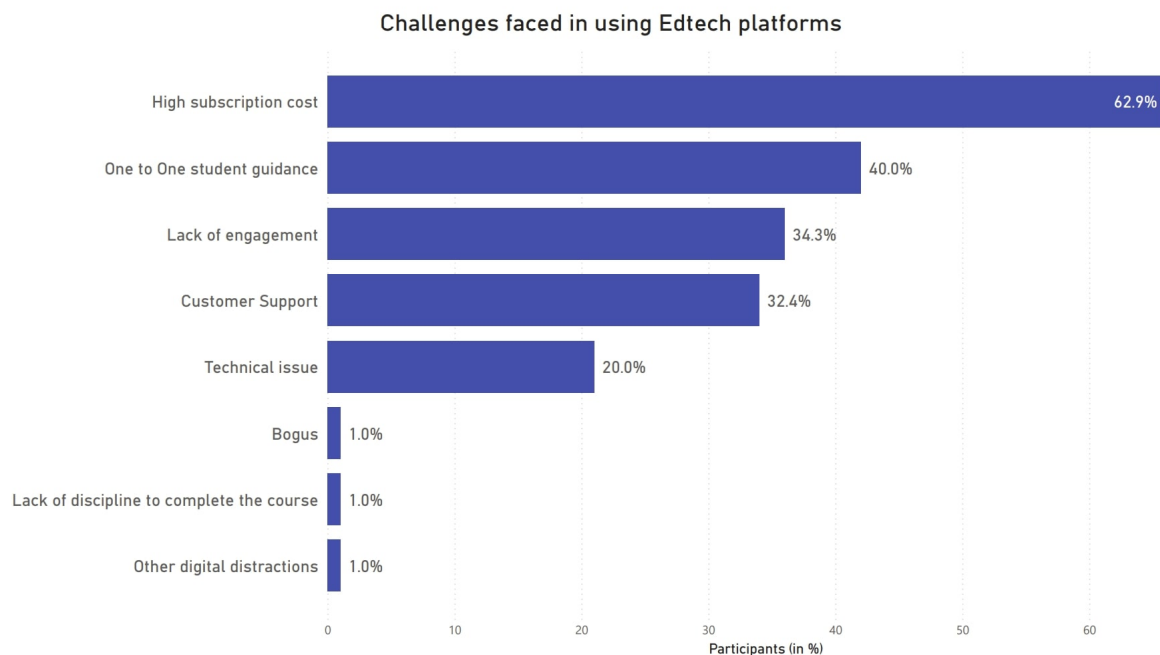
The bar chart's key findings provide some crucial insights into the factors that influence the use of EdTech platforms.

- According to 60.0% of respondents, the content's quality is the most important factor. This shows how crucial it is to provide top-notch instructional materials in order to draw in and keep consumers.

- Other important elements that affect 49.5% of participants are the cost of the subscription and personalised learning experiences. This implies that when selecting an EdTech platform, users are price-sensitive and appreciate personalised learning experiences. Another important consideration that affects 43.8% of respondents is the availability of live classes, underscoring the need for in-person, interactive learning experiences.

- 37.1% of users said the platform's user-friendliness was crucial, suggesting that satisfaction and user engagement are directly correlated with the platform's usability and user-friendly layout. Customer service and the company's reputation are noteworthy but relatively less important factors, each affecting 22.9% of respondents.

According to these results, trust and support are just as important in the decision-making process as the functional and sensory features of the platforms. All things considered, the graphic illustrates the variety of factors that impact the adoption of EdTech platforms, with cost, personalisation, and content quality appearing as the main concerns for consumers. (Sandeep Kumar Mathivanan, 2021) in his paper mentioned as well that online education should be focussed on the needs of the students but it has been dealt very superficially. EdTech platforms often struggle to adapt to individual learning styles, focusing on visual, auditory, and kinaesthetic preferences. A more sophisticated approach could dynamically adjust content based on cognitive load management. Peer feedback systems that are available in real time allow students to reflect on their comprehension and obtain different viewpoints, which enriches their learning process and improves learning experiences.

Visualisation 3

Challenges faced in using Edtech platforms

Challenge	Participants (in %)
High subscription cost	62.9%
One to One student guidance	40.0%
Lack of engagement	34.3%
Customer Support	32.4%
Technical issue	20.0%
Bogus	1.0%
Lack of discipline to complete the course	1.0%
Other digital distractions	1.0%

x-axis: Participants (in %) ranging from 0 to 60

The survey responses for the question "What challenges have you faced in using EdTech platforms?" are displayed in a bar chart. It shows the percentage of participants who reported each issue, giving a visual depiction of the many challenges faced by users. Eight horizontal bars make up the chart, each labelled with a different task and the associated percentage. The difficulty of each task is graded from best to worst according to the proportion of participants who faced it. The tasks are listed on the y-axis, and the proportion of participants, which ranges from 0% to 70%, is represented on the x-axis. The length of each bar represents the percentage of respondents who thought a given difficulty was important. The poll offers insights into the most frequent challenges consumers have while interacting with EdTech platforms, covering a wide range of topics from expensive subscription fees to digital distractions.

Key Findings:

- High subscription fees are the biggest problem consumers face, according to the survey, with 62.9% of respondents citing this as a problem. According to this research, affordability is an important barrier for a lot of consumers, which means EdTech companies may need to reevaluate their price policies in order to draw in and keep a wider audience of consumers. On the other hand, (Redseer, 2020) graphical depiction states that customer service and ease of use are the major reasons which influences customer sentiment drive to use online education.

- One-on-one student guidance is the second most frequently mentioned problem, as indicated by 40% of respondents, underscoring the necessity of personalised educational support.

- 34.3% of participants indicated a lack of engagement, indicating that many users perceive the methods of delivery or the content to be inadequately engaging, which may have an impact on learning outcomes.

- A major difficulty is customer assistance, as indicated by the 32.4% of consumers who expressed discontent, emphasising the importance of dependable and prompt support services.
- 20 percent of participants mentioned technical concerns, indicating the barriers to technology that can obstruct the user experience. With 1% of the respondents, fraudulent content, a lack of motivation to finish the course, and other internet diversions are among the less commonly mentioned difficulties.

