



COMMUNICATION BARRIERS IN ONLINE LEARNING

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Abstract

With the advent of COVID-19 pandemic trend of online education emerged quite significantly even in developing countries like India despite of unpreparedness and willingness. We conducted a survey on learners having online education for finding out their perceived communication obstacles in online learning. The present study found communication barriers at learner-learner communication barrier dimension are anxiety, distraction, low motivation level, at learner-instructor communication barrier dimension are low satisfaction level of interaction, however, not majorly; less emotional connection with teacher despite of no language barrier, less personal attention and less gesture communication of teacher, issue of timely and effective address of queries and feedback and at learner-technology communication barrier are network connectivity and technical difficulties despite of no problem in the e-learning medium, power point teaching and audio-video learning. Students perceive that feeling of lack of reward mechanism, technological and motivational issues make online learning less satisfying than face to face learning. Consequently, students are not likely to study next course in online mode or recommending others for the same.

Keywords: Communication barrier, learner-learner, learner-instructor, learner-technology, online learning, face to face learning

Affordable and accessible internet services in developing countries has facilitated online education along with traditional classroom learning. But during COVID-19 pandemic all educational institutions completely transformed teaching and learning process in online mode due to need of the hour. As campus learning was quite impractical and hazardous in the pandemic. This led boost to many Ed-start ups and e-learning platforms. University professors and lecturers taught complete course content online. But how much effective was the online learning for learners remain an unexplored area till now. To continue blended learning or online learning in future, it must be researched for its viability and effectiveness. This may lead

to researchers finding students perception regarding online learning for its effectiveness and obstacles they faced. Classroom communication and barriers in it is one of the important angle which need to be focused on for better educational outcomes. Communication barriers in online learning environment in Indian university is studied for suggesting a practical online learning environment.

Literature review

Learning can be defined "functionally as changes in behavior that result from experience or mechanistically as changes in the organism that result from experience" (Houwer et al., 2013; p. 631). (Ambrose et al., 2010, p.3) defined learning as behavioral change that happens due to experience which enhances future performance. Learning is researched in several ways but the basic notion of learning and what precisely learning is essential to understand. Learning refers to a permanent change in human reaction against some stimuli in a relation to the prior reaction to the same stimuli (Gordon, 1989, p. 6).

Singh & Thurman (2019) mapped evolution of online learning concept to the development of technology by doing systematic literature review of online learning and it's synonym concepts evolved during thirty years to come at the definition of online learning in a meaningful way. "Online learning is defined as learning where students and instructors co-present and engage at their ease of convenience through internet" whereas "Online education is defined as education where teaching content is delivered online through effective and interactive modules in virtual classroom online in synchronized or asynchronised environment."

In the COVID-19 pandemic, universities and colleges shifted online for teaching the courses all over the world. The countries who had no preparedness or effective tested mechanism to impart education in online mode suffered the most. Bao(2020), in her case study of Peking University identified important principles and strategies to design, deliver and evaluate higher education in online mode. She argued learning behavior characteristics of online learners are key to design teaching content and deliver the same, faculty support and regular feedback of the students are important to ensure participation in the online learning and emergency plan like during COVID-19 has to be prepared and tested before such emergency occurs.

Chakraborty et al.(2021) surveyed Indian students enrolled in higher education in undergraduate courses during COVID-19 to know their opinions on Online education. Students reported that they learn better in physical classrooms and considered online education as useful. However, Online education seemed stressful impacting their health and social life and the researchers suggested some techniques to operate online learning better namely "flipped classroom, case studies and gamification". Online learning is becoming alternative of physical classroom, So innovations may be tried and their effects may be studied to design a better teaching- learning interface.

Robinson and Hullinger(2008) tested dimensions of National Survey of Students Engagement on online learners in three universities and found it apt for measuring engagement in online learning environment. Online learning in higher education is not just to teach the course content to students that was otherwise taught in campus settings rather quality of education and accountability of online education providers need to be asserted. The researchers suggested to build engagement norms and improvement benchmarks and targets could be set by further researching on online learning in the context of higher education.

Selvaraj et al. (2021) studied effects of online education during pandemic on teaching and learning system in which teachers and students agreed that physical classrooms are better in imparting knowledge and to produce intended result. Physical and mental discomforts especially during pandemic times become of utmost importance in the entire process of teaching and learning. In the agreement of previous researchers, they argued that infrastructure and technology distribution should be on equal basis considering socioeconomic factors of learners.

