

COMPARATIVE STUDY ON ONLINE Vs. OFFLINE LEARNING AMONG UNDERGRADUATE STUDENTS

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Abstract—This study looks at how effective online and offline learning are for undergraduate students. The sudden shift to online classes during and after the COVID-19 pandemic changed the way education worked and raised new questions about which method helps students learn better. The main goal of this research is to understand students' preferences, their level of understanding, participation, accessibility and overall satisfaction in both learning modes. To collect data, a questionnaire was shared through Google Forms and filled out by 40 undergraduate students. The results show that most students, around 75%, prefer offline learning mainly because they can focus better, interact more easily with teachers and classmates and feel more connected in a physical classroom. Meanwhile, 25% of students prefer online learning because it allows them to study at their own pace and offers more flexibility. Overall, offline classes encourage stronger participation and deeper understanding, while online classes provide easier access to learning materials, especially for students in remote areas. The study concludes that a blended learning approach, which combines both online and offline methods, could be the most effective way to meet different learning needs. This research highlights how important it is for teachers and institutions to adapt their teaching styles to support every student and make learning more engaging and meaningful in today's world.

Keywords: Online Learning, Offline Learning, Undergraduate students, and Teaching Effectiveness.

Introduction

Education is the foundation of personal growth and societal development. It shapes a student's personality, thinking skills and future opportunities. Over the decades, education has evolved in various ways, but one thing remains constant: its purpose to impart knowledge and prepare students for real-world challenges. Traditionally, learning took place through offline or face-to-face classroom methods, where students gathered in physical classrooms to interact directly with teachers and peers. This system allowed for real-time discussion, emotional connection and hands-on learning experiences. Teachers could immediately assess students' understanding and provide personalized feedback. Students, in turn, benefited from structured routines, discipline and the motivation that comes from being part of an active classroom environment. However, the world of education has seen a dramatic transformation in the past few years, particularly due to the rise of technology and the COVID-19 pandemic. When schools and universities closed to prevent the spread of the virus, institutions had no choice but to switch to online learning. What began as a temporary measure quickly became a global shift in education. Suddenly, laptops, mobile phones and digital learning platforms like Google Classroom, Zoom and Microsoft Teams became the new classrooms. Teachers and students connected virtually, often from different parts of the world. Online learning brought many benefits that were previously unimaginable. It allowed students to learn from anywhere and at any time, breaking the barriers of distance and time zones. It gave students flexibility they could revisit recorded lectures, study at their own pace and access a wide range of digital resources.

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Online education also opened up new opportunities for students who might not have been able to attend in-person classes due to financial, health or geographical limitations. Moreover, it introduced a new culture of self-directed learning, where students took more responsibility for their own education. Despite these advantages, the transition to online learning also revealed several challenges. Many students faced poor internet connectivity, lack of proper study spaces and distractions at home. The absence of direct communication with teachers and peers often led to feelings of isolation and decreased motivation. For subjects that required practical learning or laboratory work, online classes proved insufficient. Teachers, too, struggled to engage students effectively through screens and ensure that everyone was keeping up with lessons. As a result, the sudden shift to virtual learning highlighted both the strengths and weaknesses of this mode of education. On the other hand, offline learning the traditional classroom model continued to be valued for its structured environment and direct interaction. In a physical classroom, students are part of a community where they can ask questions, share ideas and build social skills. Teachers can observe students' expressions and body language, identifying who needs help or encouragement. This human connection is often lost in online learning. Furthermore, offline education helps students develop discipline and time management skills, as they must follow schedules and actively participate in lessons. For many, being physically present in a classroom fosters better concentration and understanding compared to virtual sessions.

However, offline learning also has its limitations. It requires physical attendance, which may not always be possible due to distance, health concerns or personal circumstances. It also involves travel time and expenses, making it less convenient for some students. Additionally, traditional classrooms may not provide access to the same variety of online resources and global learning materials that virtual platforms offer. For undergraduate students, who are at a critical stage of academic and professional development, both learning methods have significant impacts. Undergraduate education is not just about gaining theoretical knowledge it also helps build communication, teamwork and critical thinking skills. Choosing between online and offline learning can therefore influence not only academic performance but also overall growth. Some students find online learning easier because it lets them manage their schedules, especially if they are balancing part-time jobs or family responsibilities. Others prefer the offline mode because it provides structure and immediate feedback from teachers. As the debate between online and offline learning continues, educators and policymakers are beginning to see the value of combining both approaches. This has led to the rise of blended or hybrid learning, which integrates online flexibility with face-to-face engagement. In blended learning, students can attend physical classes for discussions, group work and practical sessions, while also using online platforms to review lessons, complete assignments and access additional materials. This model aims to take the best of both worlds providing the structure of offline learning and the freedom of online education. The purpose of this research is to conduct a comparative study between online and offline learning among undergraduate students. It focuses on factors such as academic performance, understanding, concentration levels, interaction with teachers, accessibility, and the challenges students face in both learning modes. The study uses a questionnaire distributed through Google Forms to gather data from undergraduate students, capturing their real opinions and experiences.