These results draw attention to important areas where EdTech platforms still need to be improved, namely the need for affordable pricing, individualised guidance, interesting content, and strong customer service. In summary, the bar chart presents an overview of the difficulties encountered by EdTech users, and a critical examination indicates the necessity for more research into the root causes and identify possible remedies. EdTech platforms can better realise their promise of democratising education and assisting various learners in accomplishing their educational objectives by tackling these problems.

Visualisation 4

Readiness to adopt Edtech solutions into mainstream education system
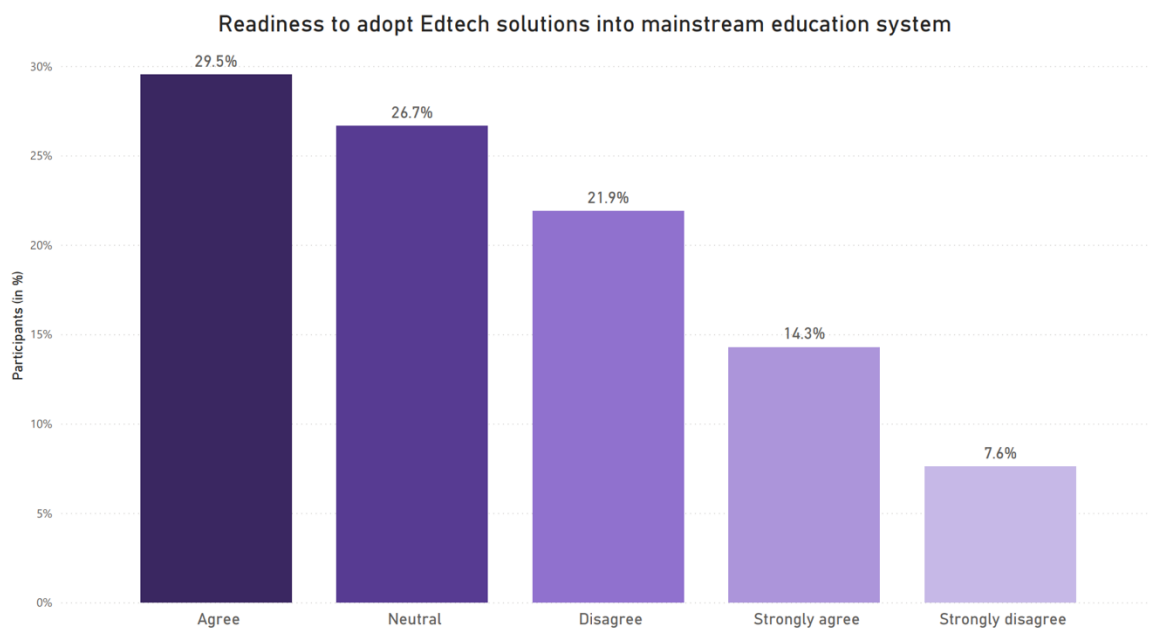
"Readiness to adopt EdTech solutions into mainstream education system" is a bar chart that shows the replies to the survey question "Do you believe India is ready to fully integrate EdTech solutions into the mainstream education system?" Five vertical bars make up the chart, each of which indicates a different degree of agreement or disagreement with the statement. Strongly Disagree, Disagree, Neutral, Agree, and Strongly Agree are the categories for these levels. These response categories are represented by the x-axis, and the percentage of participants for each response category—which ranges from 0% to 30%—is displayed on the y-axis.

When the bars are arranged in declining height order, the category that receives the most responses—Agree—has the tallest bar, standing at 29.5%. At 26.7%, the Neutral group comes

in second, indicating that a sizable portion of participants are unsure about India's preparedness for integrating EdTech. Of the responses, 21.9% go into the Disagree category, 14.3% go to Strongly Agree, and the smallest bar, 7.6%, belongs to Strongly Disagree. This response distribution offers a thorough understanding of participants' perspectives on the integration of EdTech solutions into India's traditional educational system, indicating differing levels of assurance or doubt on their viability and suitability.

Key Findings:
The poll provides many insights into India's perceived preparedness to incorporate EdTech solutions into its educational framework. The majority of participants either agree (29.5%) or are neutral (26.7%) about the readiness for such integration, which is an important finding. This suggests that a significant section of the population thinks that India is either prepared or on the verge of being prepared to adopt EdTech into the mainstream of education. It also reflects a generally optimistic or cautious view. The Agree category, which is the largest, indicates acceptance and optimism for EdTech solutions and indicates a high degree of trust in the technical capabilities and flexibility of Indian educational institutions.

Although many respondents to the study are hopeful, there is also a significant level of uncertainty, according to the Neutral responses, which make up 26.7% of the total. This could be due to a number of things, including worries about content quality, the digital divide, accessibility of technology, or how prepared teachers and students are to use digital tools in the classroom. While there is acceptance, there can be underlying worries or a need for additional information and assurance regarding the integration process, as indicated by the large number of neutral replies.

The responses that indicate significant scepticism or concern regarding the incorporation of EdTech solutions are Disagree and Strongly Disagree, accounting for 21.9% and 7.6% of the total responses, respectively. This mistrust may have its roots in a number of issues, including the current digital divide, poor infrastructure, or reluctance to stray from conventional educational techniques. This suggests that further work is necessary to address these issues, which is extensively addressed in several research papers which forms an agreement to this graphical representation (Sikandar, 2022) (Daulatkar & Deore, 2022).

It's interesting to note that, although less than the Agree group, the Strongly Agree replies account for 14.3% of the total, indicating a significant portion of the community that is extremely confident in the preparedness for EdTech integration. This robust backing suggests that certain groups view EdTech as a game-changing instrument that may dramatically improve accessibility and educational outcomes, particularly in a large and varied nation like India.

The bar chart's highlighted mixed replies point to larger patterns and difficulties related to EdTech integration in India. The government's efforts to digitise education, the internet's growing penetration, and the EdTech industry's explosive expansion could all contribute to the optimism shown in the Agree and Strongly Agree responses. The promise of EdTech solutions to close educational gaps and provide flexible learning possibilities has been demonstrated by the advent of online learning platforms and digital classrooms, particularly during the COVID-19 epidemic.

Nonetheless, the sizeable Agree and Disagree replies indicate possible obstacles that must be overcome. With inequalities in internet connectivity, device availability, and access to technology between urban and rural communities, the digital divide continues to be a major

concern. Moreover, educators used to conventional teaching methods can be resistant, and they would need assistance and training to properly integrate new technologies into their lessons.

