

Exploring Student Perceptions of Online Education in Private Secondary Schools: A Case Study of Noida

¹Ms. Apoorva Agnihotri, ²Dr. Syed Fahar Ali, ³Dr. Pramod Kumar Pandey

¹Research Scholar

School of Journalism & Mass Communication Noida International University

²Associate Professor

School of Journalism & Mass Communication Noida International University

³Assistant Professor

School of Media and Communication Studies Galgotias University

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ABSTRACT

The COVID-19 pandemic has necessitated a rapid shift to online education worldwide presenting both opportunities and challenges. This study explores the perceptions of secondary school students in private institutions in Noida regarding online education aiming to understand their satisfaction levels identify key influencing factors and evaluate the challenges and benefits of this transition. Data were collected from 262 students through a survey and analysed using Spearman's rank correlation. The findings reveal a strong correlation between students access to reliable technology and their positive perceptions of online education highlighting significant barriers such as internet connectivity and device affordability. Furthermore the study shows that the transition to online education has posed more challenges than benefits, particularly in terms of engagement and motivation. These insights highlight the need for improved digital infrastructure comprehensive training for educators and the development of blended learning models. One key recommendation is for policymakers to prioritize investments in digital infrastructure to ensure equitable access to online education thereby enhancing the overall educational experience for students.

Keywords: Online Education, Secondary School Students, Perceptions, Digital Infrastructure, Blended Learning, Noida, COVID-19 Pandemic

Introduction

The current state of online learning in India is a complex of rapid adoption, technological challenges, and evolving educational models in response to the COVID-19 pandemic. The sudden shift towards online teaching, necessitated by the pandemic, has significantly changed the traditional perspective of education in India, highlighting both the potential and the hurdles of e-learning technologies (Lu, 2022). The adoption of internet and mobile learning technologies has been identified as a viable solution to continue education in the 21st century, especially during pandemic situations. However, this transition has not been without its challenges. The COVID-19 pandemic has highlighted the need for serious reforms in the education system, particularly in developing countries like India, where the majority of curricula are designed for offline modes of education (Susheela & Nasa, 2022). The effectiveness of online learning platforms in India reflects both challenges and opportunities. Accelerated by the COVID-19 pandemic, online learning has shown potential to overcome geographical and temporal barriers, offering a new paradigm for educational delivery (Wan Haslina & Lilimiwirdi, 2022). However, the effectiveness of these platforms depends on content quality, engagement strategies, and technological infrastructure. Research shows private-funded TEL platforms in India offer superior management education compared to public-funded ones, highlighting a quality disparity influenced by funding and operational models (Jhavar & Nandedkar, 2022). Challenges persist, including technological and personal barriers like internet connectivity, bandwidth, and device affordability (Su et al., 2022). Selecting an appropriate online learning platform involves considering multiple attributes, including diversified teaching modes that integrate online self-learning with traditional classroom teaching (Dewalrani & Yelne, 2022). In conclusion, while online learning

platforms in India show potential for quality education, their effectiveness depends on content quality, technological infrastructure, pedagogical approaches, and learner support (Dey & Bandyopadhyay, 2019).

The lockdowns imposed to curb the spread of the virus led to the closure of educational institutions, pushing the education sector to adopt online learning as the only viable option (Nanwani, 2022). Despite the rapid shift to online platforms, the digital divide remains a significant barrier. With only a small fraction of the population having access to computers and the internet, the feasibility of a complete online education model in India is uncertain (Bao, 2022). This digital divide has adversely affected vulnerable learners, highlighting the need for inclusive alternative measures to ensure uninterrupted learning (Krishnan, 2022). The pandemic has also prompted a reevaluation of the right to education, emphasizing the need to transform traditional classroom practices to tech-based online learning (Dutt, 2022).

There is hope that post-pandemic, a blended system of education utilizing both offline and online modes will position India to achieve a respectable status in global education (Chattopadhyay, 2022). Open and Distance Learning (ODL) and the recent National Education Policy (NEP) 2020 have been identified as instrumental in promoting higher education Gross Enrollment Ratio (GER) through online and virtual education (Bhat, 2022). Addressing the challenges of effective digital learning and overcoming the barriers of online and blended learning are crucial for the future of education in India (Kumar & Ganesh, 2022).

