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Factors Influencing Student Engagement in Online Learning during the COVID – 19 pandemic period in India.

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Abstract

COVID-19 has severely impacted virtually all sectors, including the education sector, in unexpected ways. Education in India, which is very solid in its own way, has also undergone unprecedented changes during the pandemic. The education system that is mostly offline in India was forcefully converted to an online mode to keep the thousands of students safe from the corona virus and also to cater to their educational need.

However, it remains to be seen whether the learning transmitted by the on-line mode has achieved its objective or not. A detailed study is certainly required to understand the impact created by on-line teaching - learning process. This study is part of such an effort to identify the factor that might influence the effectiveness of online education. An effort is made to ensure that students who experience online learning for the first time are assessed. The study conducted with a sample of 290 undergraduate and postgraduate students revealed that student's engagement in online learning is influenced by factors like student characteristics, instructor characteristics, learning environment, course design, course content and administrative support. Instructor characteristics were also observed to be one of the most important factors influencing student engagement. During the study, some parameters related to e-learning were studied to better understand the factors that influence student engagement.

Though there are many studies that have already identified factors influencing student engagement in online education, however, it is quite evident that the online education imparted during the pandemic time is not the same. It is evident that most of the education system has been primarily converted to online education due to an emergency without adequate preparedness. Therefore, the factors identified for a normal on-line learning process may not be similar for on-

line education provided in emergency situations. This clearly points out that such a study is necessary.

Keywords: Online education, COVID-19, Engagement in Online Education, Factors Influencing Online education

Introduction

Even while the debate as to which one is better - classroom learning or the online learning, was going on without any conclusive ending, the wave of coronavirus created unprecedented changes in the education world. Across the world, COVID-19 has had a serious impact on educational organizations and institutions, including students and teachers (Mailizar et al., 2020). The respective governments forced universities, colleges and schools to shut down their campuses to keep students and staff safe. And by overnight educational institutions turned themselves to online learning institutions as COVID-19 compelled institutions to consider online learning as a solution for the void in imparting education (Rasmitadila et al., 2020).

There were various barriers and challenges in the transition. Most importantly, different priorities have been assigned for learning objectives and they differ depending on the capacity to teach digitally. Education institutions started using their available technical resources to create online learning materials (Kaur, 2020), even when the effect and efficacy of online education in all scenarios is not yet established (McPherson & Bacow, 2015)

Online learning is still in its infancy in India. Only in the past few years has Indian education turned its attention to online education. However, the primary focus of India's education system is traditional (face-to-face) classroom learning.

Thus, it would be naive to accept that online education during the COVID-19 lockdown will be flawless. As many Indian states relax the restriction, many colleges, universities and schools return to their traditional teaching methods.

Consequently, it provides sufficient ground to examine the impact of online education to date in achieving its goals. This research paper attempts to understand the factors that influence the

engagement of students during the online teaching - learning process. The primary data for the study was collected during the months of January - February 2021, and by this time students have more or less already attended more than six months of online education. This will help students assess the factors that influence their engagement and satisfaction in the online learning process.

Literature Review

Online learning, also known as open learning, blended learning, E-learning (Dhawan, 2020) has its own advantages and disadvantages like any other teaching method (Baczek et al., 2020). Online learning has become a major part of global education as technology around it is developing (Bhagat, Wu & Chang, 2016) and is gaining popularity in higher education and universities across the world (Abbasi et al., 2020). Many education institutions have already transitioned from traditional to online or blended online and traditional prior to COVID-19 (Dhawan, 2020). Online learning can be experienced using Internet connectivity from different devices like laptops, mobile phones, etc. in real time (synchronous) or at different times (asynchronous) (Dhawan, 2020). In the context of higher education, "online learning" is often interpreted as a reference to a fully online course (Ryan et al., 2016). Online learning setting is typically launched through Learning Management Systems (LMS) or Virtual Learning Environment (VLE) such as Moodle or Blackboard.

