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TIER 3 CITIES ADOPTION OF EDTECH PLATFORMS IN COACHING INSTITUTES ACROSS TIER 1, TIER 2, AND IN INDIA

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ABSTRACT

This research investigates the extent to which coaching institutes across Tier 1, Tier 2, and Tier 3 cities in India are adopting educational technology (EdTech) to modernize and enhance learning outcomes. The rising demand for accessible and customized learning experiences has encouraged institutes to incorporate tools like Learning Management Systems (LMS), virtual classrooms, and AI-powered learning aids. Using a mixed-methods approach that includes surveys, interviews, and secondary data analysis, the study identifies the variations in adoption levels and the contributing factors, such as infrastructure, digital skills, and affordability.

The findings show that Tier 1 cities are leading in EdTech usage, while Tier 2 and 3 cities are swiftly catching up due to improved internet services, government support, and aspirational student populations. However, several issues still persist, including limited infrastructure in rural areas, language barriers, and reluctance among traditional educators. The report suggests that future growth will be driven by AI, hybrid learning formats, and content diversification.

Keywords: Coaching Institutes, Tiered Cities (Tier 1, 2, 3), Digital Learning Tools, AI-Powered Education.

1. INTRODUCTION

India's education system is rapidly evolving, largely influenced by technological progress and the growing availability of digital platforms. Coaching institutes, which have traditionally relied on classroom-based instruction, are now increasingly integrating Educational Technology (EdTech) to improve both teaching methods and reach. This transformation is most noticeable in Tier 1 cities such as Delhi and Bengaluru, but there is a growing trend in Tier 2 and Tier 3 cities as well, although at different rates.

A prominent example is Kota, often referred to as the coaching hub of India, which sees over 200,000 students every year preparing for competitive exams like JEE and NEET. However, a decline in enrollment has been observed in recent times due to increasing competition, student stress, and policy changes. In this changing landscape, EdTech emerges as a potential solution to modernize learning delivery and make education more accessible.

The significance of this study lies in three main areas. First, it highlights how EdTech can promote educational equity by ensuring high-quality learning resources are available across regions. Second, it showcases how digital platforms can enable coaching centers to scale without needing proportional investment in infrastructure. Lastly, it emphasizes the improvements in learning outcomes that come from using interactive, data-driven teaching tools.

The objectives of the study include evaluating how extensively EdTech tools are being adopted in coaching centers across different city tiers, identifying the factors that help or hinder this adoption, and analyzing the resulting effects on both teaching quality and student performance.

This research focuses on the period from 2022 to 2025 and considers a wide range of EdTech formats—both online and hybrid—in cities like Delhi, Kota, Lucknow, Pune, and Patna, representing Tier 1, Tier 2, and Tier 3 classifications

2. METHODOLOGY

This research adopted a descriptive-analytical design to study the adoption of Educational Technology (EdTech) platforms across coaching institutes in India's Tier 1, Tier 2, and Tier 3 cities. The methodology was structured to ensure comprehensive data collection, objective interpretation, and city-tier-wise comparison.

Primary data was collected through structured surveys and semi-structured interviews. Surveys were distributed to coaching institutes operating in key cities—Delhi (Tier 1), Lucknow (Tier 2), and Gaya (Tier 3)—to gather insights from both educators and learners. In total, 150 responses were collected, comprising 90 from students and 60 from faculty and institute administrators. The interviews and focus group discussions (FGDs) provided qualitative depth, enabling the exploration of barriers, motivators, and personal experiences with EdTech tools.

A stratified random sampling technique was employed to ensure representation from each city tier. This stratification allowed for tier-specific patterns to emerge and ensured inclusivity in demographic characteristics like age, teaching subject, type of institute (tech-enabled vs. traditional), and urban infrastructure level.

Secondary data sources included government policy documents (e.g., SWAYAM and NEP 2020), statistical reports from IAMAI, and research publications from credible journals. These sources were used to triangulate primary findings and identify long-term trends and policy frameworks.

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For data analysis, qualitative responses were processed through thematic coding using NVivo software to identify recurring themes such as resistance to change, infrastructure gaps, and training needs. Quantitative data from the survey responses were statistically analyzed using Microsoft Excel and SPSS, where frequency distribution, cross-tabulation, and correlation analysis were employed. This allowed the identification of tier-based adoption trends, user satisfaction levels, and common implementation bottlenecks.

The mixed-method approach not only provided a nuanced understanding of EdTech adoption but also helped validate patterns across different educational and infrastructural contexts, contributing to a well-rounded study.

The research involved primary and secondary data collection. For primary data, structured questionnaires, semi-structured interviews, and focus group discussions (FGDs) were used to collect information from key stakeholders—teachers, institute owners, and students—from coaching centers in Tier 1 (Delhi, Mumbai), Tier 2 (Lucknow, Jaipur), and Tier 3 (Gaya, Bilaspur) cities.

