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Examining the advantages and disadvantages of online education: Insights from students on mathematics and English language learning

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Abstract
This study aimed to investigate the relationship between school management type and secondary school students' perceptions of online learning. One hundred nine secondary school students were surveyed, and the data collected were analyzed using statistical techniques.

The study's results revealed a significant association between school management type and secondary school students' perceptions of online learning. Specifically, students in schools with a private management type had significantly more positive perceptions of online learning than those with a government schools. There is a significant association between perceptions of secondary school students towards mathematics and English Language subjects learning through online mode with their location of residence.

The findings of this study have important implications for educational policymakers, school administrators, teachers, and students. The results suggest that school management type plays a crucial role in shaping students' perceptions towards online learning. Therefore, educational policymakers and school administrators need to consider this factor while making decisions related to online learning. The study also highlights the need for a student-centered and collaborative approach to enhance online learning outcomes.

Keywords: Secondary school students', perceptions, online learning, school management, private, government, Student-centered

Introduction
Online education has gained immense popularity recently, especially with the rise of digital technology and the COVID-19 pandemic. The traditional classroom learning mode has been replaced with online learning, which has pros and cons. This research paper aims to highlight the advantages and disadvantages of online education.

Like many other countries, India has seen a surge in online education in recent years. The COVID-19 pandemic has accelerated the shift towards online teaching and education in India. This article aims to explore the state of online teaching and education in India.

Online Teaching and Education in India
Online education in India has been around for over a decade, with various institutions offering online courses and degrees. However, it was only during the pandemic that online education became the norm for schools and colleges nationwide.

One of the most significant advantages of online education in India is the accessibility it provides. Students from remote areas can now access education from some of the best institutions in the country. Online education also offers more flexibility to students, allowing them to learn at their own pace and convenience.

Despite its benefits, online education in India faces several challenges. The first and foremost is the digital divide. Not all students can access computers and reliable internet connectivity, especially in rural areas. The cost of equipment and internet plans can also be prohibitive for many students.

Another challenge is the need for more trained teachers and infrastructure to support online education. Many schools and colleges needed to be equipped to transition to online education quickly, leading to a lack of quality in online teaching.

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The quality of online education in India has also been questioned. Concerns over the need for more interactive learning experiences and engagement in online education exist. Additionally, there have been instances of cheating and academic dishonesty in online exams.

The necessity of Online Education for Secondary School Students in India

The primary benefit of online education for secondary school students in India is its accessibility. Many students in remote and rural areas need more access to quality education. Online education allows students from all over the country to access the best teachers and institutions, regardless of location.

Online education also offers flexibility, which is particularly important for secondary school students with various extra-curricular activities and other commitments. Online education allows students to learn at their own pace and schedule without commuting to school. The COVID-19 pandemic has highlighted the importance of online education in India. The sudden closure of schools and colleges left many students without access to education. Online education allows students to continue learning and stay engaged with their studies.

Another advantage of online education is that it offers various learning resources and materials to enhance the learning experience. Online courses often use multimedia and interactive tools to engage students and improve their understanding of the material.

Physical Barriers to Online Learning

One of the primary physical barriers to online learning is the need for proper workspace and equipment. Many students need access to a dedicated workspace, a quiet environment, or a comfortable chair and desk. This can lead to physical discomfort and strain, impacting their ability to concentrate and learn.

Another physical barrier is the strain on the eyes and neck from prolonged screen time. Students often spend hours before a screen, leading to eye strain, headaches, and neck pain.

Psychological Barriers to Online Learning

Online learning can also have psychological impacts on students. One of the primary psychological barriers is the lack of social interaction and connection with peers and teachers. Students may feel isolated and disconnected from their peers, which can lead to feelings of loneliness and depression.

Another psychological barrier is the lack of motivation and engagement. Online learning can be challenging for students who struggle with self-motivation and discipline. They may find it easier to stay focused and engaged with the structure and support of in-person learning.

