Students' Satisfaction with Remote Learning During the COVID-19 Pandemic : Insights for Policymakers

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Abstract

Purpose : This study aimed to learn more about the factors influencing student happiness and involvement in remote learning in Indian higher education institutions (HEIs). The study aims to assist administrators, strategists, and politicians in efficiently dealing with education's new normal.

Methodology : The study used a quantitative research approach to fulfill the research aims. A sample of 546 students from various Indian HEIs was chosen, and data were gathered using standardized questionnaires. Structural equation modeling, confirmatory factor analysis, and importance-performance analysis (IPA) were used to calculate the student satisfaction index and examine the impact of various factors.

Findings : The findings of this study revealed that institutional and faculty support emerged as the most influential factor impacting students' satisfaction through remote learning. It also highlighted the need for HEIs to redesign the assessment process and evaluation techniques to adapt to the remote learning environment.

Practical Implications : The findings of this study indicated the practical consequences for administrators, strategists, and policymakers at Indian HEIs. It was advised that improving institutional and teacher support should be a major concern in order to improve student happiness in remote learning situations. Furthermore, redesigning assessment procedures and evaluation processes may improve learning outcomes and student engagement.

Originality : This study contributed to the existing body of knowledge by specifically investigating the factors influencing student satisfaction in remote learning within Indian HEIs. The findings shed light on the unique challenges and opportunities the shift to remote education presented. They offered valuable insights for managing and improving the quality of education during and beyond the pandemic.

Keywords : **remote learning, student satisfaction index (SSI), higher education institutions (HEIs), student engagement, COVID-19, importance-performance analysis (IPA), new normal, C-19 research**

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The COVID-19 pandemic has affected the world economy since the early 2020s. Though it surfaced in December 2019, the World Health Organization declared it a global health emergency in March 2020 (World Health Organization, 2020). Following the outbreak in Wuhan, China (Gautam & Hens, 2020), the first case of COVID-19 was reported on January 27, 2020, in Kerala, India (Andrews et al., 2020). After that, new cases were reported in other Indian cities, including New Delhi, Mumbai, Hyderabad, Bengaluru, Patna, and others. Because this coronavirus causes severe acute respiratory syndrome, a 21-day lockdown was declared on March 24, 2020, to break the chain of infection. However, because it was difficult to contain the virus, the lockdown in India was extended until May 31, 2020 (Soni, 2021). The multiple lockdowns severely impacted all sectors of the Indian economy, and the higher education industry was no exception. The extreme measures of lockdown implemented by the Indian government occasionally forced higher education institutions (HEIs) to suspend their face-to-face teaching activities and swiftly adapt to remote learning. The challenges faced by the Indian education system during the sudden shift to online learning due to COVID-19 highlighted issues such as student enrolment, infrastructure, privacy, and teacher technical knowledge. It emphasized the need for preparedness and suggested implementing the findings to adapt to future uncertainties effectively (Arun Kumar, 2021). In this study, remote learning denotes all types of content delivery for teaching and learning activities that depend on information communication technologies (ICTs) during the pandemic. Despite all technological advancements in the education sector, several issues were encountered in this quick transition as academics and students were not prepared or trained to deal with this sort of emergency (Ahmed & Opoku, 2022; Keržič et al., 2021). The concept of working from home for academics and students embracing a digital climate for teaching and learning activities undoubtedly triggered many new methods in remote learning and assessment practices.

Nevertheless, the effectiveness and learning quality is still a matter of concern. Unlike in online learning, where the content and pedagogy are designed for online delivery, and the expectations from an online classroom are clear for students, remote learning poses numerous challenges like the availability of technological devices, access to teaching materials, and stable internet connection in an emerging economy like India (Gopal et al., 2021). Even though many Indian HEIs have quickly implemented digital technologies and learning management systems, as well as shifted to online platforms to facilitate remote learning, the process of teaching and learning has been challenging, as many institutions were exploring innovative approaches to finish their curriculum according to the academic calendar (Muthuprasad et al., 2021). This research is much more pertinent in India as remote learning was never conducted on such a massive scale as a social experiment. The unprecedented shift from traditional on-campus learning to nontraditional remote learning due to the pandemic meant that students did not know what to expect (Chen et al., 2020). As a result, to enhance their satisfaction, it is important to study their remote learning experience. In the digital age, e-learning in the higher education sector emphasizes its role in providing flexibility and accessibility for learners, adapting to technological changes, and enhancing competitiveness on a global scale (Aggarwal, 2017). The usage of digital technologies has become a new learning norm after the recent pandemic.

While many studies have been published to aid HEIs with online learning strategies (Muljana & Luo, 2019), there is a shortage of research concerning students' satisfaction with remote learning and importance-performance analysis (IPA) to frame guidelines. Therefore, it is essential to understand the factors influencing students' satisfaction for greater student engagement through remote learning to inform HEI policymakers to develop management strategies in higher education. This study, therefore, asks key questions like:

- What was the overall student experience with remote learning within higher education in India during the pandemic, and how did their satisfaction levels compare to traditional on-campus learning?
- How can IPA be utilized to understand the factors influencing students' satisfaction with remote learning?

↳ Based on these findings, what guidelines can be framed to enhance student engagement and inform higher education policymakers' management strategies?

