



Students Perception and Acceptance of Hybrid Learning after COVID -19

Ankita Sinha

Independent Research, Kolkata, West Bengal

<p>Received: 10.06.2026</p> <p>Accepted: 18.06.2026</p> <p>Published: 09.07.2026</p>	<p>Abstract</p> <p>The COVID -19 pandemic brought significant changes to the education system, which made hybrid learning a common method of teaching and learning. The present study aimed to examine students' perception and acceptance of hybrid learning after COVID-19 among higher secondary school students of North 24 Parganas District, West Bengal. The specific objectives were to study students' perception towards hybrid learning, to assess the level of acceptance, identify the benefits and challenges and determine whether there was any significant difference in perception and acceptance based on gender. The study employed a quantitative survey research design. A sample of 100 students from classes XI and XII was selected through the simple random sampling technique. Data were collected using a structured questionnaire consisting of three sections: A self-structured questionnaire for students' perception and benefit and challenge, adopted Technology Acceptance Model (TAM) questionnaire for acceptance. The original seven-point TAM scale was modified into a five -point Likert scale for the present study. The collected data were analyzed using descriptive and inferential statistics. Mean, standard deviation, and t- test were used for analysis. The findings revealed that students had a positive perception and a high level of acceptance towards hybrid learning. The study also indicated several benefits and challenges towards hybrid learning. Furthermore, the t-test analysis showed no statistically significant difference in students' perceptions and acceptance based on gender. Overall, the study suggests that hybrid learning is a useful and effective approach to education in the post-pandemic period.</p> <p>Keywords: Hybrid learning, Students Perception & Acceptance, Online Learning & Post Covid -19 Education</p>
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Introduction

With the rapid advancement of technology in the last several decades, many aspects of our lives have changed, and dependency on technology has been observed. The education landscape was changed across the world through the outbreak of COVID-19 pandemic. During this pandemic period, all educational institutions were closed and the online mode was one of the modes for learning and teaching. After the pandemic, many of the institution were started a hybrid model, which combines both online and face-to-face teaching and learning methods. This model provides students flexibility and allows students to continue learning through digital platforms as well as classroom interaction.

According to the International Bureau of Education, (2022) defines it as "hybrid modes combine and integrate both face-to-face and remote learning methods in order to broaden and democratize

learning opportunities for all learners, in a way that is tailored to their personal needs and expectations". This "hybridization" of teaching can be achieved in many different ways, such as flipped-classroom settings, by recording traditional in-person lectures or by providing fully online courses and fully in-person sessions with continuous synchronous communication. To make clear the difference between in-person, fully online and hybrid settings we define hybrid teaching as referring solely to the "course modality". We define it as a mode where the lecturer and some participants attend in-person, while some others are enabled to attend synchronously online. This definition is in line with the "Web-enabled face-to-face (F2F)" interaction (Hodges et al., 2020). The hybrid model is one of the most effective learning models (Skill et al, 2002). It is designed for distance education by combining synchronous interactions with online delivery methods to overcome purely online learning short-comings. It provides more real-time communication possibilities, fewer physical meetings, less commute time, and a technology-based learning system that makes the method a proper alternative for non-traditional students or part-time and full-time working students (Tabor, et al., 2007)

In the post-pandemic world, understanding student perceptions and acceptance of online versus On-Campus Learning (OCL) is crucial for shaping future educational strategies, particularly with the rise of Artificial Intelligence (AI) and new teaching methods. Research during the pandemic highlighted both the benefits and drawbacks of online and hybrid learning environments (Almahasees et al., 2021; Banihashem et al., 2023; Hammoudi Halat et al., 2022; Hollister et al., 2022; Topping, 2023). Perception means how students feel and think about hybrid learning and acceptance of hybrid learning means how students willing to use and support this mode.