A lot of respondents adopted a neutral position, which can also suggest that proof of an effective EdTech integration is required. It's possible that attendees are looking for concrete results or examples that show how EdTech solutions may be easily and successfully incorporated into the existing educational framework to boost student performance and engagement.

The substantial neutrality and high degree of agreement imply that policymakers, educators, and technology suppliers should concentrate on resolving these issues. Fair access to technology should be facilitated, infrastructure should be improved, teacher training programs should be made available, and excellent, curriculum-aligned digital content should be produced. Furthermore, the establishment of an ecosystem that facilitates and maintains the integration of EdTech solutions would require cooperation between the public and private sectors as well as educational establishments.

To sum up, the bar chart provides a detailed understanding of the perceived level of EdTech integration readiness in India. Even while the Agree replies show a strong indication of hope, there is still a great deal of doubt and scepticism that needs to be addressed. India may use EdTech solutions to improve its educational landscape and make it more accessible and efficient by concentrating on expanding access, boosting confidence through successful examples, and assisting educators.

Visualisation 5

Cash Burn Awareness
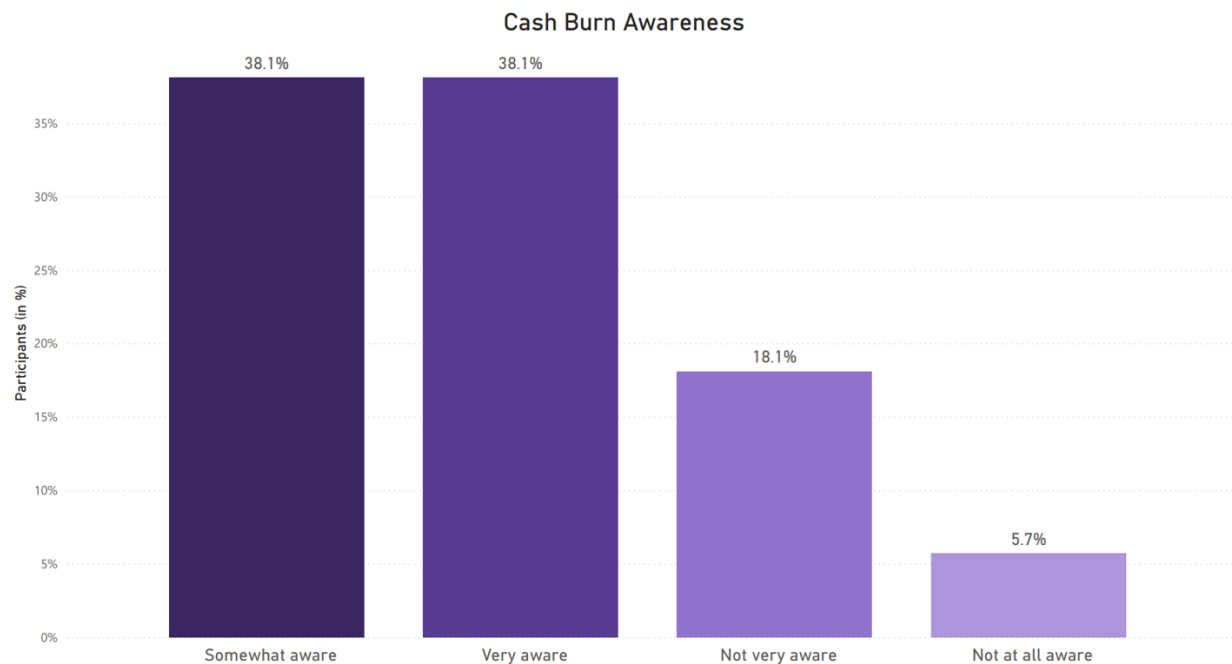
The poll responses to the question "Are you aware of the financial challenges faced by EdTech companies, such as high cash burn rates?" are displayed in a bar chart. The awareness levels are categorised along the X-axis as follows: "Very aware," "Somewhat aware," "Not very aware," and "Not at all aware." The percentage of participants in each group is shown on the Y-axis. With precise percentages presented at the top of each bar, the height of each bar represents the percentage of respondents that fit into each awareness level. 38.1% of respondents, according to the data, are "Somewhat aware," while another 38.1% are "Very aware." Five percent are "Not at all aware," and 18.1% are "Not very aware."

Key Findings:

The bar graph indicates that 76.2% of the respondents are aware of the financial difficulties that EdTech companies confront, particularly their high cash burn rates. Both "Somewhat aware" and "Very aware," with 38.1% of the replies, are similarly divided in this regard. This suggests that the respondents to the study had a strong overall awareness of the financial problems facing the EdTech industry. This kind of awareness is important because it shows how the general public views and trusts EdTech companies by reflecting their knowledge of the environmental and financial problems these companies confront.

The high levels of awareness (76.2% for "Somewhat aware" and "Very aware" combined) indicate that the EdTech industry is well aware of its financial difficulties, notably its high cash burn rates. There could be other reasons for this general awareness. First, this notion might have been influenced by media coverage and industry reports stressing the quick growth and substantial financial investments in EdTech businesses. Second, the pandemic has raised awareness of digital schooling and exposed more people to the business and operational reality of these platforms.