Review and Conceptual Model

Most studies related to the impact of COVID-19 on HEIs are observed in India, China, European Union nations, the United States of America, and African countries. Some studies were based on qualitative factors, while many considered meta-analysis of literature in this area as their methodology. Case studies are also a frequently used approach observed during the literature review process. Among the quantitative and qualitative studies done in India, none has focused on measuring the student satisfaction index (SSI) on remote learning. This paper focuses on identifying the factors influencing student satisfaction and measuring the SSI on remote learning during the pandemic-induced closure of HEIs in India and the consequent shift to online plus remote learning models.

Students' Satisfaction

Accessibility, ease of learning, and interaction on the online platform are crucial for student satisfaction from online learning through remote access (Adedoyin & Soykan, 2023; Selvanathan et al., 2023). The success of any higher education model is based on student satisfaction, be it face-to-face or remote learning (Bayham & Fenichel, 2020). It is the most critical factor in determining student interest and interaction in the context of learning. Online education has sharply increased the student dropout rate in HEIs (Potra et al., 2021). Studies show no difference in students' academic grades during online and offline assessments (El Said, 2021). However, students lack a support system like regular mentoring and counseling by faculty. They also lack interaction between fellow students, alums, and peers, which usually develop positive attitudes. This sudden shift in the learning process has increased anxiety among students about their learning, assessment, and future (Schmits et al., 2021).

Institutional and Faculty Support

Institutions and faculty support are essential for developing learners' skills in any educational platform. Face-to-face interaction among students and faculty is an excellent source of learning and mutual knowledge enhancement (Moore, 1989). Further, it also helps fulfill the needs and expectations of students from institutions and faculty (Baker, 2010). Institutions play a vital role in supporting the teaching fraternity in enhancing their quality and effectiveness. Therefore, the quality of education depends on the institution and faculty support (Fatoni et al., 2020). As the pandemic spread, administrators of various countries declared a stay-at-home (complete/partial lockdown) policy. Educational institutions had to shift to remote learning and assessment practices, a new experience for most students and faculty. To fill this gap, many institutions provided training and support to stakeholders.

Nevertheless, some students and faculty could not develop confidence in teaching and learning with this instant training (Tartavulea et al., 2020). Providing feedback is a crucial aspect of teaching that motivates and builds learner confidence. Unfortunately, quick feedback was missing in the remote learning environment. For HEIs to thrive, a continuous focus on innovation is essential. Embracing innovative approaches and practices is the key to achieving success in higher education's dynamic and ever-evolving landscape (Chandel & Kaur, 2023).

Assessment Process

In a remote learning environment, faculty and students require more time to prepare for assessments than for

offline assessments. Students have limited time and access to online learning resources as they participate in household chores to support family members during the pandemic. This made preparing and performing well in daily asynchronous activities and online assessments challenging, which increased students' stress levels (Fatoni et al., 2020). Some studies suggest that students were more comfortable with formative assessments before the pandemic during on-campus classes (Tartavulea et al., 2020). According to research on course instructors in Algeria, rich digital resources and ICT support are required to perform online evaluations (Hadjeris, 2021) successfully. As suggested by students and professors of HEIs in Saudi Arabia, they need to rethink the measurement style of students' academic performance and develop its infrastructure for remote assessments (Alshaikh et al., 2021). Researchers have identified that students have a serious concern regarding the validity, relevance, and benefit of online assessments as it has abruptly increased and changed their shape to continuous assessment, with more application-based questions that emphasize written work instead of laboratory, workshop, or hands-on experiential tools of assessment that were used previously (Ho et al., 2021).

Resource Accessibility

According to a study on students' experiences with online education in Poland, despite the convenience of attending classes from their homes during remote learning, students would prefer traditional, on-campus instruction (Rizun & Strzelecki, 2020). Face-to-face interaction allows practical discussion with faculty and facilitates peer learning. Access to the brick-and-mortar library is preferred by students instead of online learning resources (Arora & Srinivasan, 2020). However, students react differently to online education. It depends a lot on online tools and facilities (speed of internet available), accessibility, course instructors' involvement and innovation in online teaching, and students' existing technical abilities (Butnaru et al., 2021).

Interestingly, previous research indicated that COVID-19 played a role in bridging the rural-urban digital divide in India to some extent, particularly in terms of access to the Internet (Indu et al., 2022). In the Antipodean region, remote learning was very different from previous learning tools, and students found it easy and flexible as it can be accessed from anywhere at any time (Sujarwo et al., 2020). Furthermore, this pandemic made academic stakeholders realize the importance of various platforms for connecting with a larger community of education providers and receivers. Many educational institutions asked their faculty to connect with students as they abruptly closed their campuses at the beginning of 2020. Faculty and students found social media as a support system to deal with academic anxiety, doubts, and concerns and share their good and bad experiences and learnings with people across the globe (Sobaih et al., 2020). Various social media platforms also allow learners to select the educational institution, program, and course of their choice and learn at their own pace, with a fluid environment and seamless geographical boundaries at a very affordable price. This will raise the demand for digital education in the future (Zawacki-Richter, 2021).

The success of remote learning is also determined by the availability and use of technology such as Moodle (Learning Management System), Webex, Zoom, Microsoft Teams, Google Classroom, and Google Hangouts. HEIs use these platforms. Some institutions have provided lectures with audio or video screen-sharing capabilities (Klašnja-Milićević et al., 2011). Technology is crucial in institutional policies and strategies for tremendous success in research translation and technology transfer. The world is moving towards technology, which is very important for the success of the higher education system to upgrade their teaching–learning process and align them with industry expectations (Kanojia et al., 2022). Therefore, accessibility through technology and connecting people with social media play a pivotal role in remote learning.

