

# Factors Influencing Student Satisfaction Towards E-Learning in A Developing Nation

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## 1.INTRODUCTION

Online learning is a method where students and teachers interact using internet through different learning tools. The most common discrepancy about online learning is that it lacks face to face interaction and exchange of ideas that one can share with classmates and a teacher in real time. A decent internet is required for completing online tasks. Assignments are difficult to submit on time due to internet issues in developing countries. It does not happen with offline learning. Some of the examples of online tools are Google meet, zoom video etc. which are operated for free. Many higher educational institutions have their own online learning platform where students and teachers interact in a very suitable online environment, submit assessments, take online quizzes, online exams etc. This has made life much easier as anyone can learn without socially presenting oneself. It is a cost-effective method of learning where travel expenses can be saved. Most of the students can do their job along with studies, which is the main advantage of online education system. Higher degrees are completed more efficiently without disturbing jobs and trainings can be the best example of its advantage which cannot be experienced with offline learning. Many studies suggest that India is in a better position to implement online learning in the present scenario. No doubt, the learning and teaching system adapted by India during COVID-19 pandemic is a live example of all the studies done on India. Our country has successfully adapted the e-learning system but with certain limitations. The students of primary and government schools are not able to adapt to this method due to various reasons, may be lack of ICT among teachers and students, availability of gadgets due to financial instability and so on.

Perceived ease of use describes how easily users can use anything. Here, it refers to as suitability of using all the online learning platforms. Much effort should not be required to use the online tools. If the technology is easy to use, then students and teachers both are equally satisfied.

Courses delivered by the instructor also acts as an important factor when it comes to student satisfaction. Easily understandable courses help students to learn more effectively and also affects their performance. If the course content is easy to understand, it will increase the interest of students towards that course. There is a system of recording the online sessions, which is the major advantage of the courses delivered through online tools. One can access any session any time according to their convenience.

Technology and its use acts as the base of e-learning system. If the instructor is aware of using online learning tools and technology, he/she can conduct classes in a very effective manner. The learning tools should be easier to use by the students as well as teachers. At the same time the students should be made aware on the way of using learning platforms, especially the primary school students. The internet has become a very useful and powerful tool that has affected everyone. It is the most important aspect in online learning. But in developing countries, internet and technical barriers are a big challenge for backward and remote areas.

According to the previous studies, it is suggested that student-instructor interaction as a major factor towards satisfaction level of students, whether it is online or offline. Students are more interested in classes where they get more interactive and self-learning environment. This is somewhere the online education method is lacking specially if we consider India. Group discussions are not that effective in e-learning. We might say that students and teachers, till now have

not been able to adapt themselves to online discussions and interactions. This study investigates factors (i.e. instructor, technology, course, environment etc.) associated with student satisfaction in fully online learning in developing countries. Primary education is the most affected segment in online learning in developing countries.

## 2. REVIEW OF LITERATURE

Tutunea, M., Rus, R. V., & Toader, V. (2009), in their research paper tried to identify the student perception regarding online learning using the portal implemented by the University of Romania. For data collection, they used specific questionnaires, direct observations and traffic analysis on the portal. 320 students participated in the questionnaire survey with a useful response rate of over 89%. The results revealed that the students with better basic computer and internet skills prefer the online learning methods and considered the platform as suitable for distance learning.

Shehzadi, S., Nisar, Q. A., Hussain, M. S., Basheer, M. F., Hameed, W. U., & Chaudhry, N. I. (2020), in their research paper tried to examine the role of information and communication technology, e-service quality and e-information quality towards brand image of universities by concentrating on student's e-learning, e-word of mouth and satisfaction. Data was collected through e-questionnaire from 408 students. PLS-SEM was employed for data analysis along with bootstrapping technique. The results revealed that ICT, e-service quality, and e-information quality positively contributed towards student e-learning which ultimately leads to generate a positive brand image of universities.

Sarker, M. F. H., Al Mahmud, R., Islam, M. S., & Islam, M. K. (2019), in their research paper critically examined the suitability of implementing effective e-learning through learning management system at the tertiary management institutions in Bangladesh and the experience of teachers and students to this platform. Data was collected from the students using well-structured survey questionnaires. The data were analyzed using qualitative and quantitative techniques. The results suggest that a majority of the students were found to be highly enthusiastic about online courses and are eager to participate and interact in online platforms.

Pillai, R., & Sivathanu, B. (2019), in their research paper tried to investigate the online learning experience of MOOCs among the students in India. A survey was conducted using a structured questionnaire among the undergraduate and postgraduate using the CoI framework and contextual variables- technical barriers and hedonic motivation. The data was analysed with the partial least squares structural equation modeling technique. It is found that teaching presence influences cognitive presence and social presence. Technical barrier negatively influences learning experience but is not significant and hedonic motivation significantly influences learning experience positively for MOOCs.

Samsudeen, S. N., & Mohamed, R. (2019), in their research paper tried to investigate the factors that influence the intention and use behavior of e-learning systems by students in the state universities. Data was collected from undergraduate and postgraduate students from 15 Srilankan state universities. Structural equation modeling was used to analyze the collected data. The theoretical model was drawn from Unified theory of acceptance & use of technology 2. The result showed that the adoption of e-learning system in Srilankan state universities was fairly low.