Many researchers have compared face-to-face teaching to online learning and/or blended learning to understand the suitability of the formats in terms of learning outcomes, satisfaction of students and course completion rates (Ryan et al., 2016). Many studies have found that students achieve better outcomes in blended learning in higher education than traditional classroom education programs (Ryan et al., 2016). Tratnik (2017) conducted such a test among the students of English as a foreign language and postulates that students found face-to-face learning more satisfying than their counterparts taking online classes. However, some other studies contradict the same as the findings from these studies indicate that students following hybrid courses were less successful that their peers involved in face-to-face learning. Less interaction with the material, dealing with difficult concepts independently without the support of face-to-face teaching or a sense of isolation arising from less class attendance were cited as the primarily reasons for such low success. The response to any question is faster in face-to-face interaction than in online learning where the response normally takes time (can be done via email) (Zhong, 2020). The on-

line learning scheme also lacks the classroom socializing environment. Students communicate and share ideas, knowledge and information with others digitally without meeting/seeing one another, missing real-time sharing in the digital world (Britt, 2006).

However, few researchers have concluded that students have found no difference in learning preferences between e-learning and traditional or in-person learning (Fortune et al., 2011). Fortune, Spielman, and Pangelinam (2011) studied 156 students at North California University enrolled in Recreation and Tourism course and found that there is not statistically significant difference in learning preferences between students enrolled in the two different mediums.

Online education and COVID – 19

However, the situation created by COVID-19 is not the same as any other e-learning situation. This is more like a temporary arrangement due to a crisis and can be called crisis learning (Pace et al., 2020). Some researchers termed this as Emergency Remote Teaching (ERT), emphasizing on temporary shift of education delivery to an alternate delivery model due to emergency/ crisis. It involved use of fully remote teaching solutions (online solutions) for education that would otherwise be delivered face-to-face or blended or hybrid courses and is likely to return to original format once the emergency is over, making it different from a normal online teaching solution.

Researchers have also studied the opportunities and challenges of online learning during the pandemic (Mailizar et al., 2020). As part of their study, Mailizar et al. (2020) highlighted that student perspectives are important and therefore the challenges facing students and their views on online learning must be explored and considered for future research. Basilaia and Kvavadze (2020) also believe that more research is required to explore the quality of e-learning and the challenges associated with the use of e-learning.

Many of the teachers, students and general public are of the view that traditional classroom setting with face-to-face teaching, where teachers and students can interact freely is the best way of imparting education and vis-à-vis learning. The supporting arguments given are that in such a setting, faculty can get immediate feedback and can observe student's body language and other non-verbal cues to modify or adjust his/her teaching style. The face-to-face interactions also help students clarify their doubts at that moment only. This translates into increased engagement and participation and hence increased learning. Several research papers have already been published underlining this perception.

Student Engagement

Student engagement impacts learning outcomes and points to the quality of education. It is assumed that the more effort and time a student puts into education, the more likely it will become more knowledgeable. Student confidence, learning, thinking, creation of learning community and skill acquisition are all outcomes of student engagement. Student characteristics are important for their engagement. Student characteristics and other institutional people such as faculties, institutional resources and facilities play a role in student engagement (Kuh, 2003).

Kuh (2003), led a group of scholars under the National Survey of Student Engagement (NSSE) to create a framework for student engagement. This framework proposes two elements for student engagement: the behaviour of a student and the action of a school. There was an understanding that an institution creates the environment, and that the student participates to gain experience and achieve certain learning outcomes. The NSSE suggested five good educational practices such as the academic challenge, active and collaborative learning, student-teacher interaction, a supportive campus environment and an enriching educational experience.

Fredrick et al. (2004) identified cognitive, behavioural and emotional dimensions. Cognitively committed students love to exceed faculty expectations and love academic challenges. Behaviourally engaged students show high attendance, whereas emotionally engaged student shows sense of belonging, and high interest and enjoyment.

Christenson et al. (2006) posits four factors - academic, behavioural, cognitive and psychological for essential for student's engagement. Academically engaged student display homework completion, task completion on time behaviour. They work hard and have a passion for learning events. Psychological dimension is similar to emotional engagement. They mentioned in their article that engaged student are likely to work alone as well as with peers on learning tasks.

Some studies that have been undertaken to understand learner satisfaction also identify various influential factors.

Source	Title	Variables

Peltier et al. (2007)	The Interdependence of the factors influencing the perceived quality of the Online Learning Experience: A causal Model	Instructor mentoring, course content, course structure, student-to-student interactions, lecture delivery quality, student-instructor interactions, quality of the learning experience
Keengwe et al. (2012)	Student and Instructor satisfaction with E-learning tools in online learning environment. International Journal of Information and Communication Technology Education,	Learner dimension, Instructor dimension, course dimension, technology dimension, design dimension, environmental dimension
Mtebe & Raphael (2018)	Key factors in learner's satisfaction with e-learning system at the University of Dar es Salaam, Tanzania	Course quality, system quality, service quality, instructor quality, perceived usefulness
Aftab et al. (2019)	Critical factors which impact on student satisfaction: A study of e-learning institutes in Pakistan	Student's, teacher's, technology, design, environmental and course

From the detailed literature review the author identified six variables - student characteristics, instructor characteristics, course content, course design, learner's environment and technological/ administrative support for measuring the influence on student's engagement during online education in the pandemic period. Both undergraduate and postgraduate students are considered, especially those who are undertaking online learning for the first time.