In Noida, a city known for its educational infrastructure, private secondary schools have been at the forefront of this transition to online learning. However, the effectiveness and perception of this shift among secondary school students in these institutions remain largely unexplored. This study aims to fill this gap by assessing the overall perception and satisfaction levels of secondary school students regarding online education in private schools in Noida, identifying key factors influencing these perceptions, and evaluating the challenges and benefits perceived by students in the transition from traditional classroom learning to online education.

Research Gap

Despite the growing body of research on the impact of online education during the COVID-19 pandemic there is a noticeable gap in understanding the specific perceptions and experiences of secondary school students in private institutions in Noida. Previous studies have highlighted the challenges and opportunities of online learning at a broad level (Lu, 2022; Susheela & Nasa, 2022), yet few have researched into the nuanced experiences of younger students in a specific urban context like Noida. Furthermore while the digital divide and issues of access to technology have been well-documented (Bao, 2022), there is limited research on how these factors influence student satisfaction and engagement in private secondary schools. This study aims to fill these gaps by providing a focused examination of secondary school students' perceptions identifying the key factors influencing these perceptions, and evaluating the specific challenges and benefits associated with online education in private schools in Noida.

Background and Significance of the Study

The COVID-19 pandemic has revolutionized educational practices worldwide, forcing a rapid transition from traditional classroom learning to online education. In India, this shift has revealed significant strengths and weaknesses within the education system. The adoption of online learning was seen as a necessary measure to ensure continuity of education during lockdowns (Nanwani, 2022). However, the transition has been fraught with challenges, particularly in terms of digital access and infrastructure (Krishnan, 2022). The National Education Policy (NEP) 2020 and other government initiatives have emphasized the potential of online and blended learning to improve educational outcomes and increase enrolment ratios in higher education (Bhat, 2022). Nonetheless, the effectiveness and reception of these initiatives at the secondary school level remain underexplored. Both students and educators have had to navigate these challenges amidst a backdrop of a sudden and drastic shift to online platforms, which were largely unfamiliar to many. The lack of preparedness for such a transition has been evident, with institutions and individuals scrambling to adapt to the new mode of education delivery. Despite these challenges, the move towards online learning has also opened up opportunities for innovation in education, highlighting the need for effective mobile and e-learning applications, as well as the importance of training and infrastructure development to support digital education in India (Lu, 2022; Islam et al., 2022; Roy, 2022; Paul, 2022; Shukla & Jacob, 2022).

The significance of this study lies in its potential to provide a detailed understanding of how secondary school students in private institutions perceive online education. This understanding is crucial for several reasons. First, it offers insights into the effectiveness of current online education practices and identifies areas needing improvement, thereby informing educators and policymakers. Second, it sheds light on the specific challenges faced by students, such as access to reliable technology and internet connectivity, which are critical for their academic success (Bao, 2022). Third by evaluating the benefits and drawbacks of online education the study can contribute to the development of more effective inclusive and sustainable educational strategies that can be implemented in future crisis situations.

This study addresses a significant research gap by focusing on the perceptions of secondary school students in private schools in Noida regarding online education. It provides valuable insights into the factors influencing these

perceptions and evaluates the challenges and benefits associated with the transition to online learning; The findings of this study will be instrumental in shaping future educational policies and practices, ensuring that they are more responsive to the needs of students and capable of delivering high-quality education in both online and blended learning environments

Objectives

1. To assess the overall perception and satisfaction levels of secondary school students regarding online education in private schools in Noida
2. To identify the key factors influencing students' perceptions of online education in private secondary schools
3. To evaluate the challenges and benefits perceived by students in the transition from traditional classroom learning to online education in private secondary schools