The stress of online exams and assessments can also be a psychological barrier for students. The pressure to perform well in online exams and assessments, combined with the uncertainty of the online environment, can lead to anxiety and stress.

Advantages of Online Education

1. **Flexibility:** One of the main advantages of online education is that it offers flexibility.
2. Students can learn at their own pace and schedule, which allows them to balance their studies with work, family, and other obligations.
3. **Lower cost:** Online education is generally less expensive than traditional education. It saves money on transportation, textbooks, and other fees associated with in-person classes.
4. **Comfortable Learning Environment:** Online education offers a comfortable learning environment for students. They can learn anywhere, anytime, without worrying about commuting to and from class.
5. **Access to a wide range of Courses:** Online education gives students access to a wide range of courses that might not be available in their local area. This allows them to pursue their academic interests and develop specialized skills.
6. **Interactive Learning Experience:** Online education offers an interactive learning experience through various mediums like videos, simulations, and group discussions. It allows students to interact with course content and instructors, and peers.

Disadvantages of Online Education

- **Lack of Personal Interaction:** Online education needs more personal interaction between students and instructors, which can impact the quality of education. Students might need help with motivation and feel disconnected from their peers and instructors.
- **Technical issues:** Online education requires technical infrastructure like stable internet connectivity, computers or laptops, and software which can create technical issues for some students. This could result in missed lectures or assignments.
- **Self-motivation:** Online education requires self-motivation and self-discipline to complete coursework and meet deadlines. Some students may find it challenging to stay motivated and disciplined without in-person guidance and interaction.
- **Limited Networking:** Online education can limit student networking opportunities essential for career advancement. Students may have different opportunities to meet and interact with peers and instructors than in traditional classroom settings.
- **Lack of Accreditation:** Some online education programs need to be accredited, which can limit student career opportunities. Researching and ensuring the program is accredited before enrolling in an online education program is essential.
- Students' perceptions towards online learning in mathematics and English language subjects can vary based on various factors. Here is a brief explanation of some common perceptions:
- **Flexibility and Convenience:** Many students appreciate the flexibility and convenience that online learning offers. They can access the learning materials and participate in classes from anywhere, benefiting those with busy schedules or other commitments.
- **Interactive and Engaging**: Online learning platforms often incorporate interactive elements such as multimedia content, quizzes, and virtual discussions, making the learning experience more engaging and interactive. This can help students stay motivated and interested in the subjects.

- **Personalized Learning:** Online platforms often provide personalized learning experiences, allowing students to progress at their own pace. Adaptive learning
- technologies can assess students' abilities and provide tailored content and practice exercises to address their needs. This individualized approach can benefit students who require extra support or want to challenge themselves.
- **Lack of Direct Interaction:** One common concern among students is the need for more direct interaction with teachers and classmates. In traditional classrooms, students can ask questions, receive immediate feedback, and engage in face-to-face discussions. Online learning may rely more on asynchronous communication, such as email or discussion boards, which some students may find less engaging or feel less supported.
- **Technical Challenges:** Online learning requires access to reliable internet connections and appropriate devices. Students who do not have consistent internet access or face technical difficulties may find it frustrating and disruptive to their learning experience. Some students may need help navigating online platforms or adapting to new technology.
- **Self-discipline and Time Management:** Online learning often requires students to take more responsibility for managing their time and staying motivated. With the structure of regular classroom sessions, some students may find it easier to stay focused and organized, leading to procrastination or incomplete assignments.

Need and Significance of the Study

A study conducted by Dumford and Miller in 2018 [5] discovered that students who took more online courses were more likely to engage in quantitative reasoning, regardless of whether they were first-year students or seniors. However, these same students were less likely to engage in collaborative learning, interact with faculty, or participate in discussions with diverse groups of students compared to their peers who attended traditional classroom settings. Furthermore, students who took more online courses reported less exposure to effective teaching practices and lower quality of interactions.

The study's findings suggest that while an online learning environment may benefit certain types of engagement, it could also hinder others. Therefore, institutions must consider these results when designing online course content and encourage faculty members to develop ways of promoting student engagement across various delivery methods.

