Journal of Hypermedia & Technology-Enhanced Learning

Insights into Online Education: Examining UG Students' Perceptions

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This article contributes to:

ABSTRACT

This study explores undergraduate (UG) students' perceptions of online classes at Buxi Jagabandhu Bidyadhar (BJB) Autonomous College, Odisha, India, during the COVID-19 pandemic. Using a descriptive survey methodology, 270 6th-semester students from various streams were selected through disproportionate stratified random sampling. The study analyzes differences in perception based on locality, gender, and academic stream, revealing statistically significant variations in their views on online learning. These insights are crucial for educators and policymakers seeking to overcome the challenges of remote education and to tailor online teaching practices to meet diverse student needs. The study contributes to the growing body of literature on online education by providing evidence-based recommendations for enhancing the UG learning experience in virtual environments.

Keywords: Online Classes; Perceptions; Undergraduate Students; COVID-19 Pademic; Teaching Practices

Received: Jan. 18, 2024; **Revised:** Feb. 15, 2024; **Accepted:** Feb. 17, 2024; **Published:** Jun. 30, 2024.

How to Cite: Jena, A. (2024). Insights into Online Education: Examining UG Students' Perceptions. *Journal of Hypermedia & Technology-Enhanced Learning (J-HyTEL)*, 2(2), 91–103. https://doi.org/10.58536/j-hytel.v2i2.115

Published by Sagamedia Teknologi Nusantara.

1. INTRODUCTION

Education is a continuous process, not confined to academic institutions only; it has the potential to broaden its scope. We acknowledge that formal teaching and learning practices are typically confined within the four walls of the classroom. However, at the beginning of the year 2020, we observed an expansion of these practices beyond the traditional classroom setting. Due to COVID-19, all educational institutions closed to prevent its transmission. UNESCO recommends distance learning programs and open educational applications during school closures caused by COVID-19, enabling schools and teachers to continue educating their pupils and minimize the interruption of education. Consequently, many institutions have adopted online classes [1], [2].

Vol. 2, No. 2, (2024) | E-ISSN: 2985–9166
https://doi.org/10.58536/j-hytel.v2i2.115

The demand for online and distance education has surged worldwide since the onset of the COVID-19 pandemic in early 2020. The ongoing global COVID-19 restrictions have significantly emphasized the importance of online teaching and learning, particularly in higher education and international education. Institutions of higher education, especially those in developing and developed countries, have acquired and implemented new technologies and approaches across all departments as a direct response to the pandemic. However, there has been little consideration of how these information and communication technologies (ICT) will be utilized in the future. The most common method of providing students with remote instruction is through audio and video conferencing platforms (e.g., Zoom, Google Meet, Skype). Since the COVID-19 lockdown, the use of audio and video conferencing has become crucial for faculty members and staff to present content in various ways and formats [3].

Educational institutions in India have also transitioned to online teaching environments soon after the Union Government imposed a nationwide lockdown for 21 days starting 25th March 2020, which was later extended for 19 more days [4]. In the same context, by considering education as essential, the Department of Higher Education, Govt. of Odisha, announced for taking online classes from 13th July 2020. Education is a tripolar process, involving not only the teacher and student but also the teaching environment, which plays a vital role. Online classes differ from traditional physical classroom teaching, where not all students may have an appropriate environment for learning, as many are accustomed to face-to-face modalities. Following the instructions of the Department of Higher Education, Odisha, online classes commenced on 13th July 2020 at BJB Autonomous College.

According to reports and warnings from the World Health Organization, the coronavirus may be a persistent presence. It is suggested that, without a vaccine, it could take years for the global population to achieve sufficient levels of immunity. While the number of COVID-19 cases varies worldwide, over 1.2 billion students in more than 186 countries are currently affected by school and college closures due to the pandemic. In response to the COVID-19 situation, educators have played a crucial role in finding innovative ways to ensure continued learning for students. The rapid and unexpected outbreak of COVID-19 had a significant negative impact on the global education sector, leading to the abrupt adoption of online learning [5]. Teaching shifted online, taking place over the Internet, also known as e-learning. BJB College has continued online classes from 13th July 2020 for three different streams, where teachers and students accessed classes through platforms like Google Meet or Zoom, following the instructions of the Higher Education Department, Odisha.