This high level of awareness offers opportunities as well as obstacles for EdTech enterprises. One way or another, having an informed audience can result in customers who are more supportive and involved and who recognise the need of sustainable financial practices. However, a high level of awareness of capital burn rates may give rise to questions over these businesses' long-term survival, which may have an impact on user confidence and desire to spend.
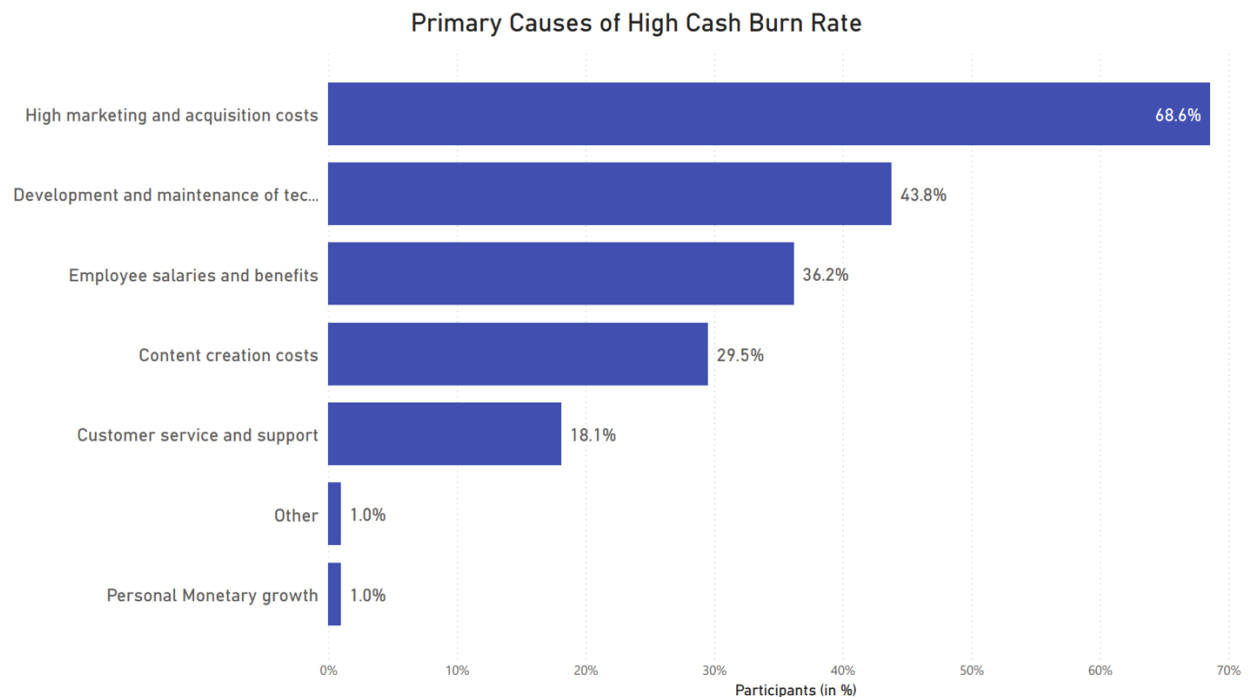
Of the remaining respondents, or 23.8%, 18.1% and 5.7%, respectively, said they are "Not very aware" or "Not at all aware" of these financial issues. This minority serves as a reminder that although the majority of people are aware of the financial challenges facing the EdTech industry, a sizeable segment of the public is still unaware of these issues. For EdTech companies, this knowledge gap might be crucial when planning their engagement and communication strategies. Raising awareness within this demographic may prove advantageous, as educated clients are more likely to make decisions that support the use and investment in EdTech platforms.

The lower awareness levels (combined 23.8% for "Not very aware" and "Not at all aware") suggest a demographic segment that might not be as interested in the business side of EdTech or might not be keeping up with industry news. This market offers EdTech businesses a chance to enlighten and educate people. Businesses may develop a stronger relationship and establish trust with this segment of their audience by being more open and honest about their financial strategy and obstacles.

The information in this bar chart suggests that EdTech companies should have a well-rounded communication plan. While emphasising the value and advantages of their platforms, businesses should strive to retain transparency regarding their financial situation and cash burn management techniques. Good communication can help those who are more aware understand others better and reduce concerns among the aware. Companies could also use this awareness to convince stakeholders who are already aware of the financial difficulties for supporting policies and investments. Interacting with the groups that are highly and moderately knowledgeable can result in better informed decisions and conversations that promote the EdTech industry's long-term viability.

To sum up, the bar chart offers insightful information about how well-informed the general public is about the financial difficulties facing the EdTech sector. It draws attention to the informed majority and the ignorant minority and offers strategic communication and engagement recommendations for EdTech companies. EdTech companies may improve user engagement, trust, and support by properly catering to both groups. This can lead to a more steady and sustainable growth trajectory.

Visualisation 6

Primary Causes of High Cash Burn Rate

Category	Percentage
High marketing and acquisition costs	68.6%
Development and maintenance of tec…	43.8%
Employee salaries and benefits	36.2%
Content creation costs	29.5%
Customer service and support	18.1%
Other	1.0%
Personal Monetary growth	1.0%

The bar chart provides a detailed breakdown of the responses to the survey question: "What are the primary causes of high cash burn rate?" The X-axis represents the percentage of participants, while the Y-axis lists the potential causes: high marketing and acquisition costs, development and maintenance of technology, employee salaries and benefits, content creation costs, customer service and support, other, and personal monetary growth. Each bar corresponds to one of these categories, indicating the proportion of respondents who identified each cause as a significant contributor to high cash burn rates. The chart reveals that high marketing and acquisition costs are identified as the leading cause, with 68.6% of respondents selecting it. This is followed by development and maintenance of technology (43.8%), employee salaries and benefits (36.2%), content creation costs (29.5%), customer service and support (18.1%), other (1.0%), and personal monetary growth (1.0%). According to the chart, 68.6% of respondents chose high marketing and acquisition expenditures as the primary explanation. The following are the percentages for technological development and maintenance (43.8%), staff pay and benefits (36.2%), costs associated with creating content (29.5%), customer support and service (18.1%), other (1.0%), and personal financial growth (1.0%).

Key Findings:

The figure provides important information on the financial difficulties EdTech companies encounter, especially those associated with significant cash burn rates. The most unexpected finding is that a sizable portion of participants (68.6%) believe that excessive marketing and acquisition expenses are the main cause of cash burn. This implies that EdTech businesses are spending a lot of money on marketing in an attempt to draw in and keep users, which has a big effect on their capacity to stay financially stable. Companies may be using aggressive marketing tactics to set themselves apart from rivals due to the fierce competition in the EdTech sector, which could result in significant spending in this area.

With 43.8% of respondents citing it as a major concern, technology development and maintenance is the second most often mentioned cause. This demonstrates how much money is needed to create and maintain the IT infrastructure needed to provide top-notch instructional materials and guarantee a flawless user experience. EdTech companies need to make constant investments in updating and improving their platforms in order to stay relevant and meet user expectations, given the rapid evolution of technology.

36.2% of respondents cited pay and benefits for employees as a major factor in high cash burn rates. This emphasises how crucial it is for the EdTech sector to draw in and keep bright workers, which frequently calls for offering attractive compensation and extensive benefits packages. Developing, managing, and scaling EdTech platforms requires a great deal of expertise, therefore in order to stay competitive, businesses need to make investments in their human resources.