The study conducted by Alaa Zuhir Al Rawashdeh *et al.* (2021) [2] aimed to identify the advantages and disadvantages of e-learning in higher education in the United Arab Emirates. The results showed that most students found e-learning compelling in excitingly providing scientific material, increasing contact between students and teachers, and promoting social interaction. However, the study also highlighted some challenges, such as electronic illiteracy among parents and the potential for increased social isolation. Therefore, potential e-learners must understand the differences between e-learning and conventional classroom settings to make informed decisions about their learning environment.

E-learning has been widely recognized for its benefits in various educational contexts. Previous studies, such as Raspopovic *et al.* (2017), have highlighted several advantages of implementing e-learning technologies in university education. One of the key advantages is the ability to cater to the individual needs of learners, as e-learning can effectively deliver knowledge in the digital age. Recent study conducted by Varma and Varma (2022) [15] found that digital teaching and learning offer various benefits, such as increased accessibility, improved distribution of study materials, the ability to record lessons, and better time management, creativity, and visualization. The study also revealed that many educators and students prefer a hybrid teaching and learning approach that combines both digital and traditional methods. Overall, the implementation of e-learning has the potential to revolutionize the way education is delivered and accessed in various contexts. Abraham and Kumar (2022) [1] conducted a study to understand the challenges students face in attending online classes after the pandemic disrupted the education system in India. To save the academic year, universities and colleges shifted to online education, a new experience for many Indian students, especially those from rural and tribal areas. The study was conducted on graduate and postgraduate students from Andhra Pradesh, Assam, and Mizoram. The study found that 79.8% of the respondents needed help attending online classes. The main issue, reported by 40.7% of the respondents, was related to accessibility and internet speed. Additionally, 56.5% of the respondents felt minimal interaction between students and teachers during online classes. The study also found that 43.1% of the respondents reported that their teachers used the PowerPoint presentation method, while 38.1% reported the use of the lecture method. Aydin & Tirkes (2010) [4] conducted a study to analyze the usefulness of LMS and Moodle. They found that Moodle is an effective tool with numerous advantages, including flexibility in teaching styles and environments, modular design, and a user-friendly interface. Additionally, Moodle's ease of use is supported by the variety of options available, as well as the increase in user authentication options, easy installation process, and maintenance, all of which contribute to increased frequency of usage. Overall, LMS like Moodle can offer significant benefits to users in terms of efficiency, organization, and usability, making them valuable tools in the digital age of education.

Although technology has become an integral part of our daily lives, its accessibility is still limited due to its cost. In order to bridge the gap, the proportion of computers and other electronic devices provided to students must be increased (Talebian, Mohammadi, & Rezvanfar, 2014) [14]. Another challenge in online learning is maintaining motivation. Students who lack self-motivation and independence have lower success rates than those who possess these qualities (Sarkar, 2012). Additionally, students who lack self-regulation often must allocate sufficient time to complete assignments, resulting in poor-quality work or late submissions. Successful online learners possess stronger beliefs in their ability to succeed, better technical skills and access, higher levels of self-responsibility, and better self-organization skills (Sarrab, Al-Shihi, & Rehman, 2013) [13]. Students must assess their motivating factors and maintain their momentum throughout the course to avoid losing sight of their objectives and withdrawing from the course. With

this online learning system, it is necessary to have students' perceptions of mathematics online learning (Huda *et al.*, 2021) [6]. Online learning was useful during learning English (Marsudi, 2021) [11]. Therefore, understanding one's learning style and self-behaviour is crucial in determining an individual's success in an online course. As a result, the researcher investigated the perceptions of Secondary School Students regarding Online Learning.

Objective
1. To find out the Government and Private School Students Perceptions towards Online Learning.
2. To find out the Urban and Rural areas Students Perceptions towards Mathematics and English Language leaning through Online Teaching.

Hypothesis
There is no significant association between perceptions of secondary school students towards online learning with school management type.