Difficulty in Remote Learning

Some studies also indicate that students did not find online learning effective, although they found it intuitive

(Rizun & Strzelecki, 2020). While using specific software and digital technology, even tech-savvy students encountered difficulties during remote learning. Therefore, students were reluctant to accept the idea of writing examinations through online platforms (Bao, 2020). This has led to the development of hostile behavior in students. Many HEIs have also observed a higher dropout rate due to the difficulties anticipated by the student community (Schmits et al., 2021).

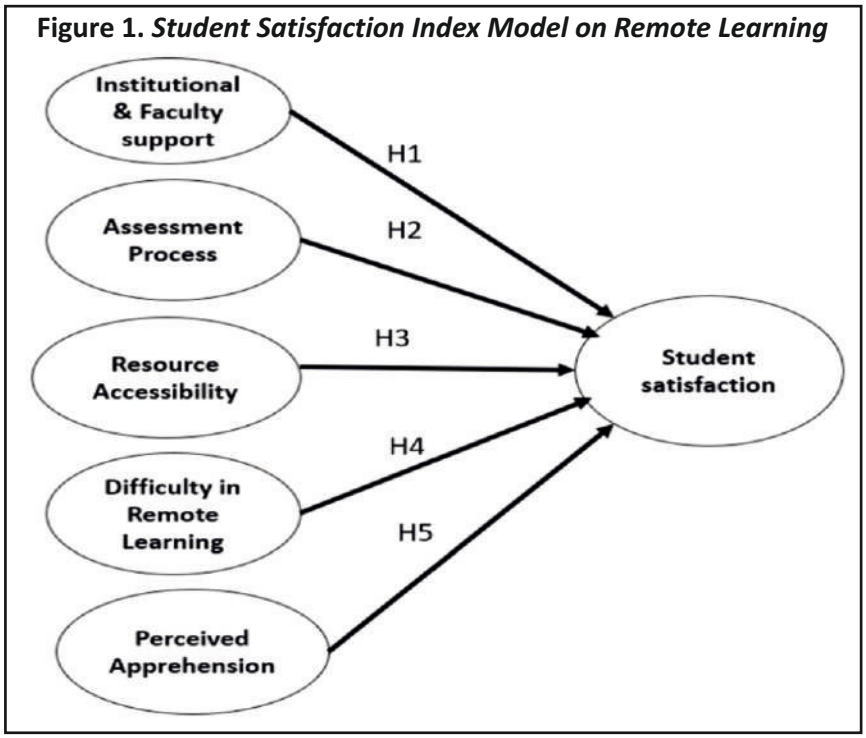
Perceived Apprehension

Studies reveal that COVID-19 has increased the anxiety level of students. Also, females worry more about their academic performance than their male counterparts. Students doing Bachelor's and Master's have been reported to have high anxiety due to remote learning and assessments conducted in different countries (Schmits et al., 2021). A study on the well-being of students conducted among domestic and international students in Australia advocated that anxiety for the future was higher among undergraduate than postgraduate students (Dodd et al., 2021). Many studies investigated the relationship between stress, anxiety, and depression (Slavich & Irwin, 2014) due to the rapid spread of COVID-19. Students witnessed a paradigm shift in the mode of education. Moreover, they were afraid and anxious due to the health and security of themselves and their family members, which further increased their stress levels, which may have led to depression in a few students (Rodríguez-Hidalgo et al., 2020). Financial burdens and uncertainty in the market led to anxiety and depression among the students, as most were unsure about their academic progression's future (Arun Kumar, 2023; Sujarwo et al., 2020).

Student Satisfaction Index Model for Remote Learning

Based on the above literature review, it was observed that students' satisfaction with remote learning depends on five crucial variables. Figure 1 shows the conceptual model of this study. Perceived apprehension, institutional

Figure 1. ***Student Satisfaction Index Model on Remote Learning***



and faculty support, assessment process, resource accessibility, and difficulty in remote learning are the independent variables, and students' satisfaction is the dependent variable.

Methodology and Data

This study identifies the factors influencing students' satisfaction with remote learning in India. The research design was empirical and quantitative, with deductive logical reasoning. First, a structured questionnaire with questions/items was designed and tested with sample respondents to check the relevance of the questions in alignment with the research objectives. After the necessary modifications, 21 questionnaire items shown in Table 1 are finally selected. All items are measured using a 5-point Likert scale: "1 – *Strongly Disagree* to 5 – *Strongly Agree."*

Data were collected from 546 students through a questionnaire circulated via Google Forms from October 2021 to December 2021. A sample size of 546 can be justified by conducting a power analysis, which considers the specific research design, expected effect size, and other relevant statistical parameters, and it is prevalent in all Social Science and Business Research (Cochran, 1977). Respondents included pre-university (years 11 and 12) students, undergraduates, post-graduates, and Ph.D. scholars from government and private institutions of higher