Online learning is delivered through Internet or web-based mediums (Moore et al., 2010; Ryan & Young, 2015; Lee, 2017). Before the COVID-19 pandemic, Online Learning (OLL) was mainly a niche sector, serving remote learners or those looking for additional skills. It was recognized for its flexibility and accessibility, but broader adoption was hindered by skepticism and technological barriers (Callaghan et al., 2018). Online learning has become more popular as it is economically, technologically, and operationally more feasible. Compared with mainstream education, e-learning requires minimal resources, is open to large numbers of students given their geographical dispersion, and can be easily implemented with the ubiquity of IT. In view of these advantages, e-learning has now become increasingly important as the only feasible option for providing education during the COVID-19 pandemic (Weerathunga et al., 2021).

The pandemic changed this, making online education central as institutions worldwide transitioned to digital platforms to continue education (Drachsler et al., 2021). After COVID-19 pandemic, the education system was developed with the advancement of technology. When the schools, colleges, and universities were reopened, they used the modern teaching and learning techniques with the help of online learning and a hybrid learning model. The education focuses on flexibility, technology-based learning, students engagement for maintaining the continuity of education system.

Although several studies have examined online and hybrid learning during and after the COVID-19 pandemic, most have focused on university and college students. Limited research has explored students' perception and acceptance of hybrid learning among Higher Secondary School students, particularly in the North 24 Parganas district, West Bengal. Few studies have simultaneously investigated students' perception, acceptance and benefits and challenges of hybrid learning after

COVID-19. Therefore, the study aims to examine students' perception and acceptance of hybrid learning after COVID -19 among Higher Secondary School Students in North 24 Parganas district, West Bengal. The study also seeks to identify the benefits and challenges associated with hybrid learning and to determine whether students' perceptions and acceptance differ based on gender.

Review of related literature

In the Indian and abroad context, numerous studies have investigated to explore the students' perception and acceptance of hybrid learning after Covid -19. Marković et al. (2021) investigated students' experiences and acceptance of emergency online learning due to COVID-19. The study determines that the results of the quantitative analysis show that the statistically significant difference with respect to students' attitudes towards various aspects of the realised online teaching can be found when these variables were considered: year of study, the year of birth and the average grade during the studies.

With regard to the qualitative analysis, the quality of online teaching was at a satisfactory level. Usmani (2021) examines the "COVID-19 Pandemic and Blended Learning: A Quantitative Assessment of Revised Community of Inquiry (RCoI) Framework". The study investigated that technology reduces the cognitive presence of students and their learning. They are less involved in critical thinking and problem-solving. Alfiras et al. (2021) examine "Students' Perceptions of Hybrid Classes in the Context of Gulf University: An Analytical Study". The results show that students' awareness of accessing online resources through hybrid classes, students' readiness to adopt hybrid classes, and teachers' efficiency in delivering a remarkable learning experience are the key factors in the success of the hybrid learning model. The results also indicate the importance of an advanced Learning Management System (LMS) and the emotional connection of the students with their instructors and their classmates in adding value to the effective learning experience of the participants. Ntim et al. (2021) examined "Post COVID-19 and the Potential of Blended Learning in Higher Institutions: Exploring Students and Lecturers' Perspectives on Learning Outcomes in Blended Learning". The findings did not entirely dismiss the traditional face-to-face teaching; nevertheless, the results strongly suggest that blending face-to-face teaching with online teaching offers tremendous potential for inquiry-based and constructivist learning more than the traditional classroom face-to-face teaching alone. Additionally, blended learning (BL) creates both cohesive and effective learning environments, overcoming geographical and physical barriers of traditional classroom teaching to promote self-paced critical learning among students, especially in institutions of higher learning. Weerathunga et al. (2021) examined "The COVID-19 Pandemic and the Acceptance of E-Learning among University Students: The Role of Precipitating Events". The findings of this study highlighted that although behavioural intention was crucial for e-learning usage, the actual usage of e-learning seemed to be determined by many factors unaccounted for by the extant behavioural and acceptance models. Torio et al. (2023) examine, "Paving the Way for Hybrid Teaching in Higher Education: Lessons from Students' Perceptions and Acceptance of Different Teaching Modes during and after the Pandemic". Results show a high student's acceptance and suitability of the proposed teaching method as compared to online and traditional face-to-face teaching modes. Awaludin et al. (2023) investigated "Exploring University Students' Perspectives on Hybrid Learning within the Context of Post Covid-19 in ESL Classrooms". The findings revealed that the students showed positive perceptions regarding hybrid