The results of this study will help identify which learning approach is more effective in enhancing academic engagement and performance. Moreover, it will shed light on the personal preferences of students why some lean toward the flexibility of online learning, while others thrive in the structured setting of physical classrooms. By understanding these perspectives, educators can design teaching methods that cater to diverse learning needs and preferences. In a rapidly changing educational environment, it has become clear that technology will continue to play a dominant role. However, this does not mean that traditional classrooms will disappear. Instead, the future of education likely lies in the balance between technology and human connection.

Teachers are no longer just knowledge providers but also facilitators who guide students through both digital and physical spaces. Students, meanwhile, must adapt to learning in environments that demand both independence and collaboration. This research does not aim to prove that one mode of learning is superior to the other. Rather, it seeks to explore how both online and offline methods can complement each other to create a more effective and inclusive educational system. The findings will not only contribute to academic discussions but also help teachers, students, and institutions make informed decisions about learning strategies. Ultimately, the study emphasizes that education should focus not just on convenience or technology, but on what truly helps students learn, connect, and grow. For undergraduate students, who represent the future of the workforce and society, understanding how to balance online and offline learning will be essential. By recognizing the strengths and challenges of both methods, this research hopes to encourage a more adaptive and student-centered approach to education one that prepares learners to succeed academically, socially, and professionally in the 21st century.

Review of Literature

Chickering, A.W, et, al (1987), Stated in their Seven Principles for Good practice in Undergraduate Education, emphasizing student faculty contact, cooperation, active learning, feedback, time management, high expectations and respect for diverse learning styles. These principles highlight the effectiveness of offline classroom in promoting interaction, engagement, and discipline.

Dhawan, S. (2020), Stated that Online learning: A panacea in the Time of COVID-19 crisis. Journal of educational technology system, described online learning as a “panacea” during the COVID-19 crisis, as it enabled uninterrupted education. However, the study also emphasized limitations such as digital inequality, poor internet connectivity, and lack of motivation among students.

Adnan, M., et, al (2020), stated Online learning amid COVID-19 Pandemic: Students’ perspectives. It examined students’ perception of online learning during the COVID-19 pandemic in developing countries. Their study revealed challenges such as poor internet connectivity, lack of access to resources and reduced student motivation. They concluded that online learning was less effective than traditional learning, especially for undergraduate students requiring practical engagement.

Singh, V., & et, al (2019) stated How many ways can we define Online learning? A systematic literature review of definition of online learning (1988-2018). The definitions of online learning and highlighted that while it provides flexibility through synchronous and asynchronous modes, its effectiveness still depends on active engagement and teacher involvement. They emphasized that traditional learning remains vital for developing communication and teamwork skills which are often limited in online settings.

Basilaia, G., & et, al (2020) Stated Transition to online education in schools during a SARS-COV-2 coronavirus (COVID-19) pandemic in Georgia. It studied the transition to online education in Georgia during the COVID-19 pandemic and concluded that while online learning provided continuity, it faced challenges such as limited preparedness and digital inequality. They suggested that blended learning models may be the most effective approach for future education.

Research Gap

Many studies have already discussed the benefits and drawbacks of online and offline learning, but very few have looked closely at how undergraduate students in Chennai actually feel about these two modes of education especially after the COVID-19 pandemic. Most of the existing research focuses on academic results or teaching methods while the real experiences of students such as how engaged they feel how well they can concentrate how satisfied they are and what challenges they face are often over looked. In India, where students come from different regions, backgrounds and access levels to technology their learning experiences can be very different. Yet, not much research has tried to understand these differences from the students’ own point of view.

Statement of the problem

Digital technology has changed the way education is delivered to students. Traditional offline learning focuses on face-to-face teaching and direct teacher guidance. Online learning offers flexibility and access to education from anywhere. The COVID -19 pandemic forced universities to shift to online classes. This helped students continue their studies during the crisis. However, many faced internet issues low interaction and lack of motivation. These problems show the need to study student experiences in online learning.