Table 1. ***Reliability and Item Loadings' Construct of the CFA***

Dimension	Item/Indicators	Loading	CR	CA	AVE
Institutional and	Familiarity with the required technologies *(IFS_1)*	0.730	0.87	0.87	0.62
Faculty Support *(IFS)*	Course tutors' availability *(IFS_2)*	0.801			
	Course tutors' helpfulness *(IFS_3)*	0.838			
	The importance is given to students' suggestions and feedback *(IFS_4)*	0.790			
Assessment Process *(AP)*	Clarity about the assignments *(AP_1)*	0.652	0.79	0.80	0.50
	The course learning outcomes matched with the assessment process *(AP_2)*	0.728			
	Clarity about the evaluation process *(AP_3)*	0.698			
	Assessment and evaluation was effective in learning *(AP_4)*	0.732			
Resource Accessibility *(RA)*	Access to technology *(RA_1)*	0.646	0.80	0.80	0.51
	Access to library resources remotely *(RA_2)*	0.599			
	Participation in live classes (e.g., live lectures or video) *(RA_3)*	0.784			
	Managing time with remote classes and meetings *(RA_4)*	0.792			
Difficulty in Remote	Difficulty in learning remotely vs. face-to-face *(DRL_1)*	0.674	0.74	0.74	0.49
Learning *(DRL)*	Remote learning is less time-consuming than face to face *(DRL_2)*	0.734			
	It is hard to interact with teachers/peers remotely *(DRL_3)*	0.688			
Perceived	Apprehension toward academic performance *(PA_1)*	0.603	0.71	0.71	0.45
Apprehension *(PA)*	Apprehension about delays in getting a degree *(PA_2)*	0.733			
	Apprehension about instructors not providing a recording of the live session *(PA_3)*	0.670			
Students' Satisfaction *(SAT)*	It is better to continue remote teaching by the management *(SAT_1)*	0.802	0.81	0.81	0.58
	Satisfaction with remote learning during COVID-19 *(SAT_2)*	0.768			
	Preference for remote learning post-COVID-19 *(SAT_3)*	0.717			

Note. CR – Composite Reliability, CA – Cronbach's Alpha, AVE – Average Variance Explained.

Table 2. ***Discriminant Validity***

	IFS	*AP*	*RA*	*DRL*	*PA*	*SAT*
IFS	**0.787***					
AP	*0.595*	**0.707***				
RA	*0.535*	*0.589*	**0.714***			
DRL	*0.131*	*–0.039*	*–0.021*	**0.700***		
PA	*0.062*	*–0.098*	*–0.024*	*0.521*	**0.671***	
SAT	*0.641*	*0.595*	*0.524*	*–0.007*	*–0.060*	**0.762***

Note. * Square Root of AVE values are shown in Table 1.

learning in India who had at least one year of remote learning experience due to COVID-19. The following hypotheses are developed based on a survey of the literature :

- **Ha1 :** Higher perceived apprehension results in lesser satisfaction toward remote learning.
- **Ha2 :** Good institutional and faculty support enables greater satisfaction toward remote learning.
- **Ha3 :** Better assessment processes enable greater satisfaction toward remote learning.
- **Ha4 :** Better resource accessibility enables greater satisfaction toward remote learning.
- **Ha5 :** Higher difficulty in remote learning leads to lesser satisfaction in students.

These five hypotheses developed were tested statistically using a measurement (part of structure equation) modeling approach using SPSS AMOS 20.0 software. The IP grid is an effective tool for identifying the improvement priority of various attributes and providing strategic guidance to organizations (Chen & Chen, 2014).

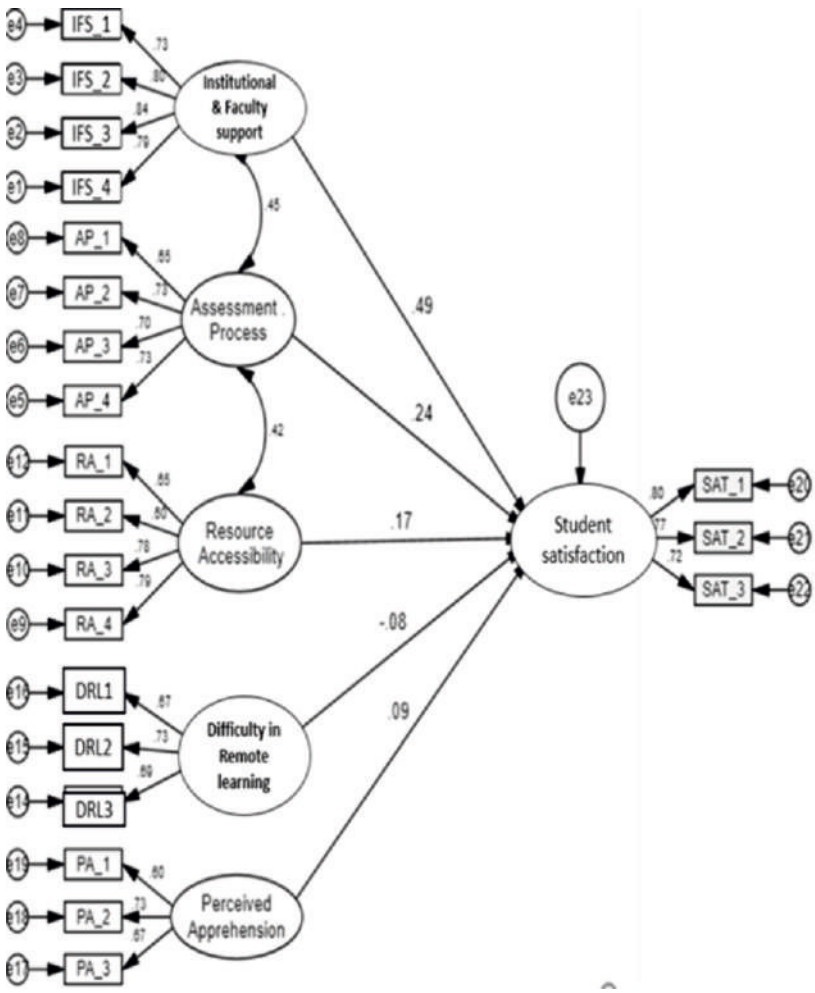
First, the inter-item correlation in Table 2 (given in italics) shows a weak to moderate association. Second, Cronbach's alpha reliability coefficient is calculated to evaluate the questionnaire's psychometric qualities. Cronbach's alpha value ranges from 0 to 1, with a value closer to 1 indicating excellent stability and consistency. However, the cut-off value for basic research is 0.60 (Hazilah Abd Manaf et al., 2012; Nunnally, 1978). The Cronbach's alpha results are depicted in Table 1, indicating the instrument's acceptable consistency and stability. Second, concerning composite reliability, it is observed from Table 1 that all items demonstrate a loading greater than 0.50, clearly validating the convergence. Also, the Cronbach's alpha values of each dimension are above 0.60, more than the accepted value. Similarly, the discriminant validity results are depicted in Table 2, indicating that the five dimensions are independent; thus, the model is free from multicollinearity.