There is no significant association between perceptions of secondary school students towards mathematics and English Language subjects learning through online mode with location of residence.

Research Method
The research method employed for this study was a descriptive survey. The population of the study consisted of all secondary school students in Visakhapatnam District, Andhra Pradesh. A sample of 109 government and private school students was selected using the stratified random sampling method. Data analysis was conducted using various statistical techniques, including the Chi-Square test, to verify the hypotheses formulated for the investigation.

Hypothesis
H1: There is no significant association between perceptions of secondary school students towards online learning with school management type.

Table 1: Chi-square value -df-p-value

		Do you have adequate support from your teachers during online learning?		Chi- Square value	df	P-value
		No	Yes			
School Management	Private	12	38	47*	1	0.000
	Government	46	13			
Total		58	51			

*Significant at 0.05 level

Interpretation
Since the p-value (= 0.000) < α (= 0.05), we may reject the null hypothesis and conclude that the perceptions of secondary school students are associated with school management type at 5% level of significance.
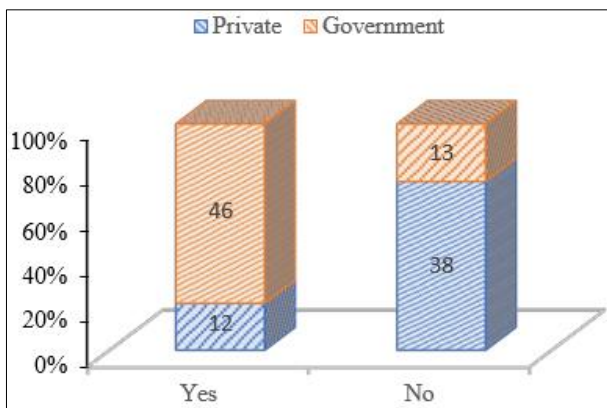

Fig 1: Private- Government -Student responses

Finding
There is a significant association between perceptions of secondary school students towards online learning with school management type.

Discussion
The statement suggests that a statistical analysis was

conducted to examine the relationship between the perceptions of secondary school students and their school management type. The analysis results indicated that the p-value was less than the level of significance (α), which suggests that the association between the two variables is not due to chance and is statistically significant.

Therefore, based on the results, the null hypothesis is rejected. There is a significant association between the perceptions of secondary school students and their school management type. This means the school management type impacts how secondary school students perceive their online learning experience. The study's results also relate to Kayoom (2023) [9] findings, which showed that students from private schools have a more positive attitude towards e- learning and online education. The similarity in these findings suggests that the type of school management and the private school setting may contribute to a more favourable perception of online learning among students. Private schools may have more resources to invest in e-learning infrastructure and provide better support to students for online learning, leading to a more positive attitude towards online education among their students.

Hypothesis-2
There is no significant association between perceptions of secondary school students towards mathematics and English Language subjects learning through online mode with their location of residence.

Table 1: Chi-square value -df-p-value

		Has online learning positively impacted your understanding and comprehension of mathematics and English language concepts?		Chi- Square value	df	P-value
		Yes	No			
Location of Residence	Rural	16	34			
	Urban	37	22	22.20		
Total		53	56		1	0.000

*Significant at 0.05 level

Interpretation
Since the p-value (= 0.000) < α (= 0.05), we may reject the null hypothesis and conclude that the perceptions of secondary school students are associated with their location of residence at 5% level of significance.
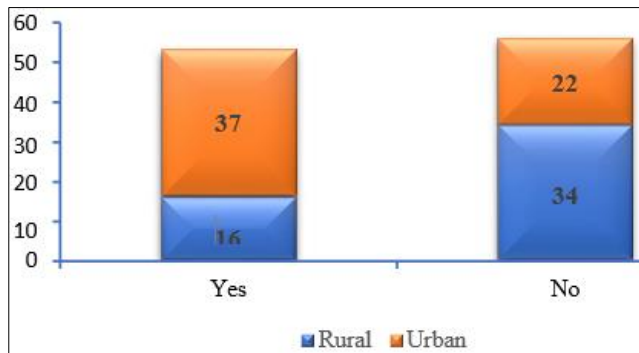

Fig 2: Urban -Rural Student responses

Finding
There is a significant association between perceptions of secondary school students towards mathematics and English Language subjects learning through online mode with their location of residence.