Objectives

1. To compare the effectiveness of online and offline learning on undergraduate students understanding and academic performance.
2. To examine student teacher and peer interaction in online and offline learning modes.
3. To assess the student’s satisfaction and preferences toward online and offline learning.

Research Methodology

This study uses a descriptive, non-doctrinal research design to compare how effective online and offline learning are for undergraduate students. The main data will be collected through structured questionnaires using Google Forms, and this will be supported by information from relevant secondary literature. The participants will include undergraduate students who have experienced both online and offline learning, ensuring that their perspectives reflect real-life experiences. The quantitative data collected from the surveys will be analysed using descriptive statistics, while any open-ended responses will be thematically analysed to explore students’ perceptions, challenges and preferences in more depth. Ethical

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considerations are a key part of this study: participation will be voluntary and students' anonymity and confidentiality will be fully protected. Overall, this methodology provides a systematic and student-focused approach to evaluate important aspects of learning including academic effectiveness engagement interaction with teachers and peers and overall satisfaction with both online and offline modes of education.

Results and Discussion

Table-1
Personal Details

S. N	Details	Particulars	NOR	%
1.	Gender	Male	36	49
		Female	38	51
		Total	74	100
2.	Age	Below 20 years	20	27
		21-25 years	28	38
		25-30 years	16	22
		Above 30 years	10	13
		Total	74	100
3.	Marital Status	Married	56	46
		Unmarried	18	54
		Total	74	100

Source: Primary data

The majority of Respondents are male 75%, indicating a potential gender disparity in participation or response rates in the context of research and other 25% respondents are female. The age distribution shows a significant concentration of Respondents above 30 years 36% with 21-30 years representing a combined 44% and 20% is of below 20 years. A significant number of Respondents hold professional degrees 58%.

Table-2
Comparison of Offline and Online Learning Performances

S. No	Particulars	NOR	%
1.	Learning preference	Offline-46	62
		Online-28	38
		Total - 74	100
2.	Understanding and focus	Offline-44	59
		Online-30	41
		Total - 74	100
3.	Engagement and interaction	Offline-48	65
		Online--26	35
		Total - 74	100
4.	Accessibility and convenience	Offline-32	43

		Online-42	57
		Total - 74	100
5.	Overall satisfaction	Offline-49	66
		Online-25	34
		Total - 74	100

Source: Primary data

Out of 40 undergraduate participants, a majority expressed that offline learning is more effective for academic understanding and overall learning experience. About 65% preferred offline classes due to better engagement, communication, and structured environments. While online learning provided flexibility and convenience, it faced issues like internet instability, distractions, and lack of motivation. These findings align with previous studies Adnan & Anwar (2020) found similar challenges in online education, while Dhawan (2020) noted that digital learning can still enhance accessibility. When properly managed Hence, the results suggest that a blended learning approached integrating both modes would be the most suitable and effective strategy for undergraduates in modern education systems.

Table-3

Technical and Environmental Factors Affecting Learning

S. No	Statement	NOR	%
1.	Internet connectivity	Offline-21	28
		Online-53	72
		Total - 74	100
2.	Availability of learning resources	Offline-39	53
		Online-35	47
		Total - 74	100
3.	Classroom environment	Offline-52	70
		Online -22	30
		Total - 74	100
4.	Flexibility of learning schedule	Offline -26	35
		Online-48	65
		Total - 74	100
5.	Distraction during learning	Offline-45	61
		Online-29	39
		Total - 74	100

Source: Primary data

Interpretation:

This shows that online learning is preferred by a majority of students due to better flexibility of learning schedules with 65% favouring online mode for convenience. However, 72% of the respondents reported that internet connectivity issues strongly affect online learning for a better classroom environment which supports effective learning. Offline mode is also seen to reduce distractions as 61% of respondents felt they could concentrate better in classrooms. Availability of learning resources is almost equally preferred in both modes showing balanced access. Overall, while online learning offers flexibility offline learning provides a more supportive learning environment for undergraduate students.