Hao, Y., & Jackson, K. (2014), in their research paper tried to examine student's satisfaction with e-textbooks. Data was collected from 115 undergraduate students and factor analysis was used to examine the data. The results revealed that students had a moderately above neutral, positive attitude towards e-textbooks.

Siritongthaworn, S., & Krairit, D. (2006), in their research paper tried to investigate the students satisfaction and its influence on overall perspective earned in e-learning. The measurement instrument was adapted from scales and survey is the main methodology of the study. The study highlights 4 dimensions of satisfaction in e-learning and each of the dimensions influenced the overall satisfaction in e-learning.

Summers, J. J., Waigandt, A., & Whittaker, T. A. (2005), in their research paper tried to examine the differences between online education and traditional education for UG statistics course. 38 UG students participated in the study and independent sample t-test was used to analyse the data. The results indicated that there was no significant difference in grades between

online and traditional learning. Students were less satisfied with online learning .

Park, J.-H., & Choi, H. J. (2009) in their research paper tried to find out the factors influencing the decision of adults to continue or drop the online learning education. The data was collected from 147 students and chi-square, MANOVA was used to analyze the data. The results confirmed that family support, organizational support, course design strategies and motivation level of learner are the factors which influence the decision of learner to continue or drop the online education.

Cheng, Y. M. (2020), in their research paper tried to examine students' satisfaction and continuance intention of the cloud-based electronic learning system within the educational institution. Data was collected from 600 respondents via questionnaires and analyzed using structural equation modeling. Findings showed that students' perceptions of interactivity, course content quality and course design quality positively significantly contributed to their perceived usefulness, confirmation and satisfaction with the cloud-based e-learning system.

Qteishat, M., Alshibly, H., & Al-Ma'aitah, M. (2013), in their research paper tried to explore the factors which influences the attitude of students towards E-learning using Technology Acceptance Model. The data was collected from 380 students and partial least square was used to analyze the data. The results confirmed that patronized and attitude are having a significant effect on the prediction of E-learning. There is no significant effect of perception and practised on the E-learning and there exists a strong association of attitude and patronized in the prediction of E-learning.

Yerby, J., & Floyd, K. (2013), tried to investigate the difference between the mean GPA for traditional and fully online program in information technology. This study sample included 308 traditional students and 71 fully online students. The results showed that there was no significant difference in student success measured by GPA in the fully online program and traditional program.

Johnston, J., Killion, J., & Oomen, J. (2005), in their research paper tried to investigate the contributors of the student satisfaction in an online classroom and analysis of design implementation according to student satisfaction in online platforms. 34 literature reviews were analyzed along with 2 survey reports.

The results showed flexibility with the course and instructor interaction as the key factors for students satisfaction.

Kuo, Y. C., Walker, A. E., Beland, B. R., & Schroder, K. E. (2013) in their research paper tried to find out the predictive study of student's satisfaction in online education. The purpose of this study was to analyze the effect of important predictor variables a student satisfaction in online settings. The result of study is that learner- content Interaction, and internet Self - efficiency were significant predictors of student satisfaction in fully online learning settings.

Yang, Y., & Cornelius, L. F. (2004) in their research paper tried to find out the perception of students towards online education. The data was collected from three students using in-depth interview method. The results of the study confirmed that flexibility, cost effectiveness and ease of connection to internet are the positive experiences and lack of self-regulation, self-motivation, poorly designed course content and lack of technical support from instructor side contributes to the negative experience of the students in online education.

Simpson, J.M. (2012) in their research paper tried to examine student perceptions of quality and satisfaction in regionally accredited online courses. A total of 157 responses were obtained from student satisfaction questionnaire. Descriptive analysis and ANOVA was used for the analysis. The results revealed that students who pursued distance learning had higher satisfaction towards online courses.

Wu, J. H., Tennyson, R. D., & Hsia, T. L. (2010), in their research paper tried to examine the determinants of student learning satisfaction in blended e-learning system. The questionnaire survey was shared with 212 participants. Confirmatory Factor Analysis was performed to test the reliability. The results revealed that computer self-efficacy, performance expectations, system functionality, content feature, interaction and learning climate are primary determinants of student satisfaction towards e-learning.

Khasawneh, M., & Yaseen, A. B. (2017), in their research paper tried to examine the satisfaction factors by employed Information System Success Model (ISSM) related to the sustained use of e-learning in Jordanian Public Universities. The survey was carried out with 100 participants. The results showed that perceived usefulness, management support, self-efficacy, technical support and training have

significant relationship with the satisfaction of the usage of e-learning system.

Al-Rahmi, W. M., Othman, M. S., & Yusuf, L. M. (2015), in their research paper tried to analyse the factors that affect student satisfaction through using e-learning in Malaysian higher education. The data was collected from 268 respondents and Structural Equation Modelling was used to analyze the results. The results showed that students perceived high level of relationship between e-learning content, e-learning personalization, e-learning community and e-learning self-efficacy with e-learning satisfaction but rejected in terms of e-learning interface.

Vululleh, P. (2018), in his research paper tried to examine the determinants of student's e-learning acceptance in developing countries. Data was collected from 269 secondary and post-secondary students in Liberia. Structural Equation Modelling was used to analyse the data. The results showed that student's behavioral intention to accept and use e-learning developing countries was significantly affected by their perceived usefulness, perceived ease of use, quality of life and social influence.