The demographic data reveals some intriguing tendencies. The majority of responders were between the ages of 15 and 19. The male-to-female ratio was 34:66. According to the student's educational level, undergraduates responded the most to the poll at 48.5%, pre-university students at 34.1%, post-graduates at 16.3%, and doctoral scholars at 1.1%. The medium used for formal academic communication that rated highest among the survey respondents was WhatsApp, followed by Google Classroom or Moodle at 81.5% and 74%. The data indicates that 96% of the respondents were less than 25 years of age. The data also shows that 93% of the students used social media for formal academic communication.

Analysis and Results

To test both the SSI model and the related hypotheses proposed in this study, we performed measurement (part of the structural equation) modeling using AMOS 20.0, and the results are depicted in Figure 2 and Table 3.

Figure 2. ***Results of the Measurement Model for Measuring the Students' Satisfaction Index***



Goodness-of-fit results

Fit Indices	Model Value
$\chi 2$	520.603
$\chi 2$/df	2.860
GFI	0.906
RMSEA	0.059
AGFI	0.894
NFI	0.887
CFI	0.923
IFI	0.923
RFI	0.870
PCFI	0.800
PNFI	0.769

Table 3. ***Direct Effect of Students' Satisfaction – Standardized Regression Weights***

Relationships			Estimate	SE	CR	*p*-value
Students' Satisfaction	<---	Institutional and Faculty Support	0.495	0.050	8.842	0.000*
Students' Satisfaction	<---	Assessment Process	0.238	0.067	3.832	0.000*
Students' Satisfaction	<---	Resource Accessibility	0.174	0.051	3.335	0.000*
Students' Satisfaction	<---	Difficulty in Remote Learning	–0.081	0.047	–2.092	0.040*
Students' Satisfaction	<---	Perceived Apprehension	–0.093	0.048	–2.024	0.043*

Note. * Significant at the 5% level.

The results of the analysis indicate that there are significant relationships between different factors and students' satisfaction with remote learning. The *p*-values for faculty support, assessment process, resource accessibility, difficulty of online learning, and perceived apprehension are all less than the significance level of 0.05, meaning that these factors significantly impact students' satisfaction. Specifically, we find that good faculty support leads to greater satisfaction with remote learning, and similarly, better assessment processes and improved resource accessibility also contribute to increased satisfaction. On the other hand, we observe that higher difficulty in learning and perceived apprehension are associated with lesser satisfaction toward remote learning. In conclusion, this study supports the alternative hypotheses (Ha1, Ha2, Ha3, Ha4, and Ha5), indicating that these factors influence students' satisfaction levels in remote learning.

We used the equation (1) to calculate the SSI (Park et al., 2008).

$$Students' Satisfaction Index = \frac{\sum_{i=1}^{n} w_i x_i}{9\sum_{i=1}^{n} w_i} \; x\,100 \qquad (1)$$

where,

w_i = weight of measurement item$_i$,

x_i = is the average value of measurement item$_i$.

Importance-Performance Analysis (IPA)

In IPA, first, the path (regression) coefficient of each dimension or factor influencing the students' satisfaction is considered a relative measure of importance. On the other hand, the SSI formula given in Equation 1 is used to calculate performance. The performance and the importance indices of students' satisfaction factors, thus calculated, are provided in Table 4.

The value of path coefficients for each dimension is shown in Figure 2 and Table 5. For example, the path

Table 4. ***IPA of Students' Satisfaction Factors***

Students' Satisfaction Factors	Importance	Performance
Faculty Support	0.495	40.0
Assessment Process	0.238	40.9
Resource Accessibility	0.174	38.4
Difficulty of Online Learning	0.081	39.2
Perceived Apprehension	0.093	38.8

Note. The values provided under "importance" are the regression coefficients of each satisfaction factor obtained through the measurement model.

