



Management In Edtech Companies Of India With a Critical Analysis Of Current Lacunas and Solutions For It

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1. Introduction

Nowadays, technology and education are inextricably linked, especially after the past pandemic forced people to work and study from home. The education world now is not limited to formal education such as high school or college. Many students and employees seek informal education to help them develop their skills. Education technology firms provide educational services combined with technology to enable online teaching and learning.

This gave rise to the ever-emerging Indian EdTech industry and an upsurge of competitors. Due to this cut-throat competition in the Indian EdTech Industry, especially among the companies in the Job-based skill development domain, it is difficult for an emerging company to create a solid customer base. This can only be achieved by creating a USP for such EdTech companies that helps bridge the gap between the customer demand/expectations and the supply in the current market.

This study aims to develop solutions that will help EdTech companies redefine their marketing mix by understanding the effect of factors on user satisfaction in the current scenario and identifying the critical elements of success for an e-learning platform from the user perspective. Hence, allowing the EdTech companies to increase their traction in admissions.

2. Objectives of the study

2.1 Problem statement

Due to the cut-throat competition in the Indian EdTech Industry, especially among the companies in the Job-based skill development domain, it is difficult for an emerging company to create a solid customer base. This can only be achieved by creating a USP for such EdTech companies that helps bridge the gap between the customer demand/expectations and the supply in the current market.

2.2 Aim

This study aims to develop solutions to help EdTech companies redefine their operation processes, allowing them to increase their traction in admissions.

2.3 Objectives

1. Measuring an individual's satisfaction in using the e-learning platform throughout a course.

2. Examine and identify the factors affecting the success of the e-learning platform from the user perspective.

3. To develop solutions to help bridge the supply and demand gap.

3. Literature review

1. During the pandemic, teachers, lecturers, and students should use technology in learning; one of the technologies is Learning Management System (LMS). Measuring the effect of information quality, technical system quality, service quality, and education system quality on user satisfaction and perceived usefulness allowed (Sandy Anugerah, Measuring Student Satisfaction in Using Learning Management System at , 2022) to understand the areas to work on their weightage.

2. Traditional techniques and classroom teaching and learning methods are no longer sustainable. Changes in consumer demands and new economic frameworks are also challenging businesses. To ensure continuity, business analysts play a vital role in EdTech organizations to adapt to regular changes. (Dutta, Edtech with Perspective of Business Analysis, 2022) Underlining the role of business analysts in EdTech organizations and using Porter's 5-Force Analysis to determine their competitive positioning.

3. The effectiveness of online learning is measured using course content, pedagogical approaches, interactivity and assessment, feedback, and evaluation (Antwi, From Classroom to Online: Comparing the Effectiveness and Student Academic Performance, 2022) by comparing the scenarios of classroom learning and online learning using the Statistical Package for Social Sciences (SPSS) software for the paired-samples t-test.

4. The study (P.F.Rahman, 2021) evaluates the changing nature of the education ecosystem because of the unexpected impetus of EdTech start-ups in India. The study also explores the potential growth opportunities and sustainability of the Edtech start-ups in India. They brought out the critical areas like admission, content aggregation, delivery of the course, and evaluation along with their respective challenges that a student faces, the impact on the ecosystem, and the solutions provided by EdTech to the education sector.

5. The paper (Alam, Possibilities and Challenges of Compounding Artificial Intelligence in , 2020) discusses the implementation of AI in the EdTech industry, especially in the K12 domain, by highlighting the two superior capabilities often discussed AI include: (a) tasks repetitively and automatically done by analyzing and consequently predicting the outcome/s based on data labeled by humans, and (b) enhancement of decision-making abilities of humans by putting in problems, whose answers are sought through algorithm/s developed by human beings.

6. In the case of higher education, the traditional forms of learning and teaching can be innovated by various EdTech approaches ranging from an educational curriculum outside the classroom to a course, program, or degree wholly delivered online. The solid combination comprises four key features: interaction, multimedia, multimodality, and multimodality. (Faustmann, Lemke, Kirchner, & Dagmar, Which factors make digital learning platforms successful?, 2019) The use of 5-point Likert scale questions focuses on many characteristics of digital learning and teaching and their success factors.

7. Regarding e-learning platforms, success factors can be put in different categories and variables. Categories are the instructor's characteristics, the participant's characteristics as a student, the role of technology infrastructure available, the importance of online learning resources, and the role of support & training. Exploratory factor analysis is carried out to

identify the factors considered critical in the success of e-learning using IBM SPSS (Cheriyian, Critical Success Factors for E-learning: An Indian Perspective, 2018).