Another significant element is content development expenditures, which are mentioned by 29.5% of respondents as the main reason for excessive cash burn. It takes a substantial time and financial commitment to produce instructional materials of the highest calibre. This includes employing instructional designers, multimedia professionals, and subject matter experts to produce and update content on a regular basis.

Customer service and support are another area where EdTech businesses pay significant costs; according to 18.1% of respondents, this is because they provide full help to users. Sustaining user satisfaction and retention requires effective customer service, which calls for spending money on support staff and infrastructure.

The categories "other" and "personal monetary growth," each indicated by 1.0 percent of participants, imply the existence of other, less well-known variables causing high cash burn rates. These could involve irregular costs or investments intended to advance the founders' or important stakeholders' personal finances.

This bar chart's data points to several strategic implications for EdTech businesses:

- Firstly, there is a necessity for more economical and efficient marketing tactics.
- The large sums of money spent on technology development and maintenance serve as a reminder of how crucial it is to give technological innovation and efficiency top priority. To handle their infrastructure needs, EdTech organisations should think about implementing scalable and affordable technology solutions, such cloud-based services.
- With employee salaries and benefits coming at a hefty cost, businesses stand to gain by strategically hiring and developing their team.
- .
- EdTech companies should concentrate on creating scalable and reusable content, according to the findings about content creation costs.
- Lastly, the allocation of resources towards customer service and support underscores the need of sustaining elevated levels of consumer satisfaction.

Visualisation 7

Effect of Company's Financial Stability on participants Service Usage
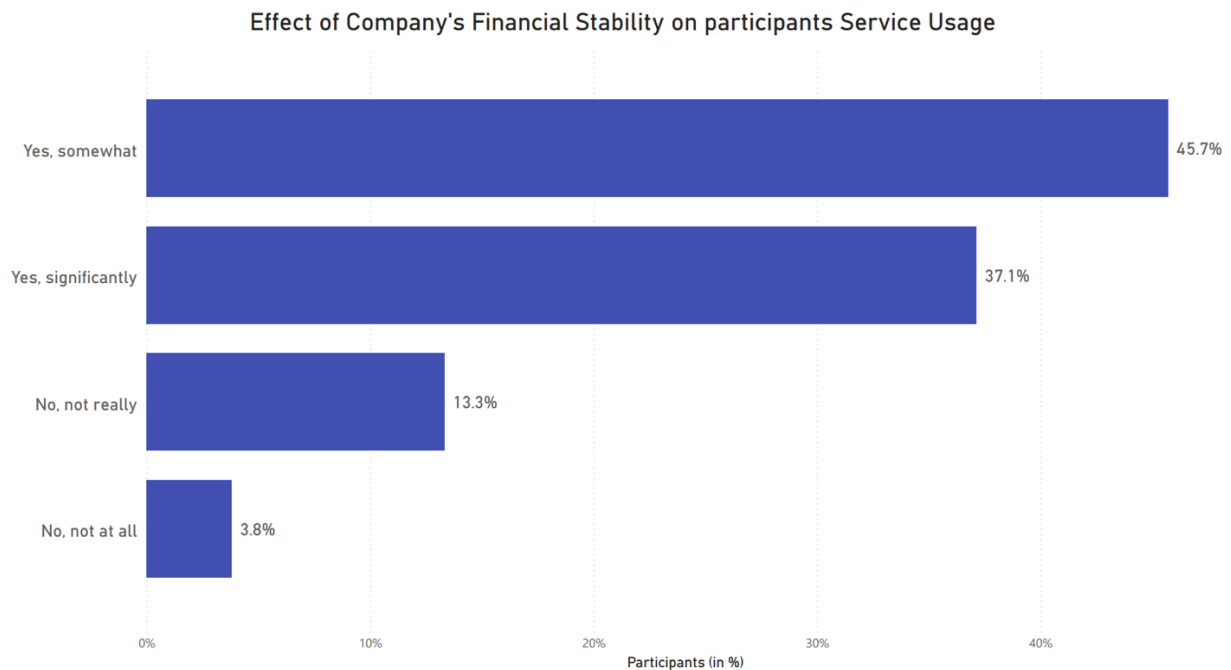
The survey question about participants' decision to continue utilising an EdTech company's services in light of its financial instability is represented by a bar chart that displays the responses received. The percentage of participants is shown on the X-axis, and their responses are divided into four groups on the Y-axis: "Yes, somewhat," "Yes, significantly," "No, not really," and "No, not at all." The percentage of respondents who chose each option is shown by a bar in the graphic, which shows how important financial stability is to them when deciding whether to continue using EdTech services.

Key Findings:

The results of this bar chart show how crucial it is for EdTech businesses to be financially stable in order to keep users' loyalty and confidence. It is clear that users are quite concerned about a company's financial stability, as indicated by the combined 82.8% of respondents who said that it would either somewhat or substantially impact their decision to continue using an EdTech service. This worry is probably a result of the dangers that come with using a service from a provider who is not stable financially. These risks include the potential for service interruptions, a decline in the quality of the offerings, or even the possibility of the company closing, which could deprive customers of their essential educational resources.

It appears that many users are cautious, but they would not be instantly discouraged by financial concerns unless they grow more severe, as evidenced by the 45.7% of respondents who said that financial instability would partly affect their decision. If this group sees steps to increase financial stability or hears from the company about its future viability, they could be willing to stick with the service. This cautious optimism, though, might soon give way to disengagement if the company's financial status deteriorates or if users begin to suffer unfavourable effects, including lower-quality content or customer assistance.