Factor	Variables
Instructor Characteristics	Enthusiasm of the instructor while teaching in online mode
	Clarity of instructor's explanation in online mode
	Capability of the instructor in using online teaching mode
	The approachability to teacher in online mode
	Readiness to be a part in online learning

Student Characteristics	Adapting the Learning style
	Initiative to learn online
	Make use to online tools to learn new things
Course Design	Courses are designed with better user experience
	Easy to navigate into the content of courses
	The use of graphics and other features make it more engaging.
Course content	Sufficient content is provided to understand any topic
	The content is good enough to cover syllabus
	The content allows proper assessment of understanding
Learner Environment	The environment around is suitable for online learning
	The infrastructure is sufficient for online learning
	The benefits of anytime, anyplace can be utilized in online learning
Technology/ Admn support	The institution is providing technology/ admin support for online learning
	The institution is explaining clearly all the procedure for online learning.
	Assessment procedure is clearly explained in online learning

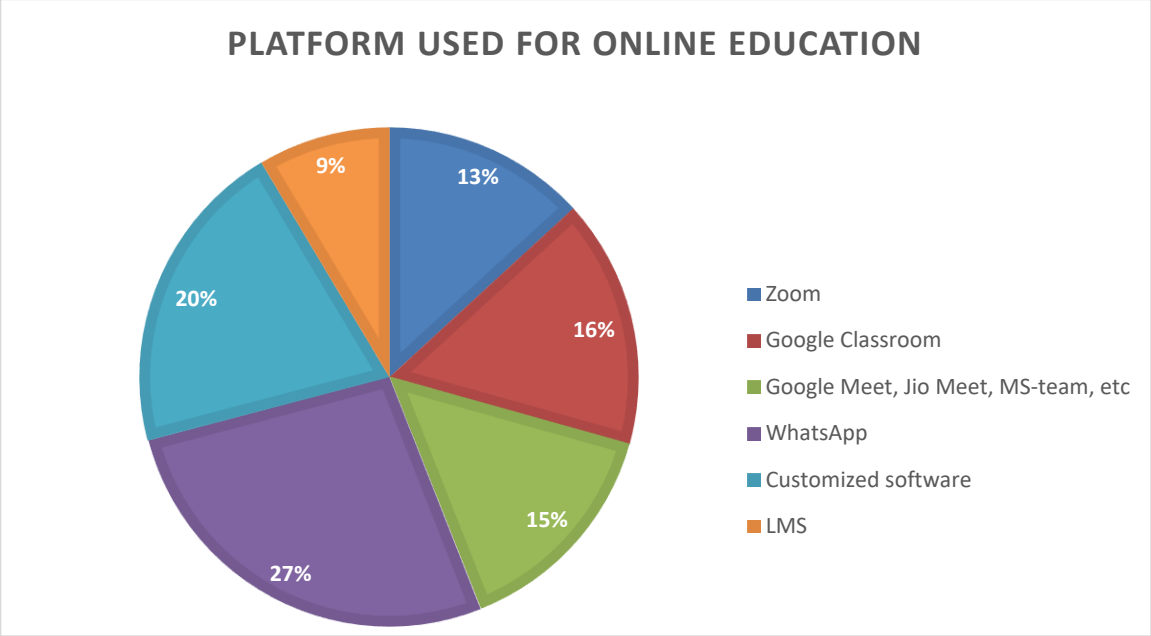
Research Methodology

The data for the study was collected using a convenient sampling technique. A self-signed questionnaire was used to gather the information from the student through the online mode. An undergraduate or graduate student was considered solely on the basis of a primary selection criterion for new online learners. Variables used in the questionnaire were determined according to the literature review, i.e., student characteristics, instructor characteristics, course content, course design, learner environment, and technical and administrative assistance. In total, 314 responses were obtained from the online survey using Google forms. Out of the responses, a further refinement led to 290 sample data for further analysis. The engagement criteria and effects of variables were measured in a Likert scale ranging from 1 (strongly disagree); 2 (disagree); 3 (neither agree nor disagree); 4 (agree) and 5 (strongly agree).