learning in pedagogical and social aspects. Nevertheless, negative perceptions were found in the technical aspects relating to students' concentration in deeper learning and students' difficulties in learning English during hybrid learning. Fatimawati et al. (2023) examined "Here we go again": unfolding HE students' hybrid experience and resilience during post-COVID times". This mixed-methods study of 246 students from six HEs in Malaysia found that hybrid learning (HL) was associated with positive student experiences, high satisfaction, self-efficacy, and engagement, which was attributed to students' efficacy with online learning during the pandemic and the flexibility afforded by HL, highlighting the need for pedagogy that supports engagement and builds resilience in the post-pandemic setting HE.

Tlais et al. (2024) examined "Post-COVID student preferences: Shaping higher education's future". The findings indicate that both logistical considerations and perceptions of educational quality play critical roles in shaping students' learning preferences. While OLL was favoured for its flexibility and accessibility, OCL was preferred for its interactive and practical engagement opportunities. By advocating for hybrid learning models that combine the strengths of both modalities, this study supports the advancement of Sustainable Development Goals (SDGs) 3 and 4, promoting well-being and quality education. Goto and Toit (2025) examine "University Students' Acceptance of Hybrid Learning at a South African University". The results informed e-learning practitioners on designing effective hybrid learning environments in infrastructure-constrained environments where there are unreliable connectivity issues and power outages, to enhance student satisfaction and success. Alsalhi et al. (2026) examined "Blended learning after the COVID-19 pandemic: Undergraduate students' perspectives on the application of blended learning in higher education". The study contributes to ongoing debates about factors influencing blended student satisfaction. As a result, BL programs should consider gender, discipline, and academic year during the design and implementation process to maximize student satisfaction and learning outcomes.

Objectives

- 1) To study students' perception towards hybrid learning after COVID -19.
- 2) To examine the level of acceptance of hybrid learning among students.
- 3) To identify the benefits and challenges experienced by students in hybrid learning.
- 4) To compare students' perception and acceptance of hybrid learning based on gender.

Research Question

RQ1: What are students' perceptions towards hybrid learning after COVID -19?

RQ2: What is the level of acceptance of hybrid learning among students?

RQ3: What benefits and challenges do students experience in hybrid learning?

Hypothesis

Ho1: There is no significant difference in students' perception and acceptance of hybrid learning based on gender.

Methodology

This study employed a quantitative approach, employing a descriptive-comparative survey

research design to investigate students' perception and acceptance of hybrid learning after COVID-19. The population of the study consisted of Higher Secondary School students from the North 24 Parganas district, West Bengal. Using the simple random sampling technique, data were collected from 100 students of class (XI-XII) in the West Bengal Board high school. Data were collected through a structured questionnaire consisting of three sections. The first section which measured students perception of hybrid learning, the second section was adopted from Technology Acceptance Model (TAM) developed by Davis (1989), since the original TAM instrument uses a seven-point Likert scale, it was modified into a five point Likert scale to facilitate ease of response and suit the context of the present study and the third section measures the benefit and challenges of hybrid learning was made by the researcher. To establish the content validity of the instrument, the questionnaire was reviewed by five teacher educators from a B.Ed. college. They examined the clarity, relevance, and suitability of the questionnaire items in relation to the objectives of the study. Based on their suggestions, minor modifications were made before the final administration of the questionnaire. The questionnaire was distributed in printed form. The collected data were analysed by using descriptive and inferential statistics. Mean and standard deviation were used to answer the research questions regarding students' perceptions, levels of acceptance, and the benefits and challenges experienced in hybrid learning. An independent samples t-test was employed to examine the differences in students' perception and acceptance based on gender. The results were presented in tables for easy interpretation.