Discussion
Therefore, based on the results, the null hypothesis is rejected. There is a significant association between perceptions of secondary school students towards mathematics and English Language subjects learning through online mode with their location of residence. Krishnan's study conducted in 2016 revealed that the students involved expressed a preference for face-to-face learning. They expressly indicated greater comfort when engaging with their peers and the instructor in a face-to-face setting. Moreover, they found that face-to-face instruction facilitated a better grasp of mathematical concepts and enhanced learning and comprehension. According to Marsudi's study in 2021, the findings indicated that 22.10% of the students strongly agreed with the benefits of online learning during the COVID-19 pandemic. The data analysis revealed that online learning was valuable for studying English during this period. Additionally, 14.30% of the students strongly agreed that there were challenges associated with utilizing online learning. This suggests that students faced difficulties adapting to online learning methods for their English lessons.

Educational Implications
1. **Choice of School Management:** The finding highlights the importance of selecting an appropriate school management type, which can significantly impact students' perceptions towards online learning. Educational policymakers and school administrators should consider this factor while making decisions related to school management types.
2. **Training and Professional Development:** Teachers and school administrators must be trained to manage online learning effectively. They need to understand the challenges and benefits of different school management types and develop strategies to enhance student engagement and learning outcomes.
3. **Resource Allocation:** To ensure successful online learning, appropriate resources, including technological infrastructure and instructional materials, must be allocated. School management types can differ in their capacity to allocate resources, which needs to be considered while making decisions about online learning.
4. **Student-Centered Learning:** The finding emphasizes the importance of a student- centered approach to online learning. School management should support student- centered learning, where students' needs, preferences, and learning styles are considered to create an engaging and effective learning environment.
5. **Collaborative Learning:** Collaborative learning is a significant aspect of online learning. School management should facilitate collaboration and communication among students and teachers to create an interactive and participatory learning experience.

Overall, the finding has significant implications for educational policymakers, school administrators, teachers, and students. It highlights the importance of considering school management types while making decisions related to online learning and suggests the need for a student-centered and collaborative approach to enhance learning outcomes.

Conclusion
Online education has pros and cons; students must consider these factors before enrolling in an online education program. While online education offers flexibility and lower costs, it also requires self-motivation and self-discipline and lacks personal interaction and networking opportunities. Students should evaluate their learning preferences and goals before deciding if online education suits them.
Online learning can be challenging for students, particularly regarding physical and psychological barriers. The lack of proper workspace and equipment, strain on the eyes and neck, lack of social interaction, lack of motivation and engagement, and stress of online exams and assessments are critical barriers that students face. It is essential to address these barriers to ensure that all students can benefit from online learning. Providing support and resources for students, such as ergonomic equipment, mental health services, and engagement tools, helps mitigate the physical and psychological barriers of online learning.
Online education is necessary for secondary school students in India, particularly in the current context of the COVID-19

pandemic. It offers accessibility and flexibility and can enhance the learning experience for students. However, challenges related to the digital divide and the quality of online education need to be addressed to ensure that all students can benefit from online education. Overall, online education is an essential tool for the future of education in India, and it is essential to continue to develop and improve online education systems to meet the needs of students.

Online education in India has its advantages and challenges. While it offers accessibility and flexibility, there are challenges related to the digital divide, lack of trained teachers, and infrastructure. Improvements in infrastructure and teacher training, coupled with policies to bridge the digital divide, can help improve the quality of online education in India. Overall, online education is an essential tool for the future of education in India, and it is essential to address its challenges to ensure its success. These results suggest a significant association between students' perceptions of online mathematics and English learning and their residence location. Overall, the studies highlight the preferences and experiences of students in different learning modes and shed light on the benefits and challenges associated with online learning during the pandemic.

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