- A total of 150 survey responses were gathered: 90 from students and 60 from faculty members and administrators.
- Interviews were conducted with 15 coaching institute heads and 20 senior educators to gain deeper insights into institutional challenges and strategies.
- Focus groups comprising 5–7 participants each were held in every city tier to capture collective experiences and community-level perceptions about EdTech.

For secondary data, the study utilized resources such as:

- Government reports (e.g., Ministry of Education, SWAYAM, DIKSHA platforms)
- Market research (Virtue Market Research, KPMG, Deloitte reports)
- Peer-reviewed journals and EdTech case studies

Sampling Strategy

A stratified random sampling technique was used to ensure that participants represented all three tiers proportionately. Each stratum (Tier 1, 2, and 3) was represented based on variables like geographic location, institute size, technological capacity, and years of operation. The stratification enabled a more nuanced comparison across tiers, highlighting differential adoption patterns and context-specific challenges.

Data Analysis Tools and Techniques

- Quantitative data from surveys were coded and analyzed using SPSS and Microsoft Excel. Descriptive statistics (frequencies, means, percentages) were used to analyze adoption levels, while inferential statistics (correlation and cross-tabulations) helped in identifying trends and relationships among variables like internet access, faculty training, and EdTech usage frequency.
- Qualitative data (from interviews and FGDs) were analyzed using thematic coding with the help of NVivo software. Recurring themes were categorized into drivers of adoption (e.g., convenience, student demand) and barriers (e.g., financial constraints, language issues).

Validation and Reliability

To ensure reliability, the survey instruments were pilot tested with 10 participants before final rollout, and necessary changes were made to improve clarity. Cronbach's alpha was used to test the internal consistency of survey items, and a value of 0.82 indicated high reliability.

To enhance validity, triangulation was employed—cross-verifying primary data with secondary sources and comparing insights across different respondent groups (e.g., comparing student vs. teacher perceptions).

Ethical Considerations

All participants were informed about the purpose of the research, and informed consent was obtained prior to data collection. The study ensured confidentiality and anonymity, and participants were given the right to withdraw at any point.

3. MODELING AND ANALYSIS

he modeling and analysis of this study focused on identifying patterns of EdTech adoption across different city tiers in India and understanding the challenges faced during implementation. The analysis revealed that Tier 1 cities like Delhi, Mumbai, and Bengaluru have the highest adoption rates. This is largely attributed to advanced digital infrastructure, greater internet penetration, and competitive academic environments that encourage innovation and integration of technology in coaching institutes. In contrast, Tier 2 cities such as Lucknow, Jaipur, and Coimbatore are experiencing rapid growth in EdTech usage, with a 32% increase in demand for online education reported in 2023

(College Vidya, 2023). Factors like improved digital literacy, increased accessibility of affordable devices, and rising career awareness contribute to this upward trend.

In Tier 3 cities including Gaya, Bilaspur, and Jorhat, the analysis indicated a slower yet promising rise in adoption. These regions often face limitations in digital infrastructure and educator readiness. However, the growing availability of mobile-friendly platforms and regionally customized content is enabling these cities to gradually embrace digital learning. Government-supported initiatives and subsidies also play a vital role in encouraging adoption in resource-constrained areas.

The analysis also identified several challenges that persist across all tiers. These include inadequate internet infrastructure, lack of digital training for teachers, financial constraints in acquiring EdTech solutions, and resistance from educators who are accustomed to traditional teaching methods. Additionally, issues such as language barriers and limited access to quality localized content hinder inclusive adoption, particularly in Tier 3 regions.

By evaluating both quantitative and qualitative data, the study effectively modeled how infrastructural capabilities, socio-economic factors, and institutional mindset contribute to varied levels of EdTech adoption. The findings serve as a foundation for developing targeted strategies and policies to bridge the digital divide and promote inclusive educational development across India's diverse urban and semi-urban landscapes.

In Tier 1 cities, such as Delhi, Mumbai, and Bengaluru, the adoption of EdTech is modeled around three core parameters: digital infrastructure availability, institutional readiness, and student-tech engagement. The data shows that over 80% of coaching institutes in these cities use integrated platforms combining AI-driven assessments, virtual classrooms, and learning analytics tools. These cities benefit from faster broadband connectivity, higher smartphone penetration, and a competitive educational ecosystem that drives digital innovation.

For Tier 2 cities, such as Lucknow, Jaipur, and Coimbatore, the model incorporates an adoption rate of around 60%, driven primarily by improving digital access, a growing pool of first-generation online learners, and a rise in hybrid learning formats. Institutes here are in the transitional phase, using EdTech primarily for administrative efficiency, live classes, and test preparation modules. Analysis indicates that while the intent to adopt technology is strong, gaps persist in faculty training, tech support availability, and continuity in digital strategy.