Analysis

1) Online education details followed during pandemic period

i) Platform used for Online education

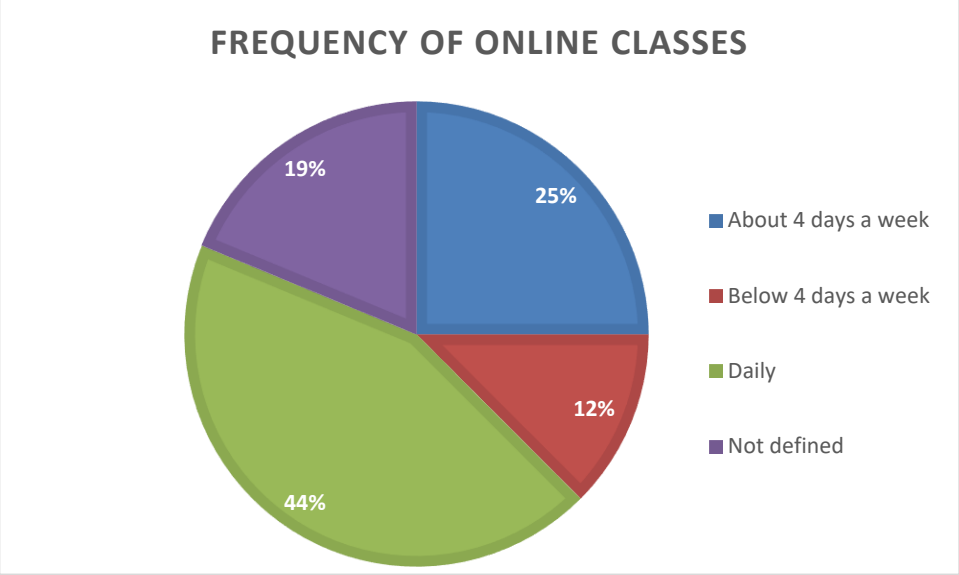


It is quite surprising to observe that a tool like WhatsApp has been used the most for online education, where it is a messaging tool and not exactly designed for online education. It is also observed that many institutions do not use the advantages of learning management systems, which are essential to provide a holistic student experience for online education.

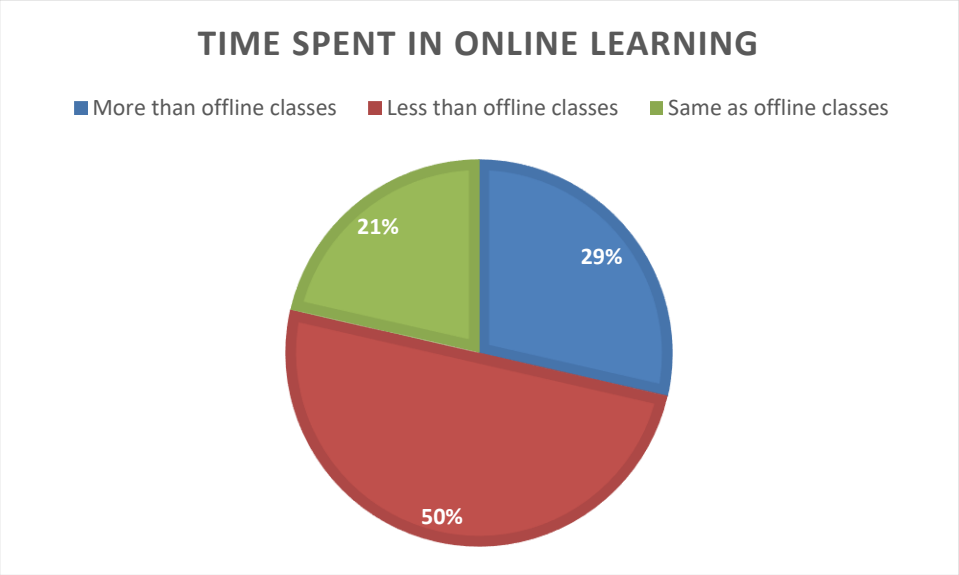
ii) Frequency of Online Classes

Evidence from the data collected shows that most classes were conducted daily. There are instances when classes are not planned appropriately and have been carried out without proper notification or planned manner. Some classes were given only 4 days a week, which appears to be much less.