However, those 37.1% of respondents who said that unstable finances would have a major impact on their choice are probably a bit more cautious and would decide to move to more stable competitors if they feel that their service's continuity or quality is in danger. The reaction from this group emphasises how important it is for EdTech businesses to give consumers' financial well-being top priority and to be open and honest with them about their financial status. Retaining this market sector requires ensuring users have faith in the company's capacity to provide dependable, high-quality services over time.
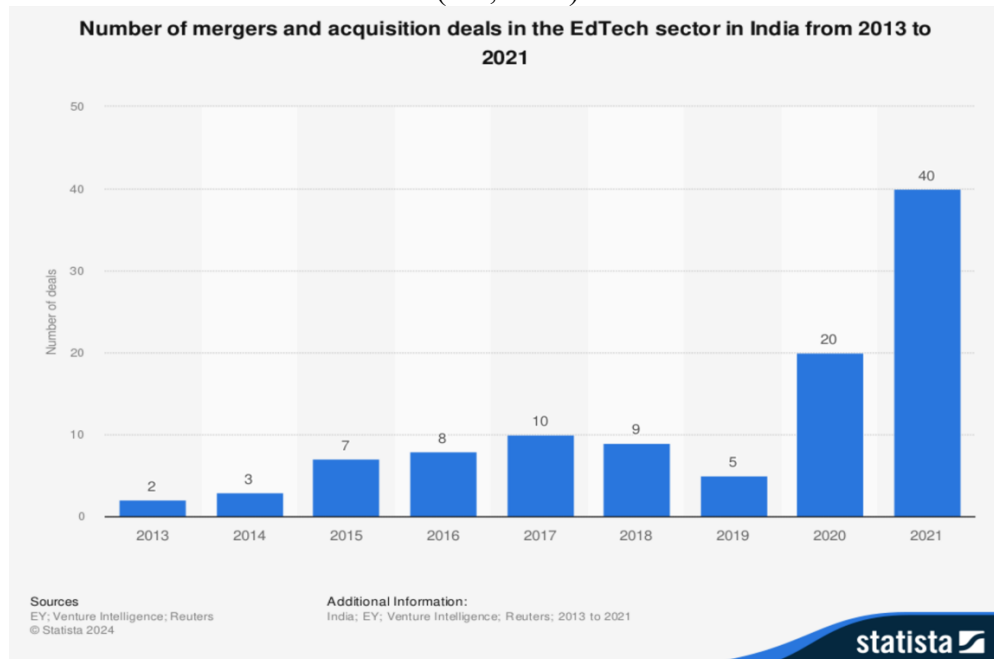
The 13.3% of participants who said that their decision would not be much impacted by financial instability might be users who are extremely happy with the service or who have a strong feeling of brand loyalty. These customers may think that the advantages they receive surpass any possible financial problems or that the service's quality justifies the risk. The fact that this group is limited, nevertheless, suggests that the majority of users do give financial stability serious consideration when making decisions.

Finally, the most devoted or least worried about money matters are probably the 3.8% of respondents who said that financial instability would not influence their choice at all. This may include customers who have regularly had good experiences with the service or who utilise it in specialised situations with few other options. Despite their modest size, this group can be devoted to EdTech enterprises, which can be helpful, especially during bad financial times, since they offer a steady user base that can assist the company get through difficult times.

In conclusion, it is evident from the bar chart that most users are concerned about the financial standing of the EdTech companies they utilise. This emphasises how important it is for EdTech businesses to have strong financial standing and to effectively communicate with their users regarding their financial circumstances. Retention of users who might otherwise be motivated to migrate to more financially secure competitors can be facilitated by ensuring transparency, offering reassurances, and taking proactive measures to increase financial stability.

Visualisation 8

(EY, 2022)

Number of mergers and acquisition deals in the EdTech sector in India from 2013 to 2021

Number of deals:
- 2013: 2
- 2014: 3
- 2015: 7
- 2016: 8
- 2017: 10
- 2018: 9
- 2019: 5
- 2020: 20
- 2021: 40

The number of mergers and acquisitions (M&A) in India's EdTech industry between 2013 and 2021 is depicted in the bar graph. The years are represented by the X-axis, while the number of M&A transactions that occurred annually is displayed on the Y-axis. Two deals are shown on the chart in 2013, and then there is a gradual rise over the next few years, with three deals in 2014, seven in 2015, and eight in 2016. Ten deals were made in 2017, after which there was a minor decline to nine in 2018 and five in 2019. Nonetheless, there was a notable uptick in 2020, with a whopping 20 M&A transactions. In 2021, the number of deals more than doubled from the previous year and peaked at 40, continuing this trend sharply.

Key findings:

Throughout the chosen period, the data displayed in the bar chart offers various significant patterns and insights into the expansion and consolidation of the EdTech industry in India. M&A activity gradually increased in the first years, from 2013 to 2019, suggesting a gradually increasing interest in the EdTech sector. Due to the small numbers throughout these years, it is likely that companies were more focused on organic growth than mergers and acquisitions, indicating that the sector was still in its formative stages. Nonetheless, the notable spike in 2020 and the ensuing boom in 2021 indicate a substantial change in the sector.

There are a number of reasons for the dramatic increase in M&A transactions starting in 2020. One of the main drivers is the COVID-19 epidemic, which pushed up the adoption of digital learning technologies and caused the EdTech industry to grow exponentially. Companies tried to swiftly increase their offerings and market reach in response to the growth in demand for online education, frequently by making smart acquisitions. The sharp rise in 2021—as the number of acquisitions more than doubled—reflects the industry's fierce competitiveness and consolidation. In order to obtain a competitive advantage, diversify their holdings, or acquire new technology and clientele, larger businesses most likely purchased smaller ones.

All things considered, the graph indicates that the Indian EdTech industry has moved from a stage of gradual development and careful investment to one of quick expansion and consolidation. This pattern suggests a developing sector where mergers and acquisitions (M&A) are turning into a vital tactic for expansion and competition. The information emphasises how dynamic the EdTech industry is and how crucial strategic acquisitions are to determining how education technology develops in India in the future.

Conclusion:
The section on Analysis and Findings has furnished significant understandings into the elements propelling instability in the EdTech sector of India. Through a review of user views, financial challenges, and market readiness, this study has brought to light the intricate interactions between economic, operational, and user-centric factors that impact the stability of the industry. The results highlight the necessity of taking calculated risks in order to tackle these issues, providing the foundation for wise choices and long-term expansion of the EdTech sector.

Chapter 5: Discussion, Conclusion & Recommendation

Discussion:

This chapter's main goal is to discuss the important research findings. The main conclusions that were drawn from the aforementioned visualisations must so be carefully considered. The discussion portion of this thesis will concentrate on a critical analysis of the main causes of the instability in the Indian EdTech market. In order to investigate the financial difficulties that EdTech companies encounter—such as high cash burn rates and their effects on user engagement and retention—this analysis will make use of survey data. This section will look at how users' views of financial stability affect their decision to keep using EdTech platforms, emphasising how important economic worries are to the volatility of the industry. It will also explore the operational difficulties that increase the volatility of the industry, such as high marketing expenses, technological problems, and the requirement for individualised learning experiences. Through the integration of these insights, the discussion will offer a thorough comprehension of the intricate dynamics present in the Indian EdTech sector, along with strategic recommendations for attaining increased stability and sustainability in this quickly changing field.