Zhu, C. (2011), in his research paper tried to examine student satisfaction and performance in online collaborative learning including students in two different cultural contexts. The data was collected from 159 Chinese students, 205 Flemish students. t-tests and MANOVA were used to analyse the factors. The results revealed that student perceived satisfaction and student performance in online collaborative learning are important factors to determine innovative learning approach.

Tarhini, A., Hone, K., & Liu, X. (2014), in their research paper tried to investigate the factors that affect the acceptance and use of e-learning in Lebanon and role of a set of individual differences as moderators in Technology Acceptance Model (TAM). The data was collected from 569 UG and PG students in Lebanon via questionnaire. The data was analysed using SEM. The results revealed that perceived usefulness, perceived ease of use, subjective norms, and quality of work life positively affect students behavioral intention towards e-learning.

Al-Samarraie, H., Teng, B. K., Alzahrani, A. I., & Alalwan, N. (2018), in their research paper tried to determine the key factors affecting students and instructors continuance satisfaction towards e-learning in the higher education context. 38 postgraduate

students and 9 instructors from five public universities in Malaysia were included in this study. The results demonstrated that information quality, task-technology fit, system quality, utility value, and usefulness are the core factors that impact both instructors and students with respect to being continually satisfied with e-learning services.

Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019), in their research paper tried to examine the relationships among e-learning service quality attributes, overall eLearning service quality, e-learning student satisfaction, and e-learning student loyalty in the context of Vietnam. Data was collected from 1232 students and analyzed using exploratory factor analysis, confirmatory factor analysis, and structural equation modeling using SPSS. The results indicated that e-learning system quality was the most important dimension of overall e-learning service quality, followed by e-learning instructor and course materials quality, and e-learning administrative and support service quality.

Barbera, E., Clara, M., & Linder-Vanberschot, J. A. (2013) in their research paper tried to determine the aspects which influence student satisfaction and perceived learning in online courses. Data was collected from 499 students and analyzed using correlation and ANOVA analysis. The results revealed that learning content and course design were most influential aspects of online learning.

Stefanovic, D., Drapsin, M., Nikolic, J., Scepanovic, D., Radjo, I., & Drid, P. (2011) in their research paper tried to investigate the potential factors which impact the e-learners satisfaction. Data was collected through questionnaire by 143 students and SPSS method was used for analysis. The results revealed that instructor response timeliness, e-learning course flexibility, e-learning course quality, technology quality, Internet quality, diversity in assessment and interaction in e-learning environment are the critical factors affecting e-learners' satisfaction.

Aixia, D., & Wang, D. (2011) in their research paper tried to investigate the factors affecting learner's satisfaction in e-learning environment. Data was collected through questionnaire by 128 college students and SPSS method was used to analyze the data. The results revealed that e-learning is positively influenced by its flexibility in knowledge management, time management and widening access to information.

Aldholay, A., Abdullah, Z., Isaac, O., & Mutahar, A. M. (2019) in their research paper tried to investigate the factors affecting user satisfaction on the use of online learning. Data was collected from 448 students using questionnaire technique. SEM was used to analyse the data. The results revealed that overall quality, compatibility and transformational leadership had a favourable effect on user satisfaction and their performance.

Zimmerman, T. D. (2012) in his research paper tried to examine the relationship between learner-content interaction and course grade to determine the success factors. Data was collected from 139 students and SPSS was used to analyse the data. The results revealed that learners spending more time in interaction with course content achieve higher grades.

### 3.OBJECTIVES OF THE STUDY AND HYPOTHESIS

- To analyze the factors which positively and negatively affect student satisfaction and behavior towards e-learning.
- To test the significance of several factors which affect student satisfaction towards e-learning.

Hypothesis

Instructor dimension:

Hypothesis 1. Instructor Interaction will significantly influence e-learner satisfaction towards e-learning.

Previous researches indicate that instructors' interaction and response significantly influences e-learners' satisfaction. When learners face any problems in online teaching, timely assistance from the instructor encourages learners to continue their learning. Therefore, if the instructor responds to student's problems and needs on time, learning satisfaction can be improved.

Hypothesis 2. Direct Instruction by instructor will positively influence e-learner satisfaction towards e-learning.

The e-learning environment is totally based on the instructor's interaction in online classes. Instructor's behavior with students, making interactive and interesting teaching environment, proper understanding of online tools and technologies, initiation of interaction between students are the factors that way towards students satisfaction. Not only the tools and technology, it's the teacher instruction method that plays a vital role in the

successful implementation of e-learning technology and also affects learners' satisfaction in this new environment.

Course Dimension:

Hypothesis 3. E-learning course flexibility will significantly influence e-learner satisfaction towards e-learning.

E-learning to a great extent has made life easier for students by solving the barriers of physical presence in class. The most influencing feature of e-learning according to students and teachers, both is its flexibility of place, time and method of learning. Time independence and flexibility in the course helps the students to communicate according to their flexible time and place. Moreover, it is also a solution for the students who feel awkward in face-to-face interactions in traditional classrooms.

Hypothesis 4.E-learning course quality will significantly influence e-learner satisfaction towards e-learning.

When we implement something new to any environment, quality consideration is at its peak level. Quality of course content is the most important feature that influence student's satisfaction and an informative and interesting content will motivate students to learn effectively in online mode. The unique point of e-learning environment includes the online interactive discussions, chat platforms among learners and instructors, audio visual presentations of course material and other useful material from the universities covering any particular topic. All of these characteristics motivate the students to continue using this learning environment.