Result & Interpretation

Table 1: Interpretation of Mean Score for the level of Perception and Acceptance towards Hybrid Learning After COVID -19:

MEAN SCORE RANGE	INTERPRETATION
1.00-2.33	Low
2.34-3.67	Moderate
3.68-5.00	High

RQ1: What are students' perception towards hybrid learning after COVID -19?

Table 2: Students' Level of Perception Toward Hybrid Learning After COVID-19.

SERIAL NO.	STATEMENT	MEAN	STANDARD DEVIATION (S.D)	LEVEL OF PERCEPTION
1	Hybrid learning provides flexibility in education.	4.06	0.6	High
2	Hybrid learning improves communication with teacher.	3.6	1.05	Moderate
3	Hybrid learning helps balance online and offline	4.13	08.2	High

	learning.			
4	Hybrid learning increases students engagement in learning activities.	3.59	1.15	Moderate
5	Internet problems affect my learning in hybrid classes	3.69	0.9	High
6	Lack of face-to-face interaction affects my understanding.	2.56	1.15	Moderate
7	Hybrid learning supports independent learning.	3.79	1	High
8	I have a positive perception towards hybrid learning.	3.96	0.83	High
	Overall Mean	3.66	----	Moderate

Table 2 shows the students' level of perception toward hybrid learning after COVID- 19. The findings reveal that the overall mean score was 3.66, indicating a moderate level of perception among the respondents. Among the eight statements "Hybrid learning helps balance online and offline learning" obtained the highest mean score (M= 4.13, SD 0.82), similarly "Hybrid learning provides flexibility in education"(M=4.06, SD=0.60), "I have a positive perception towards hybrid learning"(M=3.96, SD=0.83), indicating a high level of perception, Hybrid learning supports independent learning(M=3.79, SD =1.00)," Internet problems affect my learning in hybrid classes(M=3.69, SD=0.90) were also rated at a high level of perception

On the other hand, "Hybrid learning improves communication with teacher (M=3.60, SD= 1.05)," Hybrid learning increases my productivity in studies" (M=3.59, SD =1.15), "Lack of face-to-face interaction affects my understanding" (M=2.56, SD=1.15),

The findings indicate that the overall mean score of 3.66 indicates that students have a moderate level of perception toward hybrid learning after COVID-19. This suggests that students generally perceive hybrid learning positively, although certain aspects require further improvement.

RQ2 : What is the level of acceptance of hybrid learning among students?

Table 3: Students' Level Of Acceptance Toward Hybrid Learning After COVID-19.

SERIAL NO.	STATEMENT	MEAN	STANDARD DEVIATION (S.D)	LEVEL OF ACCEPTANCE
1	Hybrid learning	4.08	0.86	High

	improves my academic performance.			
2	Hybrid learning helps me complete academic tasks more effectively.	3.74	0.71	High
3	Hybrid learning increases my productivity in studies.	3.59	0.65	Moderate
4	Hybrid learning is useful for my learning process	3.57	0.82	Moderate
5	Hybrid learning platforms are easy to use	3.13	1.01	Moderate
6	It is easy for me to participate in hybrid classes	3.13	1.01	Moderate
7	I can easily access learning materials in hybrid learning.	3.79	0.83	High
8	Learning through hybrid mode does not require much effort.	4.40	0.58	High
9	I am willing to continue using hybrid learning in future .	3.91	0.77	High
10	I prefer hybrid learning along with classroom learning .	4.02	0.69	High
11	I would recommend hybrid learning to other students	4.06	0.68	High
12	Overall, I accept hybrid learning as an effective learning method.	4.14	0.61	High

	Overall Mean	3.79		High
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Table 3 shows the level of acceptance towards hybrid learning after COVID-19. The overall mean score 3.79 indicates a high level of acceptance among the respondents. The statement “Learning through hybrid mode does not require much effort.” obtained the highest mean score (M=4.40, SD=0.58). “Overall, I accept hybrid learning as an effective learning method” (M=4.14, SD= 0.61) and “Hybrid learning improves my academic performance” (Mean= 4.08, SD =0.86), reflecting a high level of acceptance.