Education is a continuous process, encompassing a lifelong journey but often confined narrowly to educational institutions. Although the COVID-19 pandemic disrupted the formal education system, it did not broadly affect the overall educational process. To engage students in online education, various modes of instruction were initiated. Numerous studies conducted worldwide during the pandemic, including comparative analyses, suggest that online classes may not significantly differ from offline classes. For instance, Zheng, Bender, and Lyon [6] found that dental students expressed satisfaction with online classes, particularly in professional courses where practical aspects are highly valued. This finding contrasts with the general perception of unfavorable attitudes towards online classes due to factors such as a lack of social interaction and face-to-face learning. Additionally, Nambiar [7] highlighted that while online classes are effective in terms of time-saving, both teachers and students perceived them to be less effective and structured than traditional classroom learning. Yang and Cornelius [8] conducted a qualitative study revealing that while online classes offer flexibility, cost-effectiveness, electronic research availability, and ease of internet connection, there are

also unfavorable perceptions such as delayed feedback, lack of technical support, and a sense of isolation [9], [10].

In conclusion, while some reviews report positive student attitudes toward online classes, citing flexibility and cost-effectiveness, it is evident that both students and teachers express dissatisfaction with certain aspects of online education. Collectively, these findings offer a nuanced understanding of the varied perceptions surrounding online education. The review of related literature indicates that attitudes toward online classes are complex and context-dependent [11], [12].

Despite the growing body of research on online learning, there is a significant gap in the literature regarding studies conducted in Bhubaneswar, particularly at the undergraduate level. BJB Autonomous College, as a premier educational institution in Odisha, provides an ideal setting for students from diverse backgrounds. The college's reputation and the presence of students from different regions of Odisha make it a unique environment to explore the impact of online classes on a diverse student population.

Furthermore, the absence of research that combines students' perceptions from different streams in a single study is a notable oversight. Such a study would comprehensively understand how students from various educational backgrounds perceive online classes. This is particularly relevant in BJB Autonomous College, where students are enrolled in various undergraduate and postgraduate programs.

The lack of research in these areas presents an opportunity to fill these gaps and contribute valuable insights into the perceptions of online learning. By conducting studies that address these gaps, researchers can provide a more nuanced understanding of the challenges and opportunities presented by online education, especially in the wake of the COVID-19 pandemic, which has accelerated the adoption of online teaching and learning worldwide. Before the pandemic, online classes were relatively unfamiliar. The online learning environment differs significantly from the traditional classroom situation regarding learners' motivation, satisfaction, and interaction [13], [14]. This contrast has sparked the investigator's curiosity to understand undergraduate students' perception of online classes. Additionally, no research has been conducted on this matter in BJB Autonomous College. Therefore, the investigator has selected this problem for further research.

The present study is confined to the study of the Perception of UG students:

1) To assess the perception of undergraduate students at BJB Autonomous College regarding online classes.
2) To investigate the variations in perception among undergraduate students towards online classes based on their locality.
3) To examine the differences in perception among undergraduate students towards online classes based on their gender.
4) To explore the disparities in perception among undergraduate students towards online classes based on their academic stream.

2. METHODS

2.1. Hypotheses

Hypotheses I

- H_0: There are no significant differences in mean scores of undergraduate students' perception of online classes based on their locality.

Vol. 2, No. 2, (2024) | E-ISSN: 2985–9166
https://doi.org/10.58536/j-hytel.v2i2.115

- H_1: There are significant differences in mean scores of undergraduate students' perception of online classes based on their locality.

Hypotheses II

- H0: There are no significant differences in mean scores of undergraduate students' perception of online classes based on gender.
- H1: There are significant differences in mean scores of undergraduate students' perception of online classes based on their gender.

Hypotheses III

- H0: There are no significant differences in mean scores of undergraduate students' perception of online classes based on their academic stream.
- H1: There are significant differences in mean scores of undergraduate students' perception of online classes based on their academic stream.

2.2. Design

The study employed a descriptive survey method to investigate the perception of undergraduate students at BJB Autonomous College regarding online classes. This design allows for the collection of comprehensive data to understand the current state of student perceptions concerning online learning.

2.3. Population and Sample

The study focused on 6th Semester Undergraduate (UG) students at BJB Autonomous College who were admitted in the academic year 2019-22. The sampling technique employed was Disproportionate Stratified Random Sampling, chosen for its ability to ensure representation across different streams of students [15]. The three identified streams were Arts, Science, and Commerce. This technique was deemed appropriate to accurately reflect the student population's diversity.

Out of a total population of 898 students, 270 were selected as the study sample using the Raosoft sample size calculator. The use of Disproportionate Stratified Sampling allows for a more nuanced analysis by ensuring that each identified stream is adequately represented in the study (Table 1).