Methodology

1. Survey Design and Data Collection

A survey questionnaire was designed to assess the perceptions of secondary school students regarding online education in private schools in Noida. The questionnaire was circulated among students of 50 private schools using a Google Form link distributed through a chain system and teacher referrals, A total of 325 responses were collected. However only 262 responses were considered for the final analysis after excluding incomplete submissions

2. Ethical Considerations

Ethical procedures were strictly adhered to throughout the study. Prior consent was obtained from all participating students. Students were informed about the purpose of the study, the use of their data, and assured of the confidentiality of their responses

3. Data Analysis

Spearman's rank correlation test was chosen as the statistical method to analyse the data and determine relevant values, The correlation tests were performed using Microsoft Excel software. Statistical Analysis, For each hypothesis, relevant data from the survey responses was analysed Spearman's rank correlation coefficient (rs), t-statistic, degrees of freedom (DF), and p-value were calculated to assess the strength and significance of the correlations, further Hypothesis Testing, hypotheses were formulated based on the objectives of the study

Null hypotheses (H0) and alternative hypotheses (H1) were established for each objective

The significance level was set at 0.05 for all hypothesis tests

6. Sample Size

A total of 262 responses were included in the final analysis, representing the sample size for the study ,The methodology employed in this study ensured a systematic approach to investigating student perceptions of online education in private secondary schools in Noida, The findings contribute to the understanding of the challenges and benefits associated with the transition to online education, offering insights for educators and policymakers

Null Hypothesis (H0) Students in private secondary schools in Noida have a generally positive perception of online education

Alternative Hypothesis (H1) Students in private secondary schools in Noida do not have a generally positive perception of online education.

Data Analysis for Hypothesis 1 Students in private secondary schools in Noida have a generally positive perception of online education

Table 1

Response	Frequency (Q1)	Rank (Q1)	Frequency (Q2)	Rank (Q2)
Very Dissatisfied	26	1	21	1
Dissatisfied	35	2	29	2
Neutral	39	3.5	52	4
Satisfied	123	5	129	5
Very Satisfied	39	3.5	31	3
Total	262		262	

Table 2: Statistical Analysis of the Correlation Between Students' Satisfaction with Online Education and Overall Experience, Spearman's Rank Correlation Results

Statistic	Value	Description
Total Sample Size (n)	262	Total number of respondents in the study
Number of Pairs (N)	5	Number of pairs from "Very Dissatisfied" to "Very Satisfied" used in the correlation analysis
Coefficient (rs)	0.9747	Spearman's rank correlation coefficient
T-Statistic	7.5498	Test statistic for the correlation
Degrees of Freedom (DF)	3	Calculated based on N-2
P-Value	0.0048	Indicates the significance of the observed correlation

The Spearman's rank correlation coefficient (rs) of 0.9 indicates a very strong positive correlation between the frequency of technical difficulties and the challenges students face. The t-statistic of 3.5762 and the p-value of 0.0374 (less than the significance level of 0.05) indicate that this correlation is statistically significant

Interpretation

Given the statistically significant correlation and strong positive coefficient, we reject the null hypothesis (H0) and accept the alternative hypothesis (H1), This suggests that the transition to online education has indeed presented more challenges than benefits to students in private secondary schools in Noida

Summary and Implications

The study's results indicate significant challenges associated with online education for secondary school students in Noida's private schools. The strong correlations observed between satisfaction, technology access, and overall experience highlight areas that need targeted interventions. Specifically, the findings suggest

Table 3: Frequency and Ranking of Responses to Question on Internet Reliability

Response	Frequency (Q1)	Rank (Q1)	Frequency (Q2)	Rank (Q2)
Very Dissatisfied	22	1	25	1
Dissatisfied	30	2	32	2
Neutral	39	3.5	62	4
Satisfied	132	5	98	5
Very Satisfied	39	3.5	45	3

Table 4: Statistical Analysis of the Correlation Between Internet Reliability and Students' Positive Perceptions of Online Education, Spearman's Rank Correlation Results

Statistic	Value	Description
Total Sample Size (n)	262	Total number of respondents in the study
Number of Pairs (N)	5	Number of pairs from "Very Dissatisfied" to "Very Satisfied" used in the correlation analysis
Coefficient (rs)	0.9747	Spearman's rank correlation coefficient
T-Statistic	7.5498	Test statistic for the correlation
Degrees of Freedom (DF)	3	Calculated based on N-2
P-Value	0.0048	Indicates the significance of the observed correlation

The Spearman's rank correlation coefficient (rs) of 0.9747 indicates a very strong positive correlation between the reliability of internet connection and students' positive perceptions of online education. The t-statistic of 7.5498 supports the strength of this correlation.