The trailing figure summarizes the aforesaid.



iii) Time Spent in Online Classes



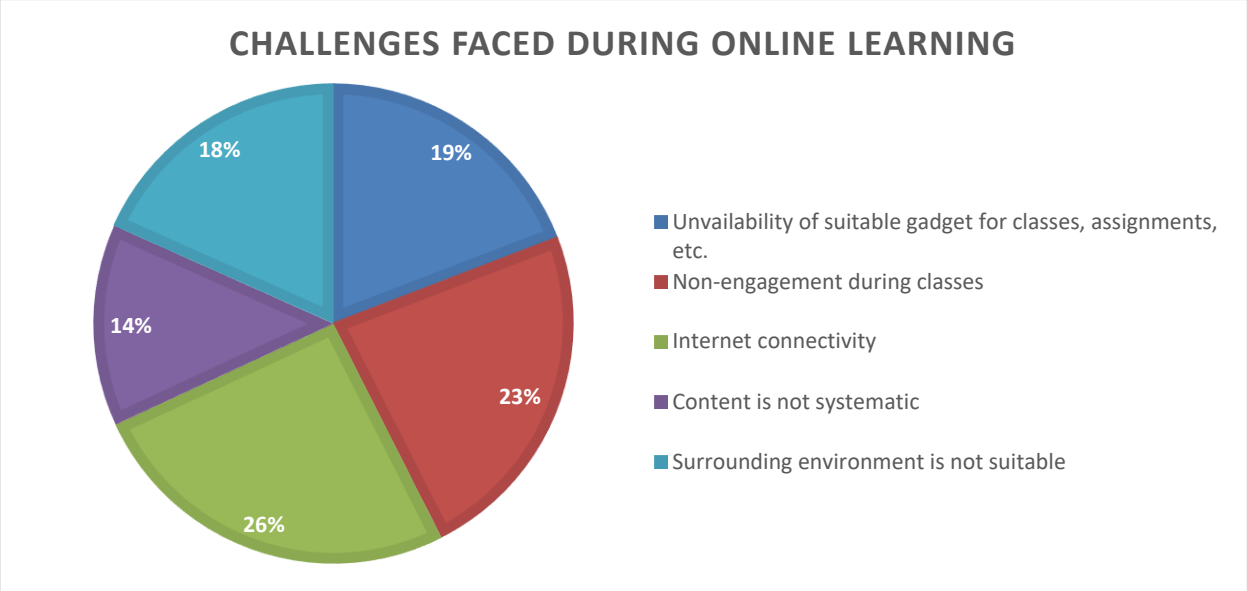
Over 50% of students say they spent less time in the online education mode than they did during offline classes. It clearly shows that the system is not designed to adequately use students' time in education-related activities.

iv) The challenges of on-line learning.

This was an open-ended question addressed to the student. And using the data, the main challenges are calculated in percentage. The data collected showed that students faced several

challenges during their online learning process. Internet connectivity continues to be one of the key bottlenecks in building an efficient online education system.

The trailing figure summarizes the aforesaid.



2) Factors influencing student engagement in online education

The student engagement in online education is correlated with identified variables – instructor characteristics, student characteristics, course content, course design, learner's environment and technology/ administrative support. The objective is to observe the weightage of the independent variables on the dependent variable. This will help in understanding the influence of the identified variables in student engagement in online education.

Let Y be the independent variable.

Y = Student engagement in online education

B = the coefficient of determinant (a constant value)

X1 = instructor characteristics

X2 = Course design

X3 = Student characteristics

X4 = Learner's environment

X5 = Course content

X6 = Technology/ Administrative support

Thus, we can frame a multiple regression equation like

$$Y = B_0 + B_1X1 + B_2X2 + B_3X3 + B_4X4 + B_5X5 + B_6X6$$

The SPPS 20.0 was used to analyse the data for the multiple regression. The table below shows the summary.

Table 1: Predicting factors of Student's Engagement.

Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.625[a]	.481	.363	.758

a. Predictors: (Constant), Technical/ Administrative support, Student characteristics, Instructor characteristics, Course content, Learner environment, Course Design

The R square value shows that the predicted model is 48.1% accurate in explaining the variance in the data. And hence can be considered as a moderate model to represent the variation in dependent variable.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	35.780	6	5.963	10.392	.000[b]
	Residual	162.397	283	.574		
	Total	198.177	289			

a. Dependent Variable: Student Engagement

b. Predictors: (Constant), Technical/ Administrative support, Student characteristics, Instructor characteristics, Course content, Learner environment, Course Design

The ANOVA table represent the overall significance of the predictive model. The model is statistically significant (p – value is less than 0.05 at 6 degree of freedom)

Coefficients

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	1.626	.277		5.874	.000
	Instructor characteristics	.345	.047	.404	7.404	.000
	Course Design	.055	.048	.063	1.147	.002
	Student characteristics	.130	.054	.030	.558	.003
	Learner environment	.036	.046	.044	.796	.000
	Course content	.141	.041	-.054	-1.003	.001
	Technical/ Administrative support	-.017	.033	-.027	-.506	.613

a. Dependent Variable: Student Engagement

The standard Beta Coefficients can be used as a measure for the contribution of each factor in the model. The 't' and 'p' is a rough estimate of the effect of each predictor variable.

Instructor characteristics has the highest beta value of 0.345, course content has the next highest value of 0.141 and then student characteristics with beta value of 0.130. Apart from the technical/ administrative support, it was observed that all t-value of the variables are significant as p-value is less than 0.05.

Thus, the multiple regression equation can be framed as

Y (student engagement) = 1.626 + 0.345X1 (Instructor characteristics) + 0.055 X2 (Course design) + 0.130 X3 (student characteristics) + 0.036X4 (learner environment) + 0.141X5 (Course content) - 0.017 X6 (Technical/ administrative support)

The respondents in the sample have given more importance to the instructor characteristics, course content and student characteristics as most importance variables influencing student engagement in online education.

3) Relation of the student engagement with the variables

Correlations								
		Student Engagement	Instructor characteristics	Course Design	Student characteristics	Learner environment	Course content	Technical/ Administrative support
Student Engagement	Pearson Correlation	1						
Instructor characteristics	Pearson Correlation	.411**	1					
Course Design	Pearson Correlation	.126*	.135*	1				
Student characteristics	Pearson Correlation	.048*	.028	.068	1			
Learner environment	Pearson Correlation	.074*	.045	.108	.128*	1		
Course content	Pearson Correlation	.011**	.098*	.020**	.068	.004	1	
Technical/ Administrative support	Pearson Correlation	-.046	-.022	-.103	-.008	-.086	-.010	1

**. Correlation is significant at the 0.01 level (2-tailed).

*. Correlation is significant at the 0.05 level (2-tailed).

Pearson's coefficient is a parametric technique which describes the strength and relationship between two variables. A correlation coefficient is a statistical tool to measure the strength and relationship of two variables. In the study, the statistical significance is observed at 95% and 99%. It can be observed from the correlation table above that, student engagement is positively correlated to student characteristics, instructor characteristics, course design, course content, and learner environment. The data did not reveal any relation between student engagement and technical/ administrative support. The outcomes are similar to many of the literature that has been mentioned in review section.

Conclusion

The study tried to understand the factors/variables that affect student engagement in online learning. It was a conscious attempt by the author to understand the factors influencing the engagement of students who are taking online education for the first time because of the covid-19 situation. Students who have already taken an on-line education may have different perceptions. The study found that student characteristics, instructor characteristics, course design, course content and the learner's environment are the factors that most affect student engagement in online learning. Among these factors, the strongest influence was related to instructor characteristics.

The Indian education system is mostly run offline, and it is quite evident that instructors play a major role in an offline education system. That might be one of the reasons influencing student engagement in online education as well. As students are more reliant on the instructor in an off-line education system, they also expect the same environment in an on-line education system. And therefore, in the online education system too, the teacher plays a major role in creating engagement among the students.

However, it must be understood that the survey covers only approximately 290 samples, which is insufficient to generalize the results. Also, as the survey was conducted online, there is an opportunity for influence from student groups and like-minded college groups. But this study provides a certain direction towards which a comprehensive study can be undertaken to identify the factors influencing student participation in an online mode of education.