Technological Dimension:

Hypothesis 5. Technology advantage will significantly influence e-learner satisfaction towards e-learning.

To implement e-learning environment, technological tools must be very easy and useful. The quality of technology cannot be compromised when it comes to e-learning. Therefore, the higher the quality and reliability in ICT, the higher the student satisfaction will be.

Hypothesis 6. Technological ease of use will positively influence e-learner satisfaction towards e-learning.

When learning tools are compatible and easy to use, it develops interest among students and teachers to adapt to new methods on online education. Proper availability of technical tools and administrative

support significantly influence student's satisfaction towards e-learning. When students don't face any sign in and sign out problem, with continuous interaction with teacher their satisfaction will be increased.

Environmental Dimension:

Hypothesis 7. e-learning environment will positively influence e-learner satisfaction with e-learning.

Many researchers agree that interactive instructional design is an essential factor for learning satisfaction and success. Without conspicuous interactions between teachers and students, learners are more prone to distractions and difficulty concentrating on the course materials. Because e-learning can proceed in almost any place, it requires better concentration than in traditional face-to-face interactions.

#### 4.PROBLEM STATEMENT

e-learning methods are very new to the students and teachers in India. There are several factors which affect the learning interest and performance output of the students. The sudden implementation of e-learning due to COVID-19 pandemic is a great challenge for students in developing countries like India. Technological issues and Internet availability in remote areas is a great challenge for e-learning environment. Conducting online assessments and increased plagiarism in online exams will lead to decrease in student academic development.

Many researches have been conducted similar to this study, but there are a very few which are focused towards developing countries. So, this study would focus on the major challenging factors which affect the satisfaction level of students towards e-learning.

#### 5.METHODOLOGY

The questions developed for the scales was based only on the evaluation of the e-learning system. The research is descriptive basic research design which will be conducted through a quantitative survey via questionnaire. Descriptive research method is basically used in finding out the valid way of finding out the specific subjects and as a precursor to more quantitative studies while the results are always open to questions and to different interpretation. This research design is selected because our research will focus on the collection of data for the purpose of calculating statistics in order to clearly define the

objectives of our research. In this methodology, a questionnaire was prepared based on the variables like Instructor Dimension, Course Dimension, Course Dimension and Environmental Dimension which was floated with the students of Lovely Professional University pursuing MBA, BBA, B.Tech and M.Tech. The analysis of all the responses was done through statistical software- SPSS. The impact of independent variables was studied on dependent variables. Finally, linear regression analysis was done to find out the results.

##### 5.1. Research Instrument

The reference for Instructor Dimension (Direct Instruction and Instructor Interaction), consisting of 6 items and Course Dimension (Learning Content), consisting of 3 items was taken from Barbera, E., Clara, M., & Linder-Vanberschot, J. A. (2013), which was based on student satisfaction and online learning context. The Course Dimension (Course Flexibility), consisting of 6 items and Environment Dimensions, consisting of 5 items was taken from Stefanovic, D., Drapsin, M., Nikolic, J., Scepanovic, D., Radjo, I., & Drid, P. (2011). The Technological dimensions (Advantage and Ease of Use) consisting of 8 items was taken from Bhat, S. A., & Bashir, M. (2018). The scale items were classified into 4 general factors which included: Instructor Dimensions, Course Dimensions, Technological Dimensions and Environmental Dimensions. The respondents evaluated the level of their agreement with each scale item in a five-level Likert form, ranging from 1 (strongly disagree) to 5 (strongly agree).

##### 5.2. Sample size and data collection

A 33 item questionnaire was shared with the students of Lovely Professional University online through social media platforms. The sample size consisted of university students from Asia and Africa who use online learning tools (My Class, Google Meet etc.). A total of 155 questionnaire responses was received and used to analyze the data.

##### 5.3. Software Used

Linear Regression was applied using SPSS software to analyze the significance and importance of the factors which are effective towards student e-learning satisfaction.

##### 5.4. Academic and Social significance

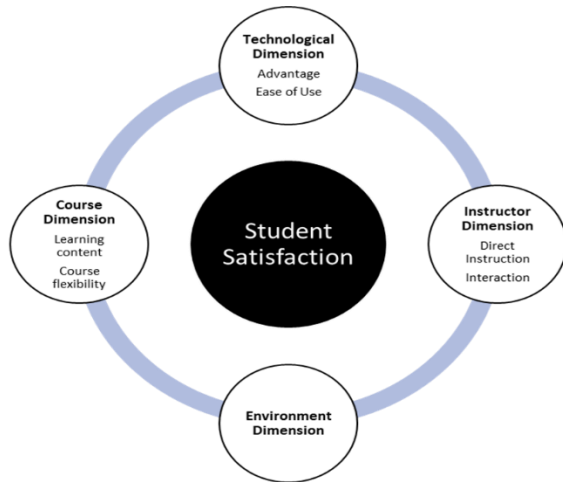
This research will help the students, instructors and universities to analyze the factors which positively and negatively influence student satisfaction towards e-learning and make improvements in online teaching methods and tools updating up to the satisfaction level of students.