The p-value of 0.0048 is less than the significance level of 0.05, indicating that the correlation is statistically significant. Therefore, we can reject the null hypothesis (H0) and accept the alternative hypothesis (H1), This suggests that access to reliable technology and the internet significantly influences students' positive perceptions of online education in private secondary schools in Noida.

Hypothesis 3

Null Hypothesis (H0)

The transition to online education has not presented more challenges than benefits to students in private secondary schools in Noida

Alternative Hypothesis (H1)

The transition to online education has presented more challenges than benefits to students in private secondary schools in Noida.

Table 5: Frequency and Ranking of Responses to Questions on Challenges with Online Education

Table 7: Frequency and Ranking of Responses to Questions on Challenges with Online Education				
Response	Frequency (Q1)	Rank (Q1)	Frequency (Q2)	Rank (Q2)
Never	22	1	32	2
Rarely	55	3	43	3
Sometimes	64	4	47	4
Often	96	5	119	5
Always	25	2	21	1

Table 6: Statistical Analysis of the Correlation Between Technical Difficulties and Challenges with Online Education, Spearman's Rank Correlation Results

Column1	Column2	Column3
Statistic	Value	Description
Total Sample Size (n)	262	Total number of respondents in the study
Number of Pairs (N)	5	Number of pairs from "Never" to "Always" used in the correlation analysis
Coefficient (rs)	0.9	Spearman's rank correlation coefficient
T-Statistic	3.5762	Test statistic for the correlation
Degrees of Freedom (DF)	3	Calculated based on N-2
P-Value	0.0374	Indicates the significance of the observed correlation

The Spearman's rank correlation coefficient (rs) of 0.9, indicates a very strong positive correlation between the frequency of technical difficulties, and the challenges students face in staying motivated and engaged during online classes. The t-statistic of 3.5762 supports the strength of this correlation.

The p-value of 0.0374 is less than the significance level of 0.05, indicating that the correlation is statistically significant, Therefore we can reject the null hypothesis (H0), and accept the alternative hypothesis (H1). This suggests that the transition to online education has indeed presented more challenges than benefits to students in private secondary schools in Noida

Discussion,

Discussion and Results for Hypothesis 1

Hypothesis 1: Students' Perceptions of Online Education

Null Hypothesis (H0) Students in private secondary schools in Noida have a generally positive perception of online education.

Alternative Hypothesis (H1): Students in private secondary schools in Noida do not have a generally positive perception of online education

The Spearman's rank correlation coefficient (rs) of 0.9747 indicates a very strong positive correlation between students' satisfaction with online education and their overall experience. The t-statistic of 7.5498 and the p-value of 0.0048 (which is less than the significance level of 0.05) indicate that the correlation is statistically significant

Discussion

This finding aligns with broader research indicating mixed responses to online education during the COVID-19 pandemic (Lu, 2022; Susheela & Nasa, 2022). Despite recognizing the necessity of online learning, students have

reported several challenges, including issues related to engagement, motivation, and the effectiveness of online instructional methods (Chattopadhyay, 2022). These challenges are compounded by the digital divide, which affects students' access to reliable technology and internet connectivity (Bao, 2022; Krishnan, 2022). Therefore, the negative perceptions among students in Noida's private secondary schools can be attributed to both systemic and situational factors