Table 1. Demographic distribution of Sample

Category	Sub	N	%
Locality	Rural	135	50%
	Urban	135	50%
	Total	**270**	**100%**
Gender	Male	135	50%
	Female	135	50%
	Total	**270**	**100%**
Stream	Arts	90	33.33%
	Science	90	33.33%
	Commerce	90	33.33%
	Total	**270**	**100%**

2.4. Instruments and Techniques Used

The instruments and techniques used in the study aimed to assess undergraduate students' perceptions of online classes, considering factors such as locality, gender, and academic stream. The following instruments and techniques were employed for data collection and analysis in Table 2.

Table 2. Data Collection Instruments and Techniques

Objectives covered	Tool	Data source	Analysis technique
To study the difference between perceptions of UG Students towards online classes regarding their locality	Self-developed Perception scale	UG Students	Mean, SD, and T-test
To study the difference between UG Students' perceptions of Online classes regarding their gender.	Self-developed Perception scale	UG Students	Mean, SD, and T-test
To study the difference between UG Students' perceptions of Online classes regarding their Streams.	Self-developed Perception scale	UG Students	Mean, SD, and ANOVA

The self-developed Perception scale served as the primary tool for gathering data from undergraduate students, and the subsequent analysis involved calculating Means, Standard Deviations (SD) and conducting statistical tests such as T-tests and ANOVA [16]. These instruments and techniques were chosen to provide a comprehensive understanding of the varied perceptions among UG students concerning online classes.

3. RESULTS

3.1. Comparison of Mean Perception Scores of UG Students Towards Online Classes in Relation to Their Locality

One of the primary objectives of the present study is to investigate the differences in perceptions of UG students towards online classes based on their locality. To achieve this, a "t" test was employed to compare and identify mean differences in the perception scores of UG students towards online classes concerning their locality. The following section presents a summary of the "t" test results, providing insights into the perceptions of UG students and their relation to different localities (see Table 3).

Table 3. T-test of Locality Variations in Relation to Perception of UG Students Towards Online Classes

No.	Category	No of students	Mean score	SD	T	df	Remark
1	Rural	135	66.40	5.36	3.04	268	Significant
2	Urban	135	64.04	7.31			

Vol. 2, No. 2, (2024) | E-ISSN: 2985–9166
https://doi.org/10.58536/j-hytel.v2i2.115

3.2. Comparison of Mean Perception Scores of UG Students Towards Online Classes in Relation to Their Gender

One of the study's objectives is to examine the perception scores of UG students towards online classes in relation to their gender, utilizing a "t" test for analysis. The results are presented in Table 4.

Table 4. T-test of Gender Variations in Relation to Perception of UG Students Towards Online Classes

No.	Category	No of students	Mean score	SD	T	df	Remark
1	Male	135	62.44	6.50	7.74	268	Significant
2	Female	135	68.00	5.21			

According to the data presented in Table 4, with a t-value of 7.74 and degrees of freedom (df) equal to 268, the result indicates a significant difference between the mean scores of perceptions among undergraduate students regarding online classes in relation to their gender ($p < 0.05$). Given the significance, the null hypothesis is rejected, stating that there is no significant difference in mean scores of perceptions between UG male and female students regarding online classes.

3.3. Comparison of Mean Perception Scores of UG Students Towards Online Classes in Relation to Their Stream

Another objective of the study is to explore the perception scores of UG students towards online classes concerning their streams, utilizing a "t" test for analysis. The results are summarized in Table 5.

Table 5. One-Way Analysis of Variance (ANOVA) of Streams in Relation to Perception of UG Students

Source	df	SS	MS	F	P	Level of significance
Between groups	2	487.73	243.86			
Within group	267	10910.03	40.86	5.96	0.0029	p<0.05
Total	269	11397.70				

The ANOVA result reveals an F-value of 5.96 and a p-value of 0.0029 ($p < 0.05$), indicating a significant difference in mean scores of perceptions among undergraduate students regarding online classes in relation to their streams. Given that the p-value is less than the significance level (0.05), we reject the null hypothesis, which posits that there is no significant difference in mean scores of perceptions among UG students concerning their stream. Hence, a significant difference exists in the perception of UG students towards online classes with regard to their streams.

The study's key findings, comparing mean perception scores of undergraduate (UG) students towards online classes based on gender, locality, and academic stream, are as follows:

1) Locality: The comparison of mean perception scores in relation to the students' locality also showed a significant difference. The t-test indicated a significant difference in mean scores of perception between UG students from rural and urban areas towards online classes, with a t-value of 3.04 and df of 268, leading to the rejection of the null hypothesis (H0).