References

1. Abbasi, S., Ayoob, T., Malik, A., & Memon, S.I. (2020). Perceptions of students regarding E-learning during COVID-19 at a private medical college. Pac J. Med. Science. DOI: https://doi.org/10.12669/pjms.36.COVID19-S4.2766
2. Aftab, J., Sarwar, H., Khan, A.H. and Kiran, A. (2019). Critical Factors which impact on Student's Satisfaction: A Study of e-learning Institutes of Pakistan. Asian Journal of Distance Education, 14(2), 32-46.
3. Baczek, M., Zaganczyk-Baczek, M. Szpringer, M., JJarosyniski, A. & Wozakowska-Kaplon, B. (2020). Student's perception of online learning. A survey study of Polish medical students. Research Square. Doi: https://doi.org/10.21203/rs.3.rs-41178/v1
4. Basilaia, G. & Kvavadze, D. (2020). Transition to online education in schools during a SARS-CoV-2 coronavirus (Covid-19) pandemic in Georgia. Pedagogical Research, 5(4), 1-9.
5. Bhagat, K.K, Wu, L.Y. and Chang, C.Y. (2016). Development and Validation of the Perception of Students towards online learning (POSTOL). Educational Technology & Society, 19(1), 350-359
6. Britt, R. (2006). Online education: A survey of faculty and students. Radiologic Technology, 77(3), 183-190
7. Christenson, S.L., Appleton, J.J., Kim, D., Reschly, A.L. (2006). Measuring cognitive and psychological engagement: Validation of the Student Engagement Instrument. J. Sch. Pschol., 44, 427-445.
8. Dhawan, S. (2020). Online learning: A panacea in the time of COVID-19 crisis. Journal of Educational Technology Systems. 49(1), 5 – 22
9. Fredricks, J.A., Blumenfeld, P.C., Paris, A.H. (2004). School engagement: Potential of the concept, state of the evidence. Rev. Educ. Res., 74, 59-109
10. Fortune M. Spielman M and Pangelinan D (2011) Student's perceptions of online or face-to-face learning and social media in hospitality, recreation and tourism. Journal of Online Learning and Teaching, 7(1), 1-16
11. Kaur, G. (2020) Digital Life: Boon or Bane in teaching sector on COVID-19, CLIO and Annual Interdisciplinary Journal of History, 6(6), 416-427
12. Keengwe, J., Diteeyont, W., and Lawson-Body, A., (2012). Student and Instructor satisfaction with e-learning tools in online learning environments. International Journal of Information and Communication Technology Education, 8(1), 76-86

13. Kuh, G.D. (2003). What we are learning about student engagement from NSSE: Benchmarks for effective educational practices, Change: The Magazine of Higher Learning, 35(2), 24-32
14. Mailizar, Almanthari, A., Maulina, S. & Bruce, S. (2020) Secondary school mathematics teacher's views on e-learning implementation barriers during the Covid-19 pandemic: The case of Indonesia. Eurasia Journal of Mathematics, Science and Technology Education, 16(7), em1860
15. McPherson, M.S. & Bacow, K.S. (2020). Online higher education: Beyond the hype cycle. The Journal of Economic Perspectives, 29(4), 135-153.
16. Mtebe, J.S. and Raphael, C. (2018). Key factors in learner's satisfaction with the e-learning system at the University of Dar Es Salaam, Tanzania. Australian Journal of Educational Technology, 34(4).
17. Pace, C., Pettit, S.K. & Barker, K.S. (2020). Best practices in middle level quaranteaching: Strategies, tips and resources amidst COVID-19. Becoming: Journal of the Georgia Association for Middle Level Education, 31(1), 2.
18. Peltier, J.W., Schibrowsky, J.A. and Drago, W. (2007). The Inter dependance of the factors influencing the perceived quality of the online learning experience: A casual model. Journal of Marketing Education, 29(2), 140-153.
19. Rasmitadila, Aliyyah, R.R., Rachmadtullah, R., Samsudin, A., Syaodih, E., Nutanto, M. & Tambuman, A. R.S. (2020). The perceptions of primary school teachers of online learning during the COVID-19 pandemic period: A case study in Indonesia. Journal of Ethnic and Cultural Studies, 7(2), 90-109
20. Ryan, S., Kaufman, J., Greenhouse, J.B., She., R., and Shi., J. (2016). The effectiveness of blended online learning courses at the community college level, Community College Journal of Research and Practice, 40(4), 1-14.
21. Tratnik, A. (2017). Student satisfaction with an online and a face-to-face Business English course in a higher education context. Journal Innovations in Education and Teaching International, 15(1), 1-10.
22. Zhong, R. (2020, March 17). The coronavirus exposes education's digital divide. Retrieved from The New York Times: https://www.nytimes.com/2020/03/17/technology/china-schools-coronavirus.html