Implications

The implications of these findings are significant for educators and policymakers. There is a clear need for improved online education strategies that address the concerns and preferences of students. Enhancing the quality of digital content, providing training for educators on effective online teaching practices, and ensuring equitable access to technology are essential steps to improve student perceptions of online education. Additionally, incorporating interactive and engaging elements into online learning platforms could help mitigate the lack of physical classroom interaction, which is a major factor contributing to students' negative perceptions (Dutt, 2022)

Hypothesis 2: Influence of Technology and Internet Reliability

Null Hypothesis (H0) ; Access to reliable technology and the internet does not significantly influence students' positive perceptions of online education in private secondary schools in Noida

Alternative Hypothesis (H1); Access to reliable technology and the internet significantly influences students' positive perceptions of online education in private secondary schools in Noida

The analysis for Hypothesis 2 also showed a Spearman's rank correlation coefficient (rs) of 0.9747, indicating a very strong positive correlation between the reliability of internet connection and students' positive perceptions of online education. The t-statistic, of 7.5498 and the p-value of, 0.0048 support the strength and significance of this correlation. Consequently, we reject the null hypothesis (H0), and accept the alternative hypothesis (H1) indicating that access to reliable technology and the internet significantly influences students' positive perceptions of online education

This finding highlights the critical role of technological infrastructure in shaping students' experiences and perceptions of online education (Bao, 2022). Without reliable internet connectivity and access to necessary devices; students face significant barriers to effective learning, which can lead to frustration and disengagement. This is particularly relevant in the Indian context, where the digital divide remains a pervasive issue (Krishnan, 2022). Ensuring that all students have access to the required technological tools and stable internet connections is essential for the success of online education initiatives

To address these challenges, policymakers and educational institutions must invest in improving digital infrastructure and providing support for students who lack access to technology. Initiatives such as providing subsidized internet plans, distributing devices to underprivileged students and setting up community learning centres with internet access can help bridge the digital divide. Additionally incorporating offline elements or low-bandwidth solutions in online education platforms can make learning more accessible to students with limited internet connectivity,

Hypothesis 3: Challenges Versus Benefits of Online Education

Null Hypothesis (H0) The transition to online education has not presented more challenges than benefits to students in private secondary schools in Noida

Alternative Hypothesis (H1) The transition to online education has presented more challenges than benefits to students in private secondary schools in Noida

For Hypothesis 3, the analysis showed a Spearman's rank correlation coefficient (rs) of 0.9, indicating a strong positive correlation between the frequency of technical difficulties and the challenges students face in staying motivated and engaged during online classes. The t-statistic, of 3.5762 and the p-value of, 0.0374 (less than the significance level of 0.05); indicate that the correlation is statistically significant. Thus we reject the null hypothesis (H0) and accept the alternative hypothesis (H1), suggesting that the transition to online education has indeed presented more challenges than benefits to students in private secondary schools in Noida

This finding highlights the various difficulties students encounter with online education, such as technical issues, lack of interaction, and reduced motivation (Ahmad, 2023; Teotia et al., 2023). The absence of physical classroom environments has led to feelings of isolation and decreased engagement, further exacerbated by the challenges of maintaining attention and motivation during online classes (Dutt, 2022). Additionally the increased screen time associated with online learning has raised concerns about the physical and mental health of students (Krishnan, 2022)

The implications of these findings are multifaceted. First, there is a need for more interactive and engaging online learning environments that can simulate the benefits of physical classrooms. Incorporating collaborative tools, virtual group activities, and real-time feedback mechanisms can help improve student engagement and motivation. Second addressing technical difficulties through better support and resources for both students and educators is crucial. Providing training for educators on managing online classes effectively and troubleshooting common technical issues can help reduce the frequency and impact of these problems

Moreover the development of blended learning models that combine online and offline elements can provide a more balanced and effective approach to education. Blended learning can leverage the flexibility and accessibility of online education while maintaining the benefits of face-to-face interactions (Chattopadhyay, 2022). This approach can help address the challenges identified in this study and provide a more holistic learning experience for students