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https://doi.org/10.58536/j-hytel.v2i2.115

2) Gender: The study found a significant difference in the mean perception scores of male and female UG students towards online classes. The t-test revealed a significant difference in mean scores of perceptions between male and female UG students, with a t-value of 7.74 and degrees of freedom (df) of 268, leading to the rejection of the null hypothesis (H0).
3) Stream: The study utilized an ANOVA test to compare mean perception scores in relation to the students' streams, which also revealed a significant difference. The F-value of 5.96 and a p-value of 0.0029 ($p < 0.05$) supported this significant difference, leading to the rejection of the null hypothesis (H0).

These findings indicate significant variations in the mean perception scores of UG students towards online classes based on their gender, locality, and academic stream.

4. DISCUSSION

This study aimed to explore differences in the perceptions of undergraduate (UG) students towards online classes based on locality (rural or urban), gender, and academic stream. The results highlight significant variations in the mean perception scores across these factors, suggesting that students' backgrounds influence how they perceive online learning. The analysis revealed a significant difference in perception scores between UG students from rural and urban areas, with rural students exhibiting a higher mean score (66.40) compared to their urban counterparts (64.04). This difference, supported by a t-value of 3.04 and degrees of freedom (df) of 268, suggests that rural students may have a more favorable view of online classes, possibly due to fewer alternative educational opportunities or a greater appreciation for the accessibility of online learning. Additionally, the t-test results indicated a significant difference in perception scores based on gender, where female students scored higher (68.00) than male students (62.44), with a t-value of 7.74 and df of 268. This finding suggests that female students may perceive online classes more positively, potentially due to varying learning preferences or attitudes toward technology. Lastly, the one-way ANOVA analysis revealed a significant difference in perception scores across academic streams, with an F-value of 5.96 and a p-value of 0.0029. This indicates that students' academic disciplines influence their perceptions of online learning, as different streams may involve varying levels of online engagement and course structures. Overall, the findings of this study suggest that UG students' perceptions of online classes are significantly affected by locality, gender, and academic stream, highlighting the need for tailored approaches to online education that consider these diverse backgrounds.

5. CONCLUSION

This study, which compares the mean perception scores of undergraduate (UG) students towards online classes with their locality, gender, and academic stream, offers valuable insights into the impact of online education, especially amid the COVID-19 pandemic. The findings indicate significant differences in the mean perception scores of UG students based on their locality, gender, and academic stream, highlighting the need to address various factors affecting online education at the UG level.

The challenges faced during the pandemic, including technical issues, economic conditions, teacher attitudes, and student engagement, have underscored the importance of understanding and addressing these issues to ensure effective online education. The study's findings can be instrumental in informing strategies to mitigate technical challenges and other related issues, providing valuable input for government initiatives to improve the online education infrastructure, particularly in regions such as Odisha, India.

Vol. 2, No. 2, (2024) | E-ISSN: 2985–9166
https://doi.org/10.58536/j-hytel.v2i2.115

Furthermore, the study's insights can be leveraged by educators to enhance their online teaching methods, including lesson delivery systems and assessment strategies. By understanding UG students' perceptions of online classes, teachers can adapt their teaching approaches, incorporate new methods, and improve the online learning experience.

In conclusion, the study's findings offer valuable implications for addressing the challenges of online education, establishing a foundation for government interventions, and guiding educators in enhancing their teaching practices to better meet the needs of UG students in an online learning environment.

IMPLICATIONS AND LIMITATIONS

These findings have implications for education policymakers, institutions, and educators, as they underscore the importance of considering students' backgrounds and characteristics when designing and delivering online classes. By understanding these variations in perception, educational stakeholders can tailor their online teaching methods to better meet the diverse needs of students from different localities, genders, and academic streams. The results emphasize the significance of recognizing and accommodating UG students' diverse perspectives and experiences in online education, ultimately contributing to more effective and inclusive teaching practices.

However, it is essential to acknowledge the study's limitations. Delimited to the 2019-20 admission batch of undergraduate (UG) students at BJB Autonomous College, focusing specifically on three academic streams—Arts, Science, and Commerce. The sample size is set at 270 students, aiming for a balance between in-depth analysis and practical manageability. Data will be collected through a self-constructed questionnaire, recognizing that the study's outcomes hinge on the questionnaire's efficacy and validity. These delimitations are purposefully imposed to maintain focus, feasibility, and relevance within the defined parameters of the research.

DECLARATIONS

Author's Contributions

Anirudha Jena: Conceptualization, Methodology, Software, Data curation, Writing - Original Draft, Visualization, Investigation, Writing - Review & Editing.

Acknowledgements

I would like to express my gratitude to the individuals who provided valuable assistance during this research.

Data Availability Statement

Authors should state whether the data used in the research are publicly available or accessible upon request.

Funding

No funding was received for conducting this study.

Competing Interests

The authors declare no competing interests.

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