8. The paper (Sikandar, THE RISE OF EDTECH START-UPS IN INDIA, 2022) discusses the growth of EdTech startups in India post covid scenarios and underlines the importance of the market, funding, revenue model, value chain, and market size and summarising it with the SWOT analysis of EdTech Companies.

9. A report on the ed-tech industry in India by the market research & consumer insights division at Social Beat (Social Beat, 2022).

10. A report on the future of India's \$2 bn edtech opportunity by Inc42 (Inc42, 2021).

4. Data and methodology

4.1 The participants

A convenience sampling survey with a self-administered questionnaire is used to achieve the study's objectives. The undergraduate and postgraduate students of AMITY University, Lucknow, India, were chosen as samples. The responses come from 64 students.

Table 1 exhibits the participants' demographic data regarding age, gender, the academic degree they are pursuing or completed, working experience, industry, and domain of specialization.

		Frequency	Percentage
Gender	Female	32	50.0
	Male	32	50.0
Academic degree	Bachelor degree	28	43.8
	Master's degree	36	56.3
Working experience	No	27	42.2
	Yes	37	57.8
Industry	Education sector	17	26.6
	Manufacturing industry	6	9.4
	Service industry	41	64.1
Domain	Data analytics	23	35.9
	Finance	12	18.8
	Human Resources	8	12.5
	Marketing	7	10.9
	Operations	9	14.1
	Sales	5	7.8
Age	20-22	22	34.4
	23-25	35	54.7
	26-28	7	10.9

4.2 Procedure adopted

Table 1: Demographic data of the participants

A questionnaire was created to collect relevant data from the study population, AMITY University, INDIA. The fundamental of the designed questionnaire was thirty-three five-point Likert scale statements divided into two sections: measuring user satisfaction and critical success factors. There was also categorical questions defined to get an idea of the participants' demographics, as mentioned in the previous section. Many factors affecting user satisfaction with e-learning platforms and several critical success factors for e-learning were identified in the literature and used to develop the questionnaire. For the first part of the study, as shown in Table 2, the variables used were information quality (IQ), service quality (SQ), ease of use (EOU), cost (C), and user satisfaction (US) to measure the significant effect amongst them. Further, each variable has its factor, which helps in accurately measuring them. Table 3 displays the critical success factors classified into four categories: technical support, learning resources, courses offered, and support service.

Variable	Indicator	Factor
Information Quality	IQ1	Availability
	IQ2	Accuracy
	IQ3	Wholeness
	IQ4	Understandability
	IQ5	Usability
Service Quality	SQ1	Availability
	SQ2	Responsiveness
	SQ3	Reliability
Ease Of Use	EOU1	Easy to use
	EOU2	User interaction
	EOU3	Flexibility
Optimised Cost	OC1	Cost-effectiveness
	OC2	Discounts
	OC3	Memberships
User Satisfaction	US1	Experience
	US2	Performance

Table 2: Measuring significant effect of factors on user satisfaction

Variable	Indicator	Factor
Technical Support	TS1	Easy access to high-speed internet
	TS2	Accessibility of online communication tools
	TS3	Accessibility to multimedia technologies
	TS4	Reliability of technical infrastructure, including software and hardware needs
Learning Resources	LR1	Availability of referral material/notes along with the course
	LR2	Interaction about the course content through forums

	LR3	Adequacy of online test/quizzes and assignments
	LR4	Ability to measure the progress of learning
	LR5	Having a personalized learning experience based on individual goals and routines
Course offered	CO1	Availability of courses driven by upcoming industrial needs
	CO2	Availability of domain-specific courses
	CO3	Availability of inter-disciplinary courses
	CO4	Availability of course packages predesigned to acquire specific skill sets
	CO5	Availability of courses affiliated with renowned organizations along with certifications
Support Service	SS1	Availability of offline technical support
	SS2	Openness and sociability of the support team
	SS3	Accessibility to the online help desk

Table 3:Critical success factors

5. Analysis and discussion

All the analysis was done using IBM SPSS 20, and Microsoft Excel was used for some calculations. The basic technique applied in both sections is Principle Component Analysis followed by a reliability test; in the the first section, validity tests are carried out as we are doing a hypothesis test.