5.5. Variables identified

Dependent variable identified for the study includes :

- Student Overall Satisfaction  
Independent variable identified for the study includes :
- Instructor Dimension- Direct Instruction  
Instructor Interaction
- Course Dimension- Learning Content  
Course Flexibility
- Technological Dimension- Advantage  
Ease of Use
- Environmental Dimension- Diversity in  
Assesment

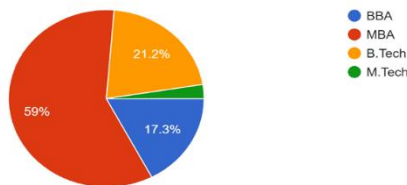
5.6. Research Model



6. RESULTS AND REGRESSION DATA INTERPRETATION

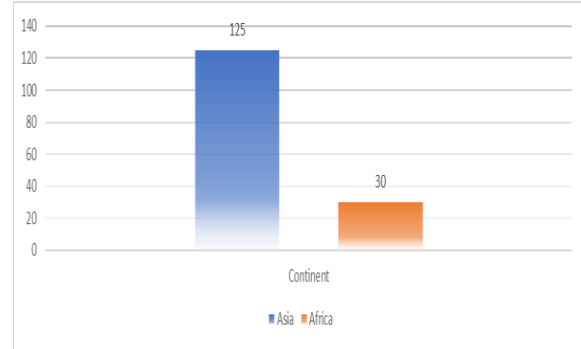
6.1. Frequency Variable = Course

Which course are you pursuing?  
156 responses



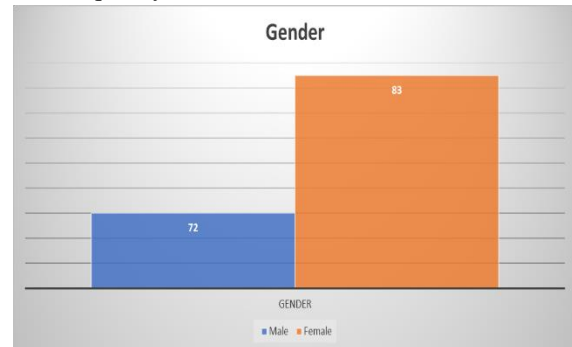
Out of 155 responses we received, 59% students were pursuing MBA, 21.2% were pursuing B.Tech, 17.3% were pursuing BBA and 2.5% were pursuing M.Tech.

6.2. Frequency Variable = Continent



Out of 155 responses, 125 students were belonging to Asia and 30 students belonged to Africa. As we were considering developing countries in our study, so we focused on respondents of both continents.

6.3. Frequency Variable = Gender



Out of the total responses we received, there were 72 male respondents and 83 female respondents.

6.4. Variables Labelling

This gives the variables used in the regression model. The mean of independent variables are labelled as:-

- Instructor Dimension- I8(Direct Interaction) and I9(Instructor Interaction)
- Course Dimension- C11(Learning Content) and C12(Course Flexibility)
- Technology Dimension- T10(Advantage) and T11(Ease of Use)
- Environmental Dimension- E6.
- The mean of dependent variable is labelled as S6(Overall Satisfaction).

6.5. Regression Table and interpretation

Linear regression was applied using SPSS software with Backward Elimination Method. In this method, the variables are removed step-by step according to their significance level.

Model		Sum of Squares	Df	Mean Square	F	Sig.
1	Regression	55.845	7	7.978	27.418	.000 <sup>b</sup>
	Residual	42.772	147	.291		
	Total	98.617	154			
2	Regression	55.841	6	9.307	32.200	.000 <sup>c</sup>
	Residual	42.776	148	.289		
	Total	98.617	154			
3	Regression	55.836	5	11.167	38.893	.000 <sup>d</sup>
	Residual	42.781	149	.287		
	Total	98.617	154			
4	Regression	55.627	4	13.907	48.523	.000 <sup>e</sup>
	Residual	42.990	150	.287		
	Total	98.617	154			

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
1	.753 <sup>a</sup>	.566	.546	.53941	
2	.752 <sup>b</sup>	.566	.549	.53761	
3	.752 <sup>c</sup>	.566	.552	.53584	
4	.751 <sup>d</sup>	.564	.552	.53535	2.052

a. Predictors: (Constant), E6, I9, T10, C11, C12, I8, T11

This model is at describing the data. The R Square value is the important statistic here. The higher the value, the better the model. This table provides the R and R2 values. The R value represents the simple correlation i.e, is 0.753, which indicates a high degree of correlation. The R2 value (.566) indicates 56.6% of the total variation in the student satisfaction can be explained by the independent variables. The Durbin-Watson value shows that there is no auto correlation. The two dimensions together provide an interpretation in terms of distances. If a variable discriminates well, the objects will be close to the categories to which they belong. Ideally, objects in the same category will be close to each other (that is, they should have similar scores), and categories of different variables will be close if they belong to the same objects (that is, two objects that have similar scores for one variable should also score close to each other for the other variables in the solution).

The ANOVA table indicates which variables contribute the most to your cluster solution. Variables with large F values provide the greatest separation

between clusters. The important value here is the F statistic. This tells us how much better the model is at predicting the data than simply using the mean. In this case, the model is 48.523 times better.

This table indicates that the regression model predicts the dependent variable significantly well. This indicates the statistical significance of the regression model that was run. Here,  $p < 0.0005$ , which is less than 0.05, and indicates that, overall, the regression model statistically significantly predicts the outcome variable (i.e., it is a good fit for the data).