Lemay et al. (2021) had a social laboratory for studying the perceptions of students before the transition and after the transition in learning environment in the wake of COVID-19 pandemic. They argued that along with technical, instructional dimensions social dimensions that affect learning quite significantly also need to be focused upon to design a more effective and implementable online learning environment both for students and instructors. Binali et al.(2021) examined online learning profiles of students in relation to "metacognitive regulation and internet specific epistemic justification" and based on individual differences five clusters emerged namely self driven online contributors who are highly engaged , self driven online

viewers who are moderately engaged, less engaged online learners who are self driven, and course driven online learners who are highly engaged and less engaged respectively.

Abdullah & Ward (2016) analysed external factors of Technology Acceptance Model(TAM) and developed its extended version in the e-learning context namely "General Extended Technology Acceptance Model (GETAMEL)". Self efficacy predicts perceived ease of use of e-learning systems most efficiently than enjoyment factor and anxiety factor. But students perceive online learning as useful when they enjoy it most and self efficacy comes in later into the picture. Muthuprasad et al. (2021) found students preference towards recorded classes as compared to live classes. But time lapse in the feedback and inefficient operation of learning and communication technologies is hurdle in online learning. The researchers pointed out important issue in online education in regard of disciplines having practical subjects and laboratory works, hence suggested to operate in hybrid mode rather than completely online curriculum.

Sarisakaloğlu et al.(2015) surveyed students of university in turkey and interviewed teachers to find out perception of communication barriers among them in regard to learning approaches namely behaviorism, cognitivism, constructivism. The results confirm that despite of educational technologies and ease of learning at home, traditional learning in classroom setting where teachers and learners interact face to face is preferred by the learners. Alawamleh et al.(2020) surveyed students to know the communication problems in online learning and found that students face psychological issues like lack of motivation and communication issues with teachers and consequently isolation is caused by online classes. The researchers suggested teachers need to communicate not only formally but in informal medium like online chat, audio and video calls too to help students overcome loneliness and increase participation in the online learning environment.

Maqableh & Alia (2021) analysed factors of students dissatisfaction and found decrease in focus may be due to psychological or management issues and suggested measures to tackle it; online earning platform in accordance of international standards for teaching and learning shall be employed, an academic continuity planning committee to evaluate and monitor online learning process may be formed, equal access of technology and resources may be ensured by the governments, a comprehensive training to teachers and students to operate technology may be provided, mental health and psychological issues need to be taken care of while designing, operating, monitoring and evaluating of online learning mechanisms.

In the study, "The Computer Delusion", Oppenheimer (1997) opined about the technology pertinence in the media:

"There is no good evidence that most uses of computers significantly improve teaching and learning, yet school districts are cutting programs -- music, art, physical education -- that enrich children's lives to make room for this dubious nostrum, and the Clinton Administration has embraced the goal of "computers in every classroom" with credulous and costly enthusiasm". As for pedagogical changes, "policy, resources, infrastructure, and culture" must conform with student expectations to give desirable results to both teachers and students (Porcaro, 2011).

Jæger and Blaabæk(2020) researched on "Inequality in Learning Opportunities during Covid-19" and found evidence that the families having high socioeconomic status have consistently accessed higher number of digital books for children during each phase of Corona pandemic in comparison of low economic status strata people. Inclusive and affordable education in terms of place, network connectivity, social strata, economic conditions, ethnicity and social class is the dire need of country in general and in the time of crisis in particular (Dhawan, 2020). In the time of crisis like COVID-19 pandemic, all educational institutions willingly or unwillingly have to convert completely online for teaching and learning process which threw challenges and created opportunities simultaneously to the educational institutions for developing e-learning management systems for online learning or blended learning.

Learners are center of any pedagogy design and implementation. Hence learner or student satisfaction plays the key role in determination of success of online courses. Bolliger (2004) identified key factors which determine student satisfaction in online courses and found that tools like OCSS(Online Course Satisfaction Survey) can be used for the evaluation of online courses to a certain level.

Selwyn (2016) argued that rather than idealistic form of digital technologies discourse there is need to develop practices and policies that draw upon digital pedagogies to harness potential of digital tools and

technologies in online learning. The ground reality of students and teachers engagement with digital technologies can not be ignored and they need to be digitally literate rather than conducting technical skills training programs to operate on such technologies. Just imparting education in online mode to offer flexible learning environment and ease of use does not determine the effectiveness of that education programme.

Research Objectives

1. To identify communication barriers in online learning environment.
2. To know online learning experience of students in the pandemic.
3. To know whether students perceive online learning better than classroom learning.