5.1 Measuring user satisfaction5.1.1 Validity test

The validity test has been completed by comparing the values of the loading factors.

The valid indicator is an indicator with a loading factor (λ) greater than 0.5 and an AVE value greater than 0.5. Table 3 below will show the result of the validity test.

After the validity test was done, factor IQ4 was removed from the further analysis as its value was below 0.5. Table 5 shows the AVE values of the factor-made components after applying varimax rotation to the elements obtained

Variable	Indicator	λ	AVE	Description
Information Quality	IQ1	.819	0.607	Valid
	IQ2	.774		
	IQ3	.830		
	IQ5	.685		

Service Quality	SQ1SQ2	.836	0.718	Valid
	SQ3	.857		
		.850		
Ease OfUse	EOU1	.754	0.425	Invalid
	EOU2	.572		
	EOU3	.617		
Optimised Cost	OC1	.842	0.671	Valid
	OC2OC3	.841		
		.773		
User Satisfaction	US1	.762	0.606	Valid
	US2	.794		

Table 4:Variable validity test

From the above table, the variable “Ease of use” is invalid for this research as its AVE value is less than 0.5. The reason for this can be the improper formulation of questions in the question,are which led to wa rong interpretation on the applicant’s part. The other reason can be the smaller number of responses to the questionnaire.

However, this variable was not further included in the study.

5.1.2 Reliability test

All variables can be reliable if the variable has Cronbach’s Alpha value and the Composite Reliability value are morisignificant than 0.7. Based on Table 5 below, all variables were feasible to use because all of the variables’ Cronbach’s Alpha are greater than 0.7.

Variable	Indicator	CR	Cronbach’s alpha	Description
Information Quality	IQ1IQ2IQ3	0.967	.825	Reliable
	IQ5			
ServiceQuality	SQ1SQ2	0.956	.885	Reliable
	SQ3			
OptimisedCost	OC1	0.954	.862	Reliable
	OC2OC3			
User Satisfaction	US1	0.853	.820	Reliable
	US2			

Table 5:Reliability test

5.1.3 Hypothesis test

The Bootstrapping method was used to determine whether the hypothesis was accepted or rejected by calculating the significance value of beta coefficients between variables (Original Sample), P values, and T-Statistics. This study employs three rules. The beta coefficient must match the hypothesis, T-Statistics must be greater than 1.96, and P-Value must be less than 0.05. (5 percent). The following Table 6 shows the results of the hypothesis testing.

No.	Model	Beta	T-Statistics	P Values	Result	Effect size
H1	SQ->US	.325	3.831	.000	Support	Medium
H2	OC->US	.266	3.138	.003	Support	Medium
H3	IQ->US	.625	7.368	.000	Support	Large

Table 6:Hypothesis test

a. Hypothesis test 1

H_0 = Service quality has no significant effect on User satisfaction. H_a = Service quality has a significant effect on User satisfaction.

Since the P value is less than 0.05, we can reject H_0 . This means service quality has a significant effect on User satisfaction. The value of the Original Sample is 0.325, meaning that if there is an increase in service quality of 1 unit will affect user satisfaction by 0.325 units.

b. Hypothesis test 2

H_0 = Optimised cost has no significant effect on User satisfaction. H_a = Optimised cost has a significant effect on User satisfaction.

Since the P value is less than 0.05, we can reject H_0 . This means the optimised cost has a significant effect on User satisfaction. The value of the Original Sample is 0.266, meaning that if there is an increase in the optimised cost of 1 unit will affect user satisfaction by 0.266 units.

c. Hypothesis test 3

H_0 = Information quality has no significant effect on User satisfaction. H_a = Information quality has a significant effect on User satisfaction.

Since the P value is less than 0.05, we can reject H_0 . This means information quality has a significant effect on User satisfaction. The value of the Original Sample is 0.625, meaning that if there is an increase in service quality of 1 unit will affect user satisfaction by 0.625 units.

From the above analysis, it can be confidently said that the factors that play a significant role in increasing user satisfaction according to the current scenario, indescending order of effect, are:

1. Information quality
2. Service quality
3. Optimised cost of the courses

5.2 Identifying critical factors of success

5.2.1 KMO and Bartlett's Test

To ensure that the data collected is suitable and adequate for exploratory factor analysis, the Kaiser-Meyer-Olkin (KMO) measure of sampling adequacy and Bartlett's Test of Sphericity are used. Table 7 displays the KMO and Bartlett's Test results. While Bartlett's test evaluates the overall significance of the correlation matrix, the Kaiser-Meyer-Olkin (KMO)

measure of sampling adequacy evaluates the factorability of the variables individually and as a group, which are basic assumptions of factor analysis.

Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.887
Bartlett's Test of Sphericity	Approx. Chi-Square	794.339
	df	136
	Sig.	.000

Table 7:KMO and Bartlett's test

The table shows an overall measure of sampling adequacy value of 0.887, which falls in the acceptable range, i.e., above 0.50. As both these tests fulfill the basic assumptions of exploratory factor analysis, the data is deemed suitable for exploratory factor analysis.

5.2.2 Factor loadings and Reliability test

Varimax rotation is used to generate the component matrix. As an orthogonal rotation, it ensures that the factors remain uncorrelated throughout the rotation process. All the factor loadings are found to be above the value of 0.5. Therefore, none of the variables are excluded from the analysis, and all the variables are retained with their corresponding factors.

Table 8 shows the factor loadings of all the factors involved in creating the new components, which will be further used in the analysis.

Components	Indicator	λ	Cronbach's alpha
Course offered	CO4	.796	.899
	CO1	.778	
	CO3	.733	
	CO5	.722	
	LR1	.642	
Technical Support	TS1	.808	.844
	TS3	.792	
	TS2	.767	
	TS4	.636	
	CO2	.605	
Support Service	SS2	.868	.847
	SS1	.868	
	SS3	.710	
Learning Resources	LR2	.765	.853
	LR3	.723	
	LR5	.531	
	LR4	.530	

Table 8:Factor loadings of new components along with Cronbach's alpha value

All the components created after using varimax rotation have Cronbach's alpha values greater than 0.7, which means all the details are reliable for our study. It can be observed that some of the factors have shifted from their original desired

components and the possible reason for the shift is the increased relevance of the particular characteristics for those new components. Due to the increased contribution level of those factors in the new features, the change was expected, and further analysis was done.

5.2.3 Total variance of the components

The four factors derived explain a total of 75.674% of the variances in the data considered for the study. Finally, Table 9 shows the importance of critical success factors for e-learning among Indian students pursuing higher education. The three most important essential factors of success (as measured by the percentage variance they explain) are courses offered, technological support, and e-learning support

services. This empirically confirms the variables' significantly high factor loadings onto these factors.

Component	Name	Eigen Values	% of Variance
1	Course offered	9.144	53.788
2	Technical Support	1.620	9.528
3	Support Service	1.392	8.186
4	Learning Resources	.709	4.172
Total			75.674

Table 9: Total variance and Eigen values

The fourth component, "Learning resources," has an Eigen value of less than one which is why it was not considered significant for our study. However, we identified the top 3 success factors for e-learning platforms, that are:

1. Course offered
2. Technical support
3. E-learning support service

6. Conclusion

From the above two analyses, we got to know that user satisfaction is currently driven by three factors the quality of the information they are getting on the course they apply for, the service quality from the help and support teams of the company, and lastly the optimised cost for the courses they purchase.

Evident to that is the second analysis (critical success factors for e-learning platforms) which gave us the perspective of the users about how they evaluate a specific e-learning platform for the enhancement in their employability. They are listed down in descending order of significance in below

1. Availability of course packages predesigned to acquire specific skill sets
2. Availability of courses driven by upcoming industrial needs
3. Availability of inter-disciplinary courses
4. Availability of courses affiliated with renowned organizations along with certifications
5. Availability of referral material/notes along with the course
6. Easy access to high-speed internet
7. Accessibility to multimedia technologies
8. Accessibility of online communication tools
9. Reliability of technical infrastructure, including software and hardware needs

10. Availability of domain-specific courses
11. Openness and sociability of the support team
12. Availability of offline technical support
13. Accessibility to the online help desk

In the above list there are certain factors which are present in the list of the factors evaluated in the previous section and some of the above are related to the user's end for which a particular EdTech company cannot do anything. So, Table 10 gives all the factors that a company can work on keeping in mind the user satisfaction as well.

No.	Factor
1	Creating packages of courses according to a specific skill set.
2	Creating courses that are driven by industrial needs in the short future.
3	Providing certifications at reasonable cost.
4	Purchasing the courses from renowned organisations
5	Providing referral material to the students along with the course
6	Having an effective online support system with frequent communication pattern

Table 10: Final points

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