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.370	.251		1.474	.143
	I8	-.011	.094	-.010	-.114	.909
	I9	.067	.079	.073	.850	.397
	C11	.125	.090	.126	1.394	.165
	C12	.219	.085	.230	2.581	.011
	T10	-.011	.083	-.013	-.136	.892
	T11	.224	.099	.221	2.252	.026
	E6	.281	.099	.253	2.848	.005
2	(Constant)	.365	.246		1.481	.141
	I9	.065	.076	.071	.854	.394
	C11	.121	.081	.122	1.482	.140
	C12	.217	.083	.229	2.603	.010
	T10	-.011	.082	-.013	-.134	.893
	T11	.223	.099	.221	2.258	.025
	E6	.280	.098	.252	2.864	.005
	3	(Constant)	.370	.243		1.526
I9		.064	.075	.070	.853	.395
C11		.120	.081	.121	1.482	.140
C12		.215	.081	.226	2.643	.009
T11		.217	.087	.215	2.492	.014
E6		.277	.095	.250	2.908	.004
4	(Constant)	.378	.242		1.563	.120
	C11	.150	.073	.151	2.065	.041
	C12	.241	.075	.254	3.202	.002
	T11	.212	.087	.210	2.441	.016
	E6	.285	.095	.257	3.011	.003

a. Dependent Variable: S6

**Interpretation**

Even though the model fit looks positive, the first section of the coefficients table shows that there are too many predictors in the model. There are several non-significant coefficients, indicating that these variables do not contribute much to the model.

Regression equation for the model is presented as:-

$$\text{Satisfaction} = .378 + .150(C11) + .241(C12) + .212(T11) + .285(E6)$$

$$T = b / \text{std. error}$$

$$\text{Constant} = .378 / .242 = 1.563$$

$$C11 = .150 / .073 = 2.065$$

$$C12 = .241 / .075 = 3.202$$



T11= .212/.087 = 2.441

E6= .285/.095 = 3.011

In the first step, the significance level is least for I8 (.909), so it is removed for the second step as it is the most insignificant variable to analyse the dependent variable. Similarly, in the second step, T10 (.893) is the most insignificant variable and hence is removed for the analysis in 3rd step. In the third step, I9 has the highest significance value (.395), so, this variable was excluded in the 4th step to get more accurate independent variables which affect the dependent variable.

To determine the relative importance of the significant predictors, look at the standardized coefficients. The significance level is <0.05 for E6 (Environmental Dimension-.003), C12 (Course Flexibility-.002), so null hypothesis is rejected which means that these variables are most significant in determining student overall satisfaction towards e-learning. With a 1% increase in Environment Dimension and Course flexibility, a 0.28% and 0.24% change in overall student satisfaction will be measured respectively. Direct Instruction (.893), Instructor Interaction (.394) and Technological Advantage (.909) are least significant. The null Hypotheses is not rejected and has the highest value. The overall satisfaction is least affected by these factors. So, finally we can analyse from the above output that Course Dimension (C11, C12), Technological Ease of Use(T11) and Environmental Dimensions are the most important factors which influence student satisfaction.

Excluded Variables						
Model		Beta In	T	Sig.	Partial Correlation	Collinearity Statistics Tolerance
2	I8	-.010 <sup>b</sup>	-.114	.909	-.009	.357
3	I8	-.010 <sup>c</sup>	-.112	.911	-.009	.357
	T10	-.013 <sup>c</sup>	-.134	.893	-.011	.318
4	I8	.011 <sup>d</sup>	.123	.902	.010	.385
	T10	-.010 <sup>d</sup>	-.105	.917	-.009	.318
	I9	.070 <sup>d</sup>	.853	.395	.070	.427

**Interpretation**

Here excluded variable are those variables which are written in the footnotes i.e. a, b, c, d Excluded variables" in this context are those predictor variables that were either not added to and/or not retained in the final model. That doesn't mean that they are not important, and certainly not that they are not part of a causal system driving the behaviour of the

outcome variable. It just means what it says--the algorithm did its thing, and in the end those candidate predictor variables were not included in the regression model.

Residuals Statistics					
	Minimum	Maximum	Mean	Std. Deviation	N
Predicted Value	1.3941	4.8205	3.6258	.60101	155
Residual	-1.97856	2.00588	.00000	.52835	155
Std. Predicted Value	-3.713	1.988	.000	1.000	155
Std. Residual	-3.696	3.747	.000	.987	155

a. Dependent Variable: S6

**Interpretation**

The mean of an unstandardized residual should be zero, as should standardized value. The unstandardized residuals have a mean of zero, and so do standardized predicted values and standardized residuals. In statistical models, a residual is the difference between the observed value and the mean value that the model predicts for that observation. Residual values are especially useful in regression and ANOVA procedures because they indicate the extent to which a model accounts for the variation in the observed data.

**6.6. Hypothesis Analysis**

Hypothesis 1. Instructor Interaction will significantly influence e-learner satisfaction towards e-learning.

Hypothesis 2. Direct Instruction by instructor will positively influence e-learner satisfaction towards e-learning.

Hypothesis 3. E-learning course flexibility will significantly influence e-learner satisfaction towards e-learning.

Hypothesis 4. E-learning course quality will significantly influence e-learner satisfaction towards e-learning.

Hypothesis 5. Technology advantage will significantly influence e-learner satisfaction towards e-learning.

Hypothesis 6. Technological ease of use will positively influence e-learner satisfaction towards e-learning.