The main data source, which was gathered through a survey of 105 individuals across the country (India) of diverse age range, was another crucial component to examine and discuss from the perspective of the client. The discussion will make connections between the graphs' results and the broader challenges of the EdTech sector's volatility, India's preparedness for this environment, and the root causes of the industry's high cash burn rates. The main conclusions from each of those insights, together with the questionnaire response, are displayed above. This section, which is divided into three sections according to the research questions, discusses the analysis and argument based on those visualisations.

Factors Influencing the Volatility of the EdTech Ecosystem in India

The survey data indicates that there is a complex interaction of factors contributing to the volatility of the EdTech ecosystem in India. With the help of several important graphics, this discussion critically examines these variables and offers a thorough knowledge of the obstacles and driving forces behind the instability of the industry.

The "Cash Burn Awareness" graph shows that a sizable percentage of participants are aware of the financial difficulties EdTech businesses experience. Regarding the significant cash burn rates in the industry, 38.1% of respondents are "Somewhat aware" and another 38.1% are "Very aware." Users' broad understanding of financial instability indicates that concerns regarding the long-term sustainability of EdTech companies' finances are common. Users may become mindful as a result of this view and be reluctant to completely commit to using these platforms, which could increase market volatility. Customers' involvement levels can change when they have doubts about a service's long-term viability, which makes it challenging for businesses to retain a steady user base.

The "Effect of Company's Financial Stability on Participants' Service Usage" graphic emphasises once more how important having sound finances is to retaining customers. The research shows that 45.7% of participants said their decision to continue using an EdTech service is "somewhat" influenced by financial stability, and 37.1% said it "significantly" affects

their decision. This indicates that while determining whether to stick with a platform, almost 83% of users take the company's financial standing into consideration. As a result, changes in the financial situation have a direct effect on user retention and cause swings in the user base, which is a major sign of volatility in the EdTech industry. Users may leave a platform if they believe the company is financially unstable, which would worsen its financial problems and send revenue spiralling downhill instead of upward.

The "Challenges Faced by Users" graph identifies a number of problems that users run into when interacting with EdTech platforms, which further adds to the industry's unpredictability. "High Costs," "Technical Issues," and "Limited Personalised Learning" are common challenges that were mentioned by a notable proportion of the participants. A significant percentage of customers reported high fees, which is indicative of worries about the affordability of EdTech services. The impression of high pricing can turn off potential users in a price-sensitive market like India, which can result in lower adoption rates and inconsistent user engagement. User discontent is also influenced by technical problems and the absence of personalised learning experiences, which leads some users to move platforms or give up on EdTech solutions completely.

The "Factors Influencing Your Decision to Use EdTech Platforms" graphic provides insight into the factors that influence users' decisions to select particular platforms over others, which in turn affects market volatility. Users place the greatest importance on content quality (60%) and personalised learning experiences (49.5%), with the cost of the membership (49.5%) and the availability of live classes (43.8%) coming in second and third, respectively. These preferences show how important it is for EdTech businesses to keep making investments in interesting, high-quality material and to provide customised learning programs that cater to the demands of each individual user. Nevertheless, these kinds of expenditures frequently require substantial financial resources, which adds to the industry's high capital burn rates. As businesses strive to meet these expectations, the need to strike a balance between customer demands and sustainable financial practices can lead to volatility in the market.

Last but not least, the "Primary Causes of High Cash Burn Rate" graph offers important light on the financial difficulties that Indian EdTech companies face. High expenses for marketing and acquisition (68.6%), technology development and maintenance (43.8%), and personnel compensation and benefits (36.2%) are the key contributors. Although these high operating costs are essential for competitiveness and growth, they also raise financial risk, especially for companies with little access to funding. The fierce competition in the industry, where businesses must invest extensively to draw in and keep people, is reflected in the high spending on technology and marketing. However, this expense adds to the state of financial volatility, which makes it challenging for businesses to turn a profit and maintain operations over the course of time.

Is India ready to adapt to the EdTech Ecosystem?

The "Age vs. Familiarity with EdTech Platforms" graph can be used to determine how prepared India is to adopt the EdTech ecosystem. According to the research, younger age groups—especially those between the ages of 26 and 35—have the highest level of knowledge with EdTech platforms, with 31% reporting "Very familiar" and 27% reporting "Somewhat familiar" with these platforms. This implies that a sizable portion of younger consumers are both aware of and actively utilising EdTech solutions.

Nonetheless, low levels of familiarity among older age groups—especially among those 46 and older—indicate a major obstacle to wider adoption. Just 5% of individuals between the ages of

46 and 55 and 2% of those over the age of 56, for example, reported being "Very familiar" with EdTech platforms. This discrepancy in familiarity implies that although younger generations are leading the way in the adoption of EdTech, significant efforts are still needed to win over older groups to the platform. This is vital for the long-term viability of the Indian EdTech ecosystem since the industry's success depends on a wider population uptake.

The pie chart illustrating the "Usage of EdTech Platforms in India" supports this idea even further. It is clear that a sizable section of the public has not yet used these technologies, as only 30.48% of respondents have used EdTech platforms for themselves or their children. This very low usage rate indicates that, despite interest and knowledge, actual adoption is still restricted. This could be because of a number of things, including scepticism over the effectiveness of EdTech solutions, lack of awareness, and technological hurdles. This result begs the question of whether India is really ready to welcome the EdTech ecosystem, given the sizeable untapped population.

Fundamental causes influencing the cash burn rate of Indian EdTech firms, and how do these causes affect the industry's strategic decision-making processes?

One important factor affecting the strategic choices made by Indian EdTech enterprises is the cash burn rate. The "Primary Causes of High Cash Burn Rate" graph makes clear that the biggest factor causing cash burn is high marketing and acquisition costs, which account for 68.6% of the total. According to this research, EdTech businesses are making significant investments to grow their brands and attract new customers in a very competitive sector. Though vital for expansion, this strategy can also have unexpected repercussions if not handled properly, including unsustainable financial behaviours. The next big cause of cash burn in EdTech platforms is high operating costs, which include 36.2% for employee wages and benefits and 43.8% for technology development and maintenance. Companies need to strike a balance between growth and sustainability in order to meet customer expectations and remain competitive. This may mean giving priority to cost-effective solutions, optimising processes to efficiently control cash burn.