Importance and Future Recommendations

The findings of this study have significant implications for the future of online education in India, particularly in private secondary schools in Noida. The strong correlations between students' perceptions and various factors such as satisfaction, technology access, and challenges highlight the need for targeted interventions to improve the online learning experience. Various previous studies highlight these issues like, The implementation of government policies for online education during crises has faced challenges. Learning from home policies were ineffective due to problems faced by teachers parents and students and a lack of digital access (Aripin et al., 2022; Agusminarti et al., 2020). Weak coordination and insufficient resources further hindered policy effectiveness (Kumar & Ganesh, 2022). Calls for more equitable and inclusive policies have been made (Fatkhuri, 2020). In Kazakhstan, better guidance for higher education transitions was needed (Compañ García, 1970). Brazil's experience shows the necessity of aligning policies with market demands, (Kinders & Nobles, 2020). Policymakers must ensure policies keep pace with technological advancements (Hayashi et al., 2020). Addressing these challenges requires improving infrastructure, enhancing stakeholder coordination, and ensuring adaptable policies. The effectiveness of government policies in online education varies widely. In Greece, student satisfaction with digital resources was moderate (Tiwari et al., 2021). Indonesia improved access but underutilized digital tools (Munauwarah & Achadi, 2023). The EU's digital strategies had mixed results (Altaieb et al., 2023). India's NEP 2020 shows a forwardthinking approach to digital education (Ahmad & Raj, 2022). Brazil's UCA project promoted digital inclusion but faced infrastructure issues (Medeiros & Magalhães Junior, 2018; Kariuki, 2023). The pandemic revealed gaps in digital education quality and infrastructure, complicating policy assessments (Burch et al., 2016; Mauricio, 2020) and Russia continues to improve digital education despite challenges (Rowell, 2010). In short while access has increased, quality improvements are uneven.

- 1.Improving Digital Infrastructure; Ensuring that all students have access to reliable internet and necessary technological devices is critical. Policymakers should prioritize investments in digital infrastructure especially in urban areas like Noida, to support uninterrupted online learning
2. Training and Support for Educators Educators need comprehensive training on effective online teaching methods and the use of digital tools. Providing ongoing support and resources can help teachers manage online classes more effectively and address technical issues promptly
3. Enhancing Student Engagement, Online learning platforms should incorporate interactive and engaging elements to maintain student interest and motivation. Features such as virtual classrooms discussion forums and interactive assignments can help simulate the benefits of physical classroom interactions
4. Blended Learning Models Developing blended learning approaches that combine online and offline elements can provide a more balanced educational experience. This model can help mitigate the challenges associated with purely online education and leverage the strengths of both modes of learning
5. Policy Reforms Educational policies should be updated to reflect the realities of online learning and address the specific needs of students and educators. Policies should focus on inclusivity access to technology and support for digital education initiatives

Comparison with Literature

The findings of this study are consistent with existing literature on the challenges and opportunities of online education during the COVID-19 pandemic. Previous research has highlighted similar issues related to digital access, student engagement, and the need for effective online teaching practices (Lu, 2022; Susheela & Nasa, 2022). The digital divide has been a recurring theme in studies on online education in India, highlighting the importance of addressing technological barriers (Bao, 2022; Krishnan, 2022)

Furthermore, the significance of blended learning models has been emphasized in various studies, suggesting that a combination of online and offline elements can provide a more effective and inclusive educational experience (Chattopadhyay, 2022; Bhat, 2022). This study's findings align with these recommendations, highlighting the need for innovative and flexible approaches to education in the post-pandemic era

Conclusion

This study has addressed a significant research gap by focusing on the perceptions of secondary school students in private schools in Noida regarding online education. The findings reveal that students do not generally have a positive perception of online education with access to reliable technology and internet being critical factors influencing their perceptions. The transition to online education has presented more challenges than benefits particularly in terms of technical difficulties, engagement and motivation

The implications of these findings are crucial for educators, policymakers and stakeholders in the education sector, By addressing the identified challenges and leveraging the opportunities presented by online education it is possible to develop more effective inclusive and sustainable educational strategies. Future research should

continue to explore the nuanced experiences of students in different contexts and develop innovative solutions to enhance the online learning experience

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