Research Methodology

The present study is based on primary data collected from students who learned online in the pandemic. An online survey using Google form was used to collect responses of students of an Indian university. Non-probability snowball sampling method was used because of pandemic constraints. Due to COVID-19 pandemic barriers this method found to be appropriate. Elizabeth S. Roberts (1999) in the research paper "In defense of the survey method: An illustration from a study of user information satisfaction" argued that research having sociological and psychological variables can readily use the survey method to collect data.

Analysis and Discussions:

The data collection was done by online survey through Google forms. Snowball Sampling was used to collect perception of an Indian University students on communication barriers faced by them during COVID-19 pandemic. A total of 186 respondents data was collected for this study having education level of dergraduate, postgraduate and doctorate. Data that was collected on Likert scale gone through reliability test for measuring internal consistency of the construct. Cronbach 's alpha value of 0.742 established that all item-total correlation is acceptable. Previous researches has validated cronbach's alpha to be ≤ 0.7 value.

Table 1

Indicators of communication barriers in online learning

Indicator	Statement
Learner-Learner communication Barrier	
LLB1	Distraction in the online class was a factor inhibiting learning
LLB 2	Motivation level in the online class as compared to offline learning
LLB3	Feeling of lack of reward mechanism for excelling in online class as compared to traditional classroom
LLB4	Anxiety and confusion is a factor that affects online learning
Learner-Instructor communication Barrier	
LIB1	Satisfaction level of interaction with the instructor during online learning
LIB2	Level of emotional connection with the teacher as compared to traditional classroom was high
LIB3	Understanding and interpretation of the course content was high as compared to face to face class
LIB4	There was language barrier between you and the teacher instructing the course
LIB5	Personal attention of the teacher is less in online learning
LIB6	Face and bodily gestures of the teacher communicated clearly in online learning
LIB7	Queries regarding course content were solved quickly in online class
LIB8	Feedback for each learning session was communicated effectively in online learning
LIB9	There was clear communication of class assignments in online class
Learner-Techno communication Barrier	

LTB1	Medium or e- learning platform selected for online class was appropriate
LTB2	Network connectivity issue made learning frustrating exercise
LTB3	Learning through power point presentation or e-blackboard is effective as compared to traditional classroom
LTB4	Reading and learning material shared online effectively communicated the course content
LTB5	Technical difficulties discourage me for online learning
LTB6	Audio and video learning was more effective than face to face learning

Table 1 conceptualize the communication barriers due to learner himself/ herself, on the instructor part and due to technology used for facilitating learning activity. Learner-learner communication barrier indicators are LLB1, LLB2, LLB3, LLB4. Learner- instructor communication barrier indicators are LIB1 to LIB9 and Learner- Technology communication barriers are LTB1 to LTB6. These indicators formulated the questions asked from respondents.

Table 2

Demographic and academic profile of students

Variable	Attribute	Frequency	Percent
Age of respondent	18-20	56	30.1
	21-23	116	62.4
	24-26	10	5.4
	Above 26	4	2.2
	Total	186	100.0
Gender	Male	100	53.76
	Female	86	46.23
	Total	186	100.0
Educational level	Undergraduate	78	41.9
	Postgraduate	104	55.9
	Doctorate	4	2.2
	Total	186	100.0
Domicile	Urban	78	41.9
	Rural	108	58.1
	Total	186	100.0
First Language	Hindi	160	86
	English	24	12.9
	Maithili	2	1.1
	Total	186	100.0
Second Language	Hindi	50	26.9
	English	132	71.0
	Maithili	2	1.1
	Punjabi	2	1.1
	Total	186	100.0

Table 2 displays the general characteristics of sample containing information about age, gender, educational level, domicile, first language they speak and understand and second language they know. It is found that majority(62.4%) of students in the sample of an Indian university belongs to the age group of 21-23. Gender distribution of the students found to be male dominated with a difference of approximately 4 percent which accounts for 53.76 percent of male members and 46.23 percent of female members. Maximum number of students responded the survey are at postgraduate educational level, table2 shows 55.9 percent of such students in the sample followed by 41.9 percent of undergraduates and just 4 students are of doctorate level. Majority of the students are of rural domicile that shows reality of a developing nation like India. 58.1 percent students are of rural background and 41.9 percent of urban background in the sample. Online learning took place from home during the pandemic and in this scenario technological constraints like network connectivity and other issues like intra-personal and learner-instructor communication barriers become deciding factors in the success of this newly transformed learning-teaching process. According TRAI report 2020-21, rural internet subscribers per 100 population are just 36.24 in number. Considering

this, how can online teaching-learning be successful without necessary infrastructure. The researchers tried to conceptualize various communication barriers that come in the way of online learning. 86 percent of the total sample size, students have Hindi as their first language as it is the case of North Indian university and 71 percent English as their second language.