Hypothesis 7. e-learning environment will positively influence e-learner satisfaction towards e-learning.

The null hypothesis for Hypothesis 3 (sig- .041) and Hypothesis 4 (sig- .002) is rejected according to the result analysis by regression. So, we can say that they are the major indicators for student satisfaction and influence positively towards the performance also. We can also conclude that course flexibility is not as much

significant as course quality when it comes to the whole course dimensions.

The null hypothesis for Hypothesis 1 and Hypothesis 2 is accepted according to the regression results. So, we can say that students are not much satisfied with the instructor interaction and performance in online learning methods.

The null hypothesis is accepted for Hypothesis 5 and rejected for Hypothesis 6, which means that students have much satisfaction towards the ease of use of technological tools and techniques but not satisfied with the technological availability and internet facilities in the developing countries.

The null hypothesis is rejected for Hypothesis 7 which means that the students are fully satisfied with the learning environment and ways which are implemented in online classes. Online tests, assessments and quizzes improve student performance and hence is a major variable in analysis of satisfaction level.

#### 7. CONCLUSION

The results indicated that factors influencing the learners' satisfaction of e-learning were divided into three categories: the factors related to the learner, to the instructor and to the management and technical support. There is no significant difference in the students' perceived learning outcome and student satisfaction in the developing countries. This research has made a significant contribution to the literature by pinpointing three e-learning service quality attributes constituting overall e-learning service online course designers and instructors can gain insight as to how to design online courses more effectively by including design characteristics that decrease negative and increase positive emotions which then will lead to greater student satisfaction. A holistic approach based on users' satisfaction level and the appropriate measurement analysis should give support to the designers in improving existing and designing new more attractive web-based learning models in the contemporary educational blended schemes. So, looking forward towards the results generated in this study, instructor dimension should be improved at a high level in order to make the students adapt more effectively to the online learning methods. New ways of teaching should be adopted by the teachers in online classes and new ways of interaction should be initiated

to make the classes more interactive and knowledgeable.

#### 8. LIMITATIONS OF THE STUDY

- Our research was restricted to a small sample size of 155, which included students of only 1 university. Primary and higher secondary students were not included for our research.
- The responses were collected online. So, there might be chances that the students filled up responses in a very casual way.

#### 9. SCOPE OF THE STUDY

We are all aware about the world of new normal during this COVID-19 pandemic, which has boosted the need for e-learning among the students. In this specific time, we all knew the importance of several e-learning and e-assessment tools which are very much helpful and undoubtedly became an important part of our academics and projects. The data collected from the university students will help the instructors and university management to emphasize on the required facilities which are required in online learning tools to make teaching and learning more effective.

This study will give a proper idea about the important factors which are necessary to be looked upon for effective student performance and improving the same for implementing effective learning and teaching strategies.

#### REFERENCES

- [1] Tutunea, M., Rus, R. V., & Toader, V. (2013). Traditional Education vs. E-learning in the vision of Romanian business students. *Innovation*, 2007, 12.
- [2] Shehzadi, S., Nisar, Q. A., Hussain, M. S., Basheer, M. F., Hameed, W. U., & Chaudhry, N. I. (2020). The role of digital learning toward students' satisfaction and university brand image at educational institutes of Pakistan: a post-effect of COVID-19. *Asian Education and Development Studies*.
- [3] Sarker, M. F. H., Al Mahmud, R., Islam, M. S., & Islam, M. K. (2019). Use of e-learning at higher educational institutions in Bangladesh. *Journal of Applied Research in Higher Education*.