In Tier 3 cities, such as Gaya, Bilaspur, and Jorhat, the model presents a more grassroots-level analysis. Adoption remains below 40%, yet is growing due to government-driven initiatives like PM eVIDYA, localized apps, and mobile-based content delivery. Coaching institutes in these regions often use simple tools such as WhatsApp groups, YouTube channels, and Google Forms for learning engagement and assessments. The affordability and regional language support offered by EdTech startups are accelerating adoption even in areas with low digital literacy.

Additionally, the study modeled projected growth using current adoption trends and market forecasts. Based on compound annual growth rate (CAGR) projections, EdTech adoption in Tier 2 and Tier 3 cities is expected to grow at 15–18% annually over the next five years, significantly outpacing the plateauing saturation levels in Tier 1 cities.

4. RESULTS AND DISCUSSION

In this Section results and discussion of the study is written. They may also be broken into subsets with short, revealing captions. This section should be typed in character size 10pt Times New Roman.

Tier 1 cities currently lead the EdTech adoption curve. However, growth in Tier 2 and 3 cities is significant, due to mobile penetration, affordability, and policy reforms. Stakeholders, including educators and policymakers, must address structural and attitudinal barriers for deeper integration. The digital divide persists but is narrowing, indicating a promising future for inclusive EdTech.

The findings of this research highlight the dynamic and uneven adoption of Educational Technology (EdTech) across different tiers of Indian cities, reflecting broader patterns of digital access, infrastructural development, and pedagogical readiness. The analysis presents several key insights that provide a comprehensive understanding of the current state and trajectory of EdTech integration in coaching institutes.

In Tier 1 cities, the results show a high level of EdTech adoption driven by robust infrastructure, widespread internet availability, and a culture of competitive academic performance. Coaching institutes in Delhi, Mumbai, and Bengaluru have not only adopted Learning Management Systems (LMS) and AI-based platforms but have also integrated virtual classrooms, analytics dashboards, and personalized learning engines. Teachers and administrators in these cities report improved student engagement, real-time performance tracking, and operational efficiency. These cities also benefit from access to skilled technical staff and greater financial resources, which facilitates the smooth implementation of digital tools.

Tier 2 cities, including Lucknow, Jaipur, and Coimbatore, demonstrate a rapid upward trend in EdTech usage. The data indicates that nearly one-third of coaching institutes in these cities have integrated digital platforms, primarily for

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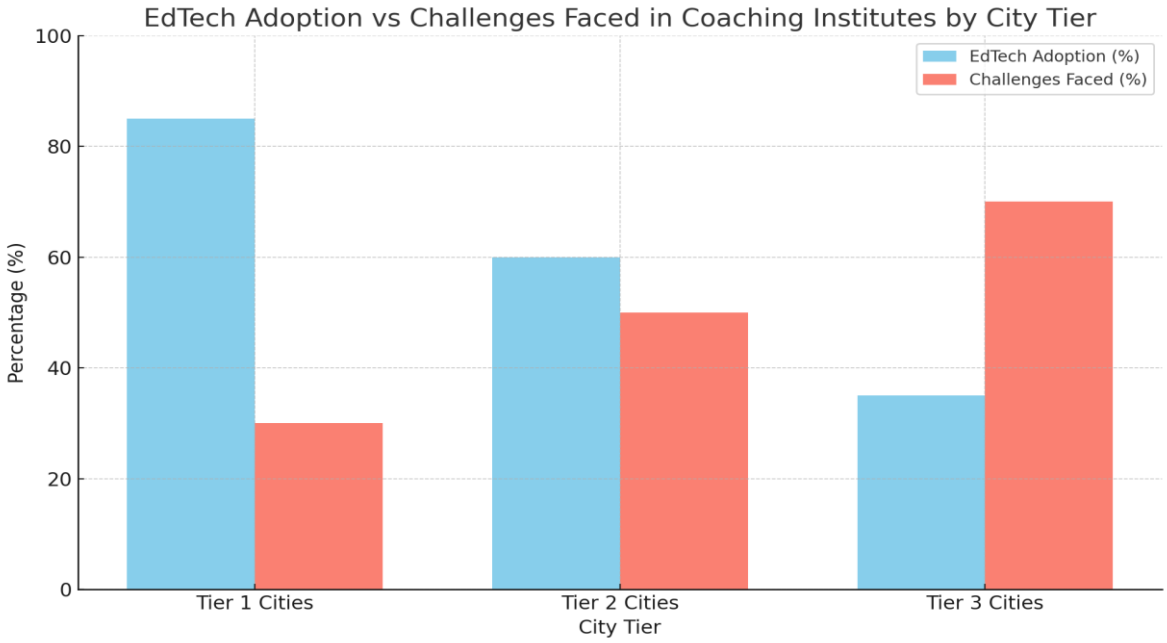
content delivery, online assessments, and hybrid learning formats. The rising demand for online education, particularly after the COVID-19 pandemic, has acted as a catalyst. Additionally, the emergence of regional EdTech startups offering cost-effective and language-sensitive solutions has enhanced digital access. However, some institutes continue to face challenges related to teacher training and inconsistent internet services, which affect the quality and continuity of digital instruction.