Table 3: Percentage of responses on Likert Scale

Indicator	1	2	3	4	5	
	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mode
LLB1	5.4	11.8	16.1	45.2	21.5	4
LLB 4	8.6	11.8	26.9	38.7	14.0	4
Indicator	Very low	Low	Neutral	High	Very High	Mode
LLB2	21.5	32.3	31.2	11.8	3.2	2
LIB1	16.1	20.4	41.9	16.1	5.4	3
Indicator	Strongly disagree	Disagree	Neutral	Agree	Strongly Agree	Mode
LIB2	24.7	24.7	26.9	16.1	7.5	3
LIB3	14.0	34.4	24.7	14.0	12.9	2
LIB5	8.6	8.6	24.7	40.9	17.2	4
LIB6	14.0	35.5	32.3	15.1	3.2	2
LIB7	19.4	33.3	34.4	11.8	1.1	3
LIB8	17.2	43.0	17.2	19.4	3.2	2
LTB1	9.7	11.8	36.6	35.5	6.5	3
LTB2	7.5	9.7	17.2	47.3	18.3	4
LTB3	18.3	15.1	25.8	28.0	12.9	4
LTB4	5.4	22.6	29.0	23.7	16.1	3
LTB5	15.1	16.1	29.0	23.7	16.1	3
LTB6	23.7	37.6	18.3	11.8	8.6	2

Table 3 displays responses of questions asked on five- point Likert scale having statements of communication barriers in various dimensions. It was found that at Learner-Learner communication barrier indicators LLB1 and LLB4 indicating perceived distraction in the online class was a factor inhibiting learning and anxiety and confusion is a factor that affects online learning respectively, maximum students agree on these statements. 45.2 percent students agree on distraction as communication barrier and 38.7 percent students agree on anxiety and confusion as communication barrier perceived by them in online learning settings. Perceived motivation level in the online class as compared to offline classroom was found to be low and very low of majority of sample studied. Measured on Likert scale, 32.3 percent of the students reported low motivation level and very low by 21.5 percent students.

Satisfaction level indicator of interaction with the instructor found mix results as 41.9 percent showed neutral response and 20.4 percent and 16.1 percent students reported low and very low satisfaction level for interaction respectively. If students are not able to connect with teacher at emotional level, it creates barrier in communication, above data shows 49.4 percent of students either strongly disagree or disagree on the statement that level of emotional connection with the teacher in the online class was high as compared to traditional class. Only 16.1 percent students agree on the previous statement. Understanding and meaning making of course content taught in online class found difficult as compared to face to face class and supported by 48.4 percent of responses. 24.7 percent and 14 percent students agree and strongly agree respectively on the statement.

Personal attention of teacher on students is less in online learning environment agreed and strongly agreed by 65.6 percent of students cumulatively. While 17.2 percent students disagree and strongly disagree by this statement. Non- verbal communication is said to be more than 80 percent of communication process, hence face and bodily gestures of teacher become important in the teaching communication. Face and bodily gestures of the teacher communicated clearly or not was asked from students, it was found that only 15.1 percent and 3.2 percent students agree and strongly agree respectively on this statement. Majority 49.5 percent students either disagree or strongly disagree on this statement.

Queries and feedback of students are essential for effective teaching-learning process. As teaching is not one way communication, unless receiver got the message and understood the meaning clearly communication is not complete consequently, learning does not take place. In the view of this concern, it was asked that queries regarding course content was solved quickly in online class. More than half of students that is 52.7 percent students either disagreed or strongly disagreed on this statement. Only 1.1 percent strongly agreed that queries were solved. Feedback for each learning session was not communicated effectively in online learning environment is supported by 60.2 percent of the students in the sample.

Technology used to facilitate online learning plays a significant role in the success of learning process. All online learning platforms need internet connectivity as essential element for teaching-learning interface operation. Teacher and learner if not trained to use technology applications, learning suffers a lot. For this reason, students were asked medium or e-learning platform selected for online class was appropriate. Mix responses were collected on this statement. As 36.6 percent students had neutral attitude towards medium, but 35.5 percent students agree that medium selected for online learning had no problem. But network connectivity issue made learning frustrating exercise was agreed by 47.3 percent of students and strongly agreed by 18.3 percent of students. Power point presentation or e-blackboard was perceived effective by 40.9 percent of students by agreeing and strongly agreeing on the statement. While 33.4 percent as a whole students disagree and strongly disagree that power point is effective than traditional class settings.