- [4] Pillai, R., & Sivathanu, B. (2019). An empirical study on the online learning experience of MOOCs: Indian students' perspective. *International Journal of Educational Management*.
- [5] Samsudeen, S. N., & Mohamed, R. (2019). University students' intention to use e-learning systems. *Interactive Technology and Smart Education*.
- [6] Hao, Y., & Jackson, K. (2014). Student satisfaction toward e-textbooks in higher education. *Journal of Science & Technology Policy Management*.
- [7] Siritongthaworn, S., & Krairit, D. (2006). Satisfaction in e-learning: the context of supplementary instruction. *Campus-Wide Information Systems*.
- [8] Park, J. H., & Choi, H. J. (2009). Factors influencing adult learners' decision to drop out or persist in online learning. *Journal of Educational Technology & Society*, 12(4), 207-217.
- [9] Qteishat, M., Alshibly, H., & Al-Ma'aitah, M. (2013). Factors influencing the adoption of E-learning in Jordan: An extended TAM model. *European Journal of Business and Management*, 5(18), 84-100.
- [10] Yerby, J., & Floyd, K. (2013). An investigation of traditional education vs. fully online education in information technology.
- [11] Kuo, Y. C., Walker, A. E., Belland, B. R., & Schroder, K. E. (2013). A predictive study of student satisfaction in online education programs. *International Review of Research in Open and Distributed Learning*, 14(1), 16-39.
- [12] Wu, J. H., Tennyson, R. D., & Hsia, T. L. (2010). A study of student satisfaction in a blended e-learning system environment. *Computers & Education*, 55(1), 155-164.
- [13] Khasawneh, M., & Yaseen, A. B. (2017). Critical success factors for e-learning satisfaction, Jordanian Universities' experience. *Journal of Business & Management (COES&RJ-JBM)*, 5(1), 56-69.
- [14] Al-Rahmi, W. M., Othman, M. S., & Yusuf, L. M. (2015). Exploring the factors that affect student satisfaction through using e-learning in Malaysian higher education institutions. *Mediterranean Journal of Social Sciences*, 6(4), 299.
- [15] Vululleh, P. (2018). Determinants of students' e-learning acceptance in developing countries: An approach based on Structural Equation Modeling (SEM). *International Journal of Education and Development using ICT*, 14(1).
- [16] Zhu, C. (2011). Online collaborative learning: Cultural differences in student satisfaction and performance. *Journal for educational research online*, 3(1), 12-28.
- [17] Tarhini, A., Hone, K., & Liu, X. (2014). The effects of individual differences on e-learning users' behaviour in developing countries: A structural equation model. *Computers in human behavior*, 41, 153-163.
- [18] Al-Samarraie, H., Teng, B. K., Alzahrani, A. I., & Alalwan, N. (2018). E-learning continuance satisfaction in higher education: a unified perspective from instructors and students. *Studies in higher education*, 43(11), 2003-2019.
- [19] Pham, L., Limbu, Y. B., Bui, T. K., Nguyen, H. T., & Pham, H. T. (2019). Does e-learning service quality influence e-learning student satisfaction and loyalty? Evidence from Vietnam. *International Journal of Educational Technology in Higher Education*, 16(1), 1-26.
- [20] Barbera, E., Clara, M., & Linder-Vanberschot, J. A. (2013). Factors influencing student satisfaction and perceived learning in online courses. *E-learning and Digital Media*, 10(3), 226-235.
- [21] Stefanovic, D., Drapsin, M., Nikolic, J., Scepanovic, D., Radjo, I., & Drid, P. (2011). Empirical study of student satisfaction in e-learning system environment. *Technics technologies education management*, 6(4), 1152-1164.
- [22] Aixia, D., & Wang, D. (2011). Factors influencing learner attitudes toward e-learning and development of e-learning environment based on the integrated e-learning platform. *International Journal of e-Education, e-Business, e-Management and e-Learning*, 1(3), 264.
- [23] Aldholay, A., Abdullah, Z., Isaac, O., & Mutahar, A. M. (2019). Perspective of Yemeni students on use of online learning. *Information Technology & People*.
- [24] Zimmerman, T. D. (2012). Exploring learner to content interaction as a success factor in online courses. *International Review of Research in Open and Distributed Learning*, 13(4), 152-165.

[25] Bhat, S. A., & Bashir, M. (2018). Measuring ICT orientation: Scale development & validation. Education and Information Technologies, 23(3), 1123-1143.

ANNEXURE

Questionnaire  
QUESTIONNAIRE

Dear Sir/Madam, We, the students of Mittal School of Business, Lovely Professional University are conducting a survey on "FACTORS AFFECTING STUDENT SATISFACTION TOWARDS E-LEARNING IN A DEVELOPING NATION". You are requested to fill this form. Your responses will be kept confidential and will be used for academic purposes only.

Name:

Gender: Male  Female

Course: MBA  BBA  B.Tech  M.Tech

Continent: Asia  Africa

Instructor dimension	SD	D	N	A	SA
<b>Direct instruction</b>					
The instructor used effective teaching strategies.					
The instructor encouraged a variety of perspectives.					
The teacher was knowledgeable about his/her field.					
<b>Instructor interaction</b>					
All assignments were returned with useful feedback from the instructor.					
The instructor responded promptly.					
The instructor provided individualised guidance that met my needs.					
<b>Course dimension</b>					
<b>Learning content</b>					
Content was presented at an appropriate level for me.					
Content was relevant to the objectives of the course.					
Content was stimulating to me as a learner.					
<b>Course flexibility</b>					
Attending online classes allowed me to arrange my work for the class more effectively.					
There were no serious disadvantages to taking the class via internet.					
Attending online classes Allowed me to arrange my work schedule more effectively.					
Attending online classes saved me a lot of time commuting to class.					

Attending online classes allowed me to take a class I would otherwise have to miss.					
Attending online classes allowed me to finish my degree more quickly.					
<b>Technological dimensions</b>					
<b>Advantage</b>					
My class platform promotes conducive teaching and learning environment					
Use of My Class platform raise the curriculum standards.					
My class platforms are positively correlated with academic performance of students					
<b>Ease of use</b>					
Online surfing of learning material made me more effective day by day					
My Class platforms build confidence for preparation and presentation of lectures					
It is easier to communicate through My Class applications like online quizzes, educational blogs & common e-mails.					
It is convenient to share assignments, lecture notes and study material through My Class.					
Different learning preferences and styles of students are properly handled with the help of My Class.					
<b>Environmental dimensions</b>					
<b>Diversity in assessment</b>					
e-learning offered a variety of ways to assess my learning (quizzes, written work etc.)					
<b>interaction in e-learning environment</b>					
class discussions are easier to participate.					
Interacting with other students and instructor became more natural as the course progressed.					
I felt that the quality of class discussions was high throughout the learning.					
The instructor frequently attempted to elicit student interaction.					
<b>Dependent variable</b>					
<b>e-learner satisfaction</b>					
I am satisfied with my decision of learning online courses.					
I feel that online learning served my needs well.					
I will take as many courses via the internet as I can.					

I was satisfied with the way the courses worked out.					
Online courses make the work easier compared to traditional classroom courses.					