Table 5. ***Importance and Performance Index Scores by Item Wise Under Each Dimension***

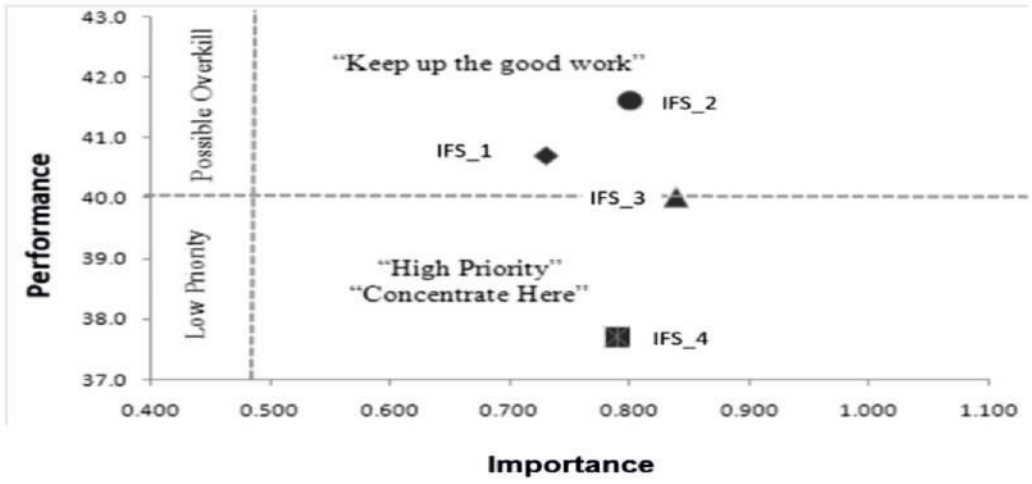
Item	Weight (w_i)	Average (x_i)	$w_i * x_i$	*Performance Score* (SSI)	*Importance Index** Score of Factors
IFS_1	0.730	3.66	2.671	40.7	0.495
IFS_2	0.801	3.74	2.998	41.6	(Institutional and
IFS_3	0.838	3.60	3.016	40.0	Faculty Support)
IFS_4	0.790	3.40	2.682	37.7	

	3.159		11.367	40.0	
AP_1	0.652	3.83	2.497	42.6	0.238
AP_2	0.728	3.51	2.555	39.0	(Assessment Process)
AP_3	0.698	3.77	2.631	41.9	
AP_4	0.732	3.61	2.643	40.1	
	2.810		10.326	40.9	
RA_1	0.646	3.39	2.190	37.7	0.174
RA_2	0.599	3.27	1.959	36.3	(Resource
RA_3	0.784	3.45	2.705	38.3	Accessibility)
RA_4	0.792	3.72	2.946	41.3	
	2.821		9.800	38.4	
DRL_1	0.674	3.62	2.440	40.2	0.081
DRL_2	0.734	3.48	2.554	38.7	(Difficulty in
DRL_3	0.688	3.49	2.401	38.8	Remote Learning)
	2.096		7.395	39.2	
PA_1	0.603	3.63	2.189	40.3	0.093
PA_2	0.733	3.43	2.514	38.1	(Perceived
PA_3	0.670	3.42	2.291	38.0	Apprehension)
	2.006		6.994	38.8	

Note. Average (mean) is the total sum of scores divided by the number of respondents for each item.

* The value shown in column # 2 is the regression path coefficient of each dimension influencing students' satisfaction.

Figure 3. ***Results of IPA on Students' Satisfaction – Institutional and Faculty Support***



coefficient of institutional and faculty support influencing students' satisfaction is 0.495. This value is the relative importance score for the institutional and faculty support factor. Similarly, the path coefficients (from the CFA analysis) for other remaining factors are considered as the relative importance scores.

As per Figure 3, two attributes, IFS_1 and IFS_2, are rated as high on the importance and performance ratings

by the students. Hence, these two items are placed under "Keep up the good work," indicating that the faculties are well-versed in applying technologies. Students believe that faculties are available to help and support them.

On the contrary, IFS_4 is rated high on importance and low on performance, falling under "High Priority." IFS_3 is rated high on importance and moderate on performance. It indicates that institutions and faculties should make more efforts to enhance students' satisfaction by considering the suggestions and feedback put forth by students.

In Figure 4, AP_1 and AP_3 are rated as high on importance and performance ratings by the students and are placed under "Keep up the good work." It reveals that the students have clarity with the assignments and the evaluation process. As a best practice, this should continue in face-to-face and remote mode teaching and learning ; whereas, AP_2 and AP_4 are rated high on importance and low on performance, falling under "High Priority." There is a need to synchronize the course learning outcomes with the assessment process. Students believe that assessments and evaluation techniques are ineffective in successfully achieving the course learning outcomes.

RA_3 and RA_4 are rated as high on importance and high on performance ratings by the students; hence, these two items or features are shown under "Keep up the good work" in Figure 5. Students can save time from traveling