Regarding reading and learning material shared online effectively communicated the course content statement, majority 43 percent of the students agreed and strongly agreed cumulatively. Only 22.6 percent students disagree on effective communication of course content. 39.8 percent of students agreed on the statement that technical difficulties discourage them for online learning while 31.2 percent have no problem with technical difficulties. 29 percent maintain neutral viewpoint on technical difficulties faced by them in online learning. When students were asked whether audio and video learning was more effective than classroom learning, 37.6 percent of the students did not agreed on it and 23.7 percent even strongly disagreed on it. It implies that medium selected for online learning, power point or e-blackboard teaching, reading and learning material selected to communicate course content had no barrier in online learning. Still face to face class learning was preferred by majority of students than audio and video learning and network connectivity issues and technical difficulties discourage them to learn online.

Table 4: Communication barriers measured on Nominal Scale

Indicator	1	2	3	
	Yes	No	May be	Mode
LLB3	46.2	14.0	39.8	1
LIB4	36.6	63.4	0.0	2
LIB9	29.0	44.1	26.9	2

Table 4 shows that LLB3 indicating feeling of lack of reward mechanism for excelling in online learning as compared to traditional class got 46.2 percent responses in support of the statement. While LIB4 indicating language barrier between learner and the teacher who is instructing the course got 63.4 percent negative responses and LIB9 indicating clear communication of class assignments in the online class also got majority of negative responses accounting to 44.1 percent.

Table 5: Perception on Online learning versus traditional classroom learning

Statement	1	2	3	4	5	Mode
	Strongly disagree	Disagree	Neutral	Agree	Strongly agree	
S1: Online learning experience encourages me to learn next course in online mode	20.4	31.2	32.3	14.0	2.2	3
S2: I will recommend others to opt for online learning rather than face to face learning	30.2	30	22.6	10.8	6.5	1
S3: I am satisfied with online learning more than traditional classroom learning	21.5	46.2	19.4	11.8	1.1	2

Table 5 shows perception of students on online learning vis-a-vis traditional classroom learning. Statement 1 written above tells that online learning experience do not encourage to 51.6 percent of the sample students for learning next course in online mode as this much percent of students either disagree and strongly disagree with S1. While 32.3 percent students have neutral view on this scale. As experience of online learning discourages them, hence S2 follows the graph of disagreeing students. 60.2 percent students do not want to recommend others to opt for online learning at the place of face to face classroom learning. When asked about perception of satisfaction with online learning in comparison of classroom learning, 46.2 percent disagree on satisfaction and 21.5 percent even strongly disagree. 19.4 percent has neutral say on satisfaction scale.

Conclusion and Suggestions

Online education adoption and its usefulness is growing at rapid rate in recent times. This transformation of teaching-learning process is setting its own opportunities and challenges before world's education system in general and education system of developing countries in particular. Much has been said about online learning ease of use and usefulness, now educators and researchers need to focus upon the implementation hurdles in setting up of online learning environment in particular education systems. The present research is one step in this direction as it surveyed students to identify communication barriers in online learning environment. The result found out that from anxiety, distraction to technical and communication barriers at instructor level exist which make them feel online learning as less satisfying than classroom learning. But at the same time majority of the students agree that online learning platform, e-blackboard and reading material quite effectively communicated the course content. If subsequent research identify barriers in online learning and suggest measures to tackle it, online learning can be viable option of learning due to flexibility, cost effectiveness and adequate resource distribution.

A robust network and IT infrastructure is essential for viability of online learning. Students of rural areas are at disadvantage due to lack of such facilities. The governments need to focus on strengthening and developing internet accessibility and affordability. Mental health of students and teachers are of great importance in the time of crisis and in general as well. Specifically, in online learning environment, problems like anxiety and distraction occur often which may be catered if online learning mechanisms are designed in accordance of psychological standards. This disaster has created opportunities along with challenges that we must work on. E-learning skill set development in the teachers and learners is one of that which we must acquire. This pandemic has given the lesson that it's never too late to start but preparedness to work and operate efficiently in the future must be the goal now. Digital infrastructure in the education sector is most relevant area which require genuine scholarship and government will. Pedagogy and learning methods need to be align with the changing learning environment. For that educators, researchers and governments need to work hand in hand to improve not only online education but education system as a whole. Before designing and adapting any e-learning mechanism, barriers and advantages need to be weighed. This require an enormous research in online education and online learning. Particular context of particular learning environments like students and teachers skill level for the technology, digital literacy level, internet connection and speed, availability and accessibility need to be focused on for inclusive education and education for all. Disasters like COVID-19 created a havoc in the education machinery, but it brought several opportunities, if lessons learnt, can improve entire education system for better future.

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