Table-4

Effectiveness Methods of Online and Offline Learning

S. No	Statement	NOR	%
1.	Clarity of concepts	Offline-47	64
		Online-27	36
		Total - 74	100
2.	Doubt clarification	Offline-50	68
		Online-24	32
		Total – 74	100
3.	Learning discipline	Offline-45	61
		Online-29	39
		Total - 74	100
4.	Time management	Offline-34	46
		Online-40	54
		Total - 74	100
5.	Exam preparation support	Offline-49	66
		Online-25	34
		Total - 74	100

Source: Primary data

Interpretation:

It indicates that a majority of undergraduate students find offline learning more effective for understanding concepts with 64% preferring the offline mode. Doubt clarification is also perceived to be better in offline classes by 68% of the respondents highlights the importance of direct teacher student interaction. About 61% feel that offline learning helps maintain better learning discipline. However, 54% of students prefer online learning for time management showing the convenience of flexible schedules. Offline learning is again preferred by 66% of students for exam preparation support. Overall, the findings suggest that while online learning offers flexibility offline learning is considered more effective for deep understanding and academic support.

Table-5

Assessment and Feedback in Online and Offline Learning

S. No	Statement	NOR	%
1.	Fairness of evaluation	Offline-50	68
		Online-24	32
		Total - 74	100
2.	Timely feedback from teachers	Offline-46	62
		Online-28	38
		Total – 74	100
3.	Transparency in grading	Offline-44	59

		Online-30	41
		Total – 74	100
4.	Ease of submitting assignments	Offline-29	39
		Online-45	61
		Total – 74	100
5.	Satisfaction with assessment methods	Offline-48	65
		Online-26	35
		Total – 74	100

Source: Primary data

Interpretation:

This table shows that a majority of undergraduate students prefer offline mode for fairness of evaluation with 68% supporting offline assessments. About 62% of respondents feel that offline classes provide more timely feedback from teachers. Nearly 59% believe that transparency in grading is better in offline learning compared to online mode. However, 61% of students find online mode more convenient from submitting assignments highlighting the ease of digital platforms. Despite this convenience 65% express overall satisfaction with assessment methods in offline learning. The findings indicate that while online learning offers ease in submission offline learning is considered more reliable for evaluation and feedback.

Findings

- Learning Preference: 65% of students preferred offline learning for better focus and direct teacher interaction, while 35% favoured online learning for flexibility.
- Understanding and Concentration: Offline classes helped 60% of students achieve higher comprehension and concentration compared to online sessions.
- Engagement and Interaction: 70% of students felt more engaged and participative in offline learning, whereas online classes recorded lower interaction levels (30%).
- Accessibility and Convenience: Online learning was valued for accessibility by 45% of students, but 55% still preferred offline classes for structure and discipline.
- Overall Satisfaction: 67.5% of students reported higher satisfaction with offline learning, highlighting its effectiveness, while 32.5% appreciated online learning for convenience.

Limitations

The study faced certain limitations that may have influenced its outcomes. The sample size was limited to a small group of undergraduate students which restricts the generalization of the results. The research was also geographically limited focusing mainly on students from a particular. Since the data was collected through self-reported questionnaires responses may include personal biases or inaccuracies. Additionally, the study did not observe the long-term impact of online or offline learning on academic performance. Differences in internet access, digital skills and learning environments also affected students' experiences, especially in the online mode.

Suggestions

- ✓ Combine both online and offline learning to utilize the benefits of flexibility, accessibility, and interactive engagement.
- ✓ Provide digital and pedagogical training to teachers so they can effectively manage online platforms and maintain student interaction.
- ✓ Ensure stable internet connectivity, updated devices, and access to digital learning resources for both students and faculty.

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- ✓ Integrate group discussions, live sessions, and collaborative projects into online learning to make it more engaging.
- ✓ Obtain continuous feedback from students to identify challenges, improve teaching quality, and adapt methods to learner needs.

Conclusion

The study concludes that both online and offline learning have unique strengths and limitations but offline learning remains the more effective mode for most undergraduate students. The results show that a majority of respondents prefer offline classes because they promote better engagement, understanding and personal interaction with teachers and peers. Students reported that face-to-face communication enhances motivation, concentration and academic performance. However, online learning has proven valuable for its flexibility, accessibility and convenience especially for students who face geographical or scheduling constraints. Despite these advantages many learners struggled with distractions, limited interaction and technical issues which reduced the overall effectiveness of online classes. In light of these findings, the research suggests adopting a blended learning approach that integrates the best aspects of both methods. By combining the interactive nature of offline education with the flexibility of digital learning institutions can create a more inclusive and effective academic environment. This approach not only enhances student learning outcomes but also prepares them for the increasingly digital future of higher education.

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