Figure 4. ***Results of IPA on Students' Satisfaction – Assessment Process***

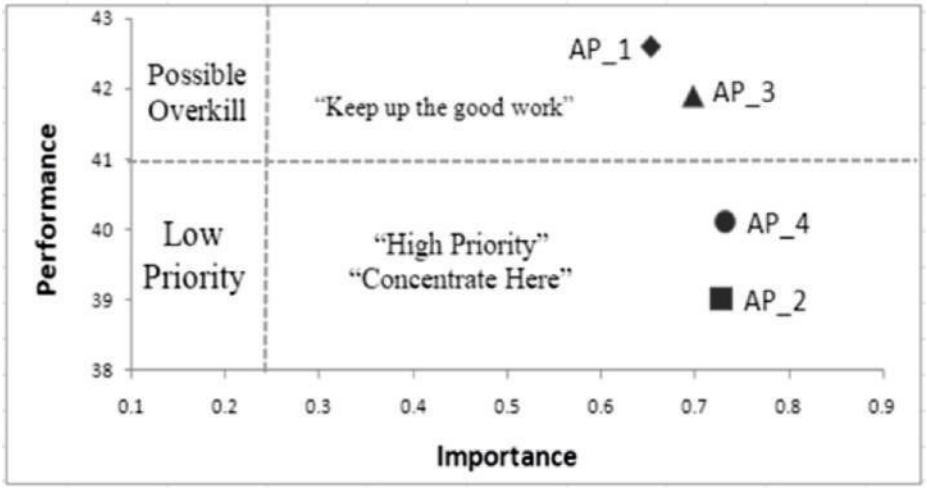
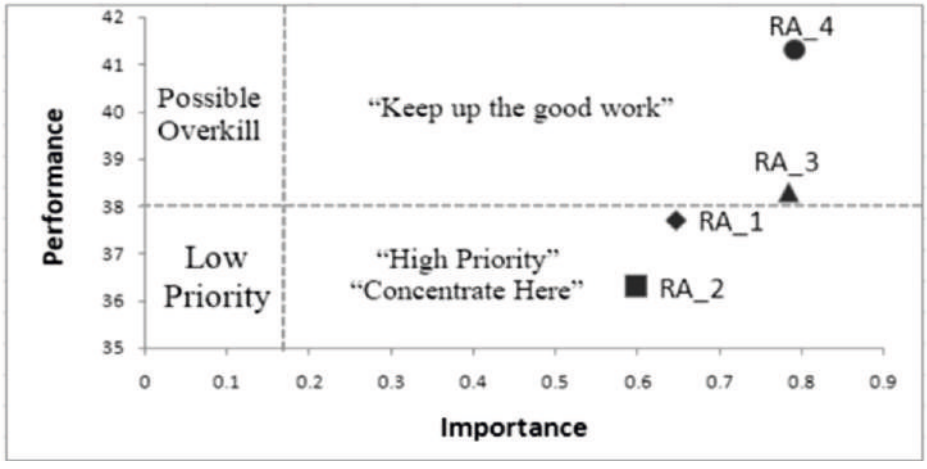


Figure 5. ***Results of IPA on Students' Satisfaction – Resource Accessibility***



to college due to the closure of educational institutions. Therefore, they can attend classes regularly. On the other side, attributes, namely RA_1 and RA_2, are rated high on importance and low on performance and hence fall under "High Priority." There must be an improvement in providing access to library resources remotely for the students to perform well in a challenging environment. Therefore, HEIs must focus on providing adequate training to their faculties and students on using/accessing educational technologies virtually.

In Figure 6, the IPA matrix (four-quadrant grid) results for each item (or attribute) fall under the Difficulty of the online learning dimension. All attributes, namely DRL_1, DRL_2, and DRL_3, are rated high on importance and low on performance and hence fall under "High Priority." It was observed that students found remote learning difficult, time-consuming, and less interactive compared to physical classroom learning.

Students have rated PA_1 as high on importance and performance, so it comes under "Keep up the good work," according to Figure 7. The finding indicates that students are not apprehensive about their academic performance as they can perform and score well in online assessments. However, they have rated PA_2 and PA_3 as high on

Figure 6. ***Results of IPA on Students' Satisfaction – Difficulty in Remote Learning***

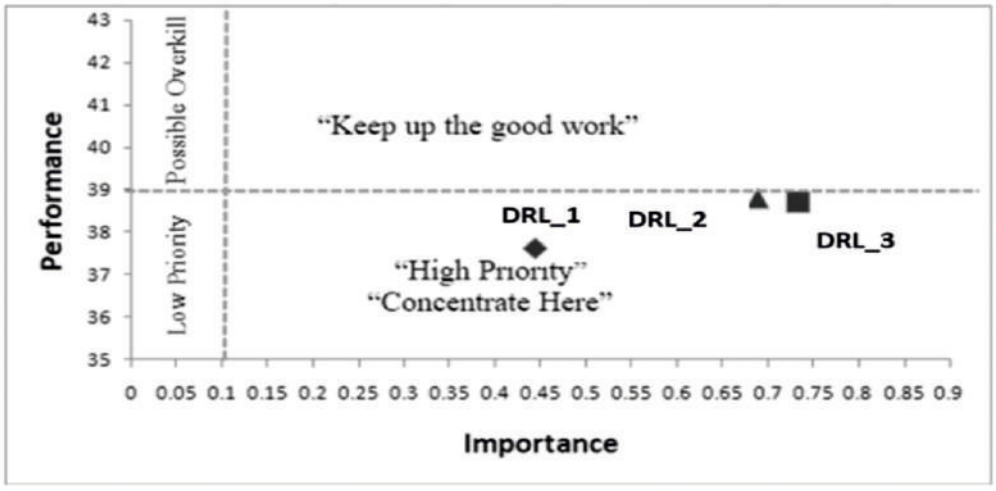
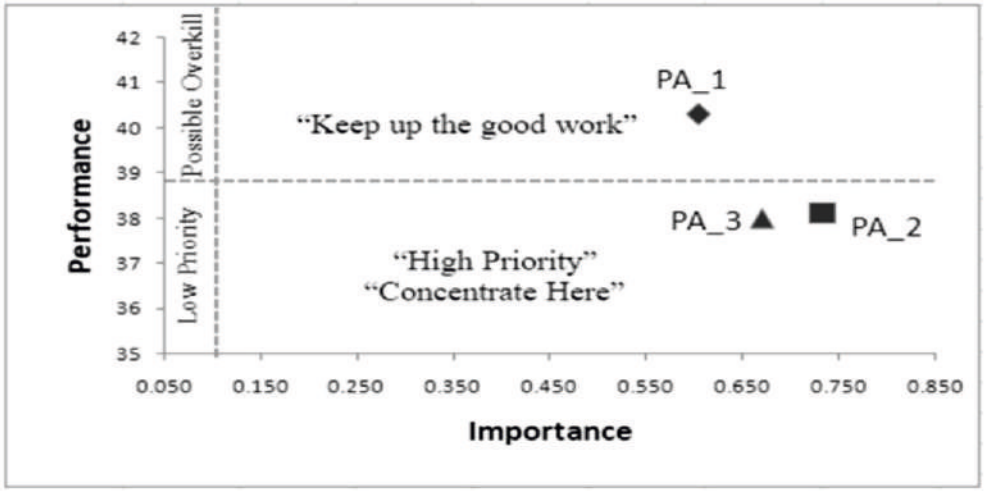