However, the statements “ Hybrid learning platforms are easy to use” and “ It is easy for me to participate in hybrid classes” obtained comparatively lower mean (M=3.13, SD=1.01), indicating a moderate level of acceptance.

Overall, the findings indicate that students highly accepted hybrid learning as an effective mode of education after COVID-19.

RQ3: What benefits and challenges do students experience in hybrid learning?

TABLE 4: Benefits and Challenges Experienced By Students In Hybrid Learning After COVID-19:

SERIAL NO.	STATEMENT	MEAN	RANK
1	Hybrid learning allows me to learn at my own pace.	4.21	I
2	Hybrid learning provides flexibility in learning.	3.81	II
3	Hybrid learning helps me manage my study time effectively	3.78	III
4	Hybrid learning helps students improve their digital skills.	3.58	IV
5	Hybrid learning gives easy access to study materials	3.32	V
6	Technical problems often interrupt hybrid classes.	2.97	VI
7	Poor internet connectivity affects my learning experience.	2.87	VII
8	Lack of face-to-face interaction reduces my learning engagement.	2.35	VIII

Table 4 presents the benefits and challenges experienced by students in hybrid learning after COVID- 19. “Hybrid learning allows me to learn at my own pace” (M =4.21) was ranked first, reveals that it was the most prominent aspect perceived by the students. “Hybrid learning provides flexibility in learning” (M = 3.81), similarly “Hybrid learning helps me manage my study time

effectively” (M=3.78), which were ranked second and third. “Hybrid learning helps students improve their digital skills” (M=3.58) ranked fourth, “Hybrid learning gives easy access to study materials” (M= 3.32) occupied ranked fifth.

In contrast, the three statements were, “Technical problems often interrupt hybrid classes” (M =2.97), “Poor internet connectivity affects my learning experience” (M = 2.87), and “Lack of face-

Students Perception and Acceptance	N	MEAN	SD	MEAN DIFFERENCE	T.VALU E	CRITICA L T	P. VALU E	REMAR KS
Boys	50	102.12	6.39	0.98	0.84	1.66	0.398	Not Significant
Girls	50	101.14	5.08					

to-face interaction reduces my learning engagement” (M=2.35), which were ranked sixth, seventh, and eighth, indicating comparatively lower levels.

Overall, the findings suggest that students experienced both notable benefits and certain challenges in the implementation of hybrid learning.

Ho1: There is no significant difference in students perception and acceptance of hybrid learning based on gender.

TABLE - 6: Students' Perception and Acceptance of Hybrid Learning Based on Gender.

An independent samples t-test was conducted to determine a statistically significant difference in students' perception and acceptance of hybrid learning between Boys and Girls respondents. The results showed that Boys (M = 102.12, SD = 6.39) and Girls (M = 101.14, SD = 5.08) had similar mean scores, with a mean difference of only 0.98.

The calculated t-value of 0.84 is less than the critical t-value (2.009 for a two-tailed test), and the p-value of 0.398 is greater than the significance level $\alpha = 0.05$. Hence, the null hypothesis (Ho4) is accepted, indicating that there is no statistically significant difference in students' perception and acceptance between boys and girls.

The findings of the study show that there is no significant difference in students' perception and acceptance between boys and girls. Both boys and girls students have similar perceptions and levels of acceptance toward the use of hybrid learning after COVID -19.

Conclusion

The study examined students' perception and acceptance of hybrid learning after COVID- 19 among higher secondary school students of North 24 Parganas district, West Bengal.. The findings of the study indicated that students generally contains positive perception and high level of acceptance towards hybrid learning. The result also finds that hybrid learning offers several benefits, although some challenges. Furthermore, in addition, the independent samples t-test showed no statistically significant difference in students 'perception and acceptance based on

gender($p > 0.05$), suggesting that both boys and girls share similar views regarding hybrid learning. Overall, the study highlights that hybrid learning is an effective and useful method of teaching and learning in the post-pandemic educational landscape.

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