The "Effect of Company's Financial Stability on Participants' Service Usage" graph is especially pertinent in this case. It is evident that financial instability has an effect on user retention because 45.7% of participants said it "somewhat" influences their decision to continue using a service, and 37.1% said it "significantly" affects their decision. This research implies that EdTech businesses cannot afford to downplay the significance of preserving their financial stability because any perceived volatility may result in a loss of consumers, which may worsen cash burn problems.

Furthermore, the "Factors Influencing Your Decision to Use EdTech Platforms" graph illuminates the elements that users find most significant when selecting an EdTech platform. Users prioritise the value and customisation of the educational experience, as evidenced by the top factors being quality of content (60%) and personalised learning experiences (49.5%). But they are also sectors that demand a large financial commitment, especially in terms of technology infrastructure and content production. This puts EdTech businesses in a difficult position since they have to make investments in these crucial areas in order to draw in and keep consumers while controlling their cash burn rates.

To summarize, the unpredictability of the Indian EdTech industry is associated with financial strains, especially when it comes to controlling cash burn rates. Financial instability is a result

of high expenses for technology development, marketing, and employee remuneration. This has an impact on market trust and customer retention. Although younger populations are very engaged, EdTech platform adoption in India is still rather low overall. Companies need to concentrate on teaching and engaging older audiences and removing adoption hurdles in order to close the gap between interest and actual usage. Companies must strike a balance between their goals for growth and sustainable financial practices because financial stability affects user retention as well. In order to effectively traverse this terrain, companies need to implement strategies that tackle both short-term financial constraints and long-term objectives such as growing their user base to include users of all ages.

Recommendation:

Drawing from a comprehensive review of the variables impacting the instability of the Indian EdTech landscape, this part presents crucial strategic suggestions meant to tackle the issues found and capitalise on prospects for long-term expansion. These suggestions, which emphasise user involvement, financial management, and operational effectiveness, offer a comprehensive strategy for boosting stability and success in the EdTech industry.

To lower the high capital burn rate brought on by marketing, acquisition costs, and technological development, EdTech organisations should implement a strategic financial management approach.

- By emphasising iterative improvements and giving priority to vital features, agile development approaches can help reduce the expenses associated with technical development.
- Make use of advanced analytics to track financial well-being and precisely forecast cash flow needs.
- To lessen reliance on a single source of money, by revenue influx diversification.

Different age groups have varying levels of familiarity and involvement with EdTech platforms, which emphasises the necessity for customised approaches to draw in and keep a broad user base:

- Including interactive elements like as group projects, feedback from peers, and discussion boards can help users feel more connected to one another, which will increase their engagement and loyalty.
- Using adaptive technology, create customised learning experiences for a range of age groups by modifying content and delivery strategies in response to user behaviour and feedback.
- To find and fix usability issues, evaluate usability with various demographic groups.

The willingness of users to interact with EdTech platforms is strongly influenced by their opinions of their financial stability. It's critical to establish trust through transparency:

- Continually report on the company's accomplishments, strategic plans, and financial situation.

To sustain efficiency and encourage innovation, operational challenges such as the requirement for constant content generation and excellent client service demand for strategic interventions:

- Creating content collaboratively (E.g. educational content creators) helps guarantee a consistent flow of excellent, timely learning resources.
- By routinely requesting user feedback and carrying out iterative upgrades depending on user needs and technical advancements, may establish a culture of continuous improvement. This strategy can be supported by agile project management techniques, which guarantee that platform evolution is in line with customer expectations.

By putting these strategic suggestions into practice, EdTech companies in India may manage market complexity, deal with volatility, and experience long-term growth. EdTech companies can build a robust ecosystem that not only endures obstacles but also takes advantage of new opportunities by concentrating on financial sustainability, user engagement, operational efficiency, and transparency. These strategies offer a strong foundation for sustained success since they are based on critical analysis and specifically designed for the peculiarities of the Indian EdTech industry.

Limitations:

This thesis has a number of drawbacks despite providing insightful information about the variables affecting the volatility of Indian EdTech start-ups. First, certain data may quickly become old due to the continuously growing nature of the EdTech sector, which could affect the findings' applicability. Furthermore, the study mostly uses survey data and secondary sources, which might not adequately represent the complex viewpoints of all parties participating in the EdTech ecosystem, including investors, legislators, and educators. The conclusions may not be as applicable to other areas with dissimilar educational and technical environments due to the geographic concentration on India. The complexity of the EdTech market, with its wide diversity of target audiences and business strategies, also makes it difficult to make generalisations that apply to the entire industry. Notwithstanding these drawbacks, the study offers a solid basis for comprehending the primary causes of instability in the Indian EdTech industry, serving as a springboard for additional research and tactical innovations.

Conclusion:

This dissertation has conducted a thorough investigation of the variables impacting the instability of the EdTech sector in India. A thorough examination of survey data and secondary sources has produced a number of important insights that highlight the particular difficulties and opportunities faced by this rapidly changing industry.

High cash burn rates, primarily from marketing and acquisition costs, technical development expenses, and employees salary, are a major contributing factor to the financial instability of EdTech firms. The necessity for ongoing investment in high-quality content and customised learning experiences exacerbates this instability even more. In order to reach a wider audience, EdTech companies must broaden their strategy in light of the study's finding that there is a considerable engagement gap among older demographics. Additionally, users' willingness to

stick with EdTech services is strongly influenced by their perceptions of financial stability, underscoring the significance of sound and transparent financial management procedures. The dissertation demonstrates that the volatility of the EdTech ecosystem in India is complex, with financial, operational, and user-centric aspects, by addressing the research topics. The results indicate that a balanced focus on cost control, user engagement, and the development of value-driven, scalable solutions is necessary for the Indian EdTech sector to see sustained growth.

In the conclusion, this study contributes insightful knowledge to the current conversation about EdTech in India, laying the groundwork for further research and useful suggestions for industry participants trying to manage and lessen the turbulence in this emerging sector.

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