Figure 7. ***Results of IPA on Students' Satisfaction – Perceived Apprehension***



importance and low on performance; hence, they are under "High Priority." The educational institution needs to build confidence among the students about awarding the degree without delay. The management can support and train the faculties to record the live sessions and provide live sessions and other study materials to the students.

Discussion and Conclusion

The long-term consequences of COVID-19 have changed the educational paradigm in an era marked by continual unpredictability. According to the World Health Organization (WHO), there have been 769,806,130 confirmed cases as of August 16, 2023, with 6,955,497 deaths globally (World Health Organization, 2020). As we progress, preserving well-being and ensuring students have great learning experiences is important. In the event of a recurrence of such a crisis, HEIs will again have to adopt remote learning as a mode of instruction. Hence, policymakers need to understand and focus on the factors that can improve students' satisfaction in such unprecedented times. The study aims to measure SSI and identify the key factors that can improve the students' satisfaction with remote learning in India. The findings indicate that good institutional and faculty support increases student satisfaction with remote learning. This study confirms that faculties have developed a trust system with students in a remote learning environment, as students believe that faculties are experts in using technologies. They can support the students who are juggling to cope. HEIs and faculties should continue to guide students in completing the online assessments and keep clarity in the evaluation process so they can overcome the challenges and perform well. Faculties must encourage students to participate more in online discussions and allow them time to interact with peers through synchronous activities. The results reveal that a better assessment process improves students' satisfaction with remote learning. HEIs and faculties should revise their assessment process to match the course learning outcomes in the remote learning scenario. There is a need for innovative assessments and evaluation techniques that will make remote learning more effective in achieving the students' course learning expectations. The findings of this study are crucial for understanding that higher perceived apprehension results in lesser student satisfaction with remote learning.

Therefore, HEIs must focus on mental wellness and offer regular counseling services to faculties and students. For those students who face financial stress due to COVID-19, HEIs could provide basic facilities like fee concession, scholarships, fee payment date extensions, and other technical support on a case-to-case basis. The findings also suggest that better resource accessibility increases student satisfaction with remote learning. Asynchronous materials (videos or reading resources) should be available to students with remote access. The results show that higher difficulty in remote learning leads to lesser satisfaction in students. With the sudden move to remote classes, students are experiencing burnout and frustration, only to be thrust into uncertainty repeatedly. While "normal" isn't here yet, and it may seem challenging to keep going, it is essential to redesign the class activities in remote settings to comfort the students.

Managerial and Theoretical Implications

The study's contribution to higher education literature is manifold. It has established that institutions' and faculties' support improves students' satisfaction and leads to better assessment processes and online resource accessibility. This study is unique because by calculating the index through the SSI model and IPA framework, this study offers higher education policymakers and administrators practical tips to frame guidelines that will result in higher student engagement and better remote learning experiences for the future. National policymakers must provide seamlessly uninterrupted and cost-effective remote learning resources, technology, and internet facilities to promote better remote learning nationwide. HEIs should be more open to accepting the recommendations and feedback given by students. HEIs' administrators and faculties should develop innovative assignment and

evaluation techniques that suit the remote learning environment and match students' course learning expectations. HEIs should provide mental wellness training to students to reduce their exhaustion and anxiety over academic performance during the pandemic. Educational administrators should focus only on awarding the educational degree to students on time and offer job placement assistance to students who complete it on time.

Limitations of the Study and Scope for Further Research

The primary research limitations of this study are time constraints and the lack of accessibility to students and faculties for personal interviews, which could lead to a more in-depth analysis of the research questions. Since the sampling method used in this study is convenience sampling, random sampling may be considered for future research in this area. Future research also could focus more on the faculty's satisfaction and other stakeholders' perspectives to investigate the difficulties with the remote learning environment. Similar studies across the globe/nation with a larger sample size may provide better guidelines for the policymakers for the future of remote learning.

Authors' Contribution

Dr. Sunita Kumar, Dr. Anju Kalluvelil Janardhanan, and Dr. Shivi Khanna conceived the idea, research design, and extracted relevant research papers from online databases. Dr. Sunita Kumar did the data analysis and numerical computations. Dr. Sunita Kumar, Dr. Anju Kalluvelil Janardhanan, Dr. Shivi Khanna, Rini Mary William, and Sayani Saha equally contributed to the data collection and writing of the paper. The proofreading and formatting of the paper were taken care of by Dr. Sunita Kumar, Dr. Anju Kalluvelil Janardhanan, and Dr. Shivi Khanna.

Conflict of Interest

The authors certify that they have no affiliations with or involvement in any organization or entity with any financial interest or non-financial interest in the subject matter or materials discussed in this manuscript.

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