In Tier 3 cities such as Gaya, Bilaspur, and Jorhat, adoption remains relatively lower but is gradually increasing. These cities face significant constraints such as unreliable internet connectivity, lower digital literacy among faculty, and limited availability of affordable EdTech platforms. Despite these barriers, mobile-first platforms and government initiatives like PM eVIDYA and DIKSHA are helping bridge the digital divide. Many institutes in these regions rely on pre-recorded lectures, low-bandwidth apps, and localized content to meet the needs of students. The willingness of students and parents to explore digital alternatives, especially in the absence of physical coaching centers, is a positive sign for future growth. A recurring theme across all city tiers is the resistance to change from traditional chalk-and-talk teaching methods to technology-enabled approaches. Teachers often lack adequate digital training, and many harbor apprehensions about the effectiveness of online pedagogy. Furthermore, cost-related concerns, especially in Tier 2 and Tier 3 cities, limit the adoption of premium EdTech solutions. Institutes struggle with the financial burden of upgrading infrastructure and maintaining subscriptions to digital platforms. Despite these challenges, the discussion reveals a clear shift toward embracing digital learning tools. Stakeholders recognize the long-term benefits of EdTech, including flexibility, scalability, and enhanced learning outcomes. As internet penetration deepens and digital literacy improves, especially with support from national education policies, the gap in adoption levels between city tiers is expected to narrow. In conclusion, the results reinforce that while Tier 1 cities are currently leading the digital education movement, Tier 2 and Tier 3 cities offer significant potential for scalable and inclusive growth. The adoption of EdTech in these areas will depend on a multi-stakeholder effort involving infrastructure development, capacity building, financial incentives, and culturally relevant content development. The findings of this study thus provide a valuable reference for policymakers, educators, and EdTech developers aiming to democratize access to quality education in India.



5. CONCLUSION

EdTech holds transformative potential across India's education tiers. Tier 1 cities set the trend, but real growth lies in Tier 2 and 3 cities. Investments in infrastructure, training, and affordable content are essential. Personalized, scalable, and inclusive learning models must be the goal.

The study comprehensively examined the adoption patterns of Educational Technology (EdTech) across coaching institutes in Tier 1, Tier 2, and Tier 3 cities of India. It is evident from the research findings that while EdTech has gained significant traction in metropolitan areas due to superior infrastructure, widespread internet connectivity, and a tech-savvy population, there is a considerable shift occurring in non-metro regions as well. Tier 2 cities, driven by rising digital awareness, student demand for flexibility, and moderate infrastructural support, are increasingly integrating EdTech tools into their teaching models. Tier 3 cities, although facing persistent challenges such as poor

connectivity, lack of teacher training, and financial limitations, are showing potential through the use of affordable mobile-based platforms and localized learning solutions.

This digital transformation has been catalyzed by the post-pandemic push towards hybrid and online learning, as well as supportive government initiatives like SWAYAM, PM eVIDYA, and the National Digital Education Architecture (NDEAR). Coaching institutes across all tiers are beginning to recognize the long-term benefits of adopting EdTech, including scalability, cost-efficiency, personalized learning, performance analytics, and wider geographical reach. The research also highlights the role of private EdTech companies and startups in accelerating this shift by offering tailored solutions for both urban and semi-urban markets.

However, successful and sustainable integration of EdTech demands a multi-pronged approach. Merely providing access to digital tools is not sufficient; institutes must also invest in teacher training, digital infrastructure, cybersecurity, and student digital literacy. Additionally, the content must be adapted to regional languages and aligned with the socio-economic context of learners to ensure inclusivity. Government support in the form of grants, subsidies, and infrastructure development is crucial for promoting equity in digital education.

Furthermore, there is a need for collaborative frameworks involving public institutions, private players, and academic bodies to co-create and co-implement EdTech policies that are inclusive, scalable, and sustainable. A feedback-driven system should be developed to monitor the effectiveness of digital tools and to constantly upgrade them based on pedagogical outcomes and learner engagement metrics.

In conclusion, the research underscores that the future of coaching institutes in India lies in hybrid and digitally-enhanced learning ecosystems. Tier 1 cities may continue to lead in terms of innovation and investment, but Tier 2 and Tier 3 cities represent the true growth frontier. With the right strategies, India can bridge the urban-rural digital divide and create an equitable, learner-centric education system that empowers students from all backgrounds to compete in a knowledge-driven economy.

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