

# Satisfaction level of students of National University of Science and Technology regarding online teaching during the second wave of COVID-19 pandemic

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## ABSTRACT

**Introduction:** Among other pressing social, economic, and communication issues of daily life that arose due to the Covid-19 pandemic, one of the essential services that got disrupted was that of education. Students were suddenly required to stay home and learn from online teaching methods. Teachers were also caught unprepared for this sudden change in the mode of instructions. The satisfaction of the main stakeholders, students, remains to be evaluated.

**Objective:** To determine the satisfaction level of the students of National University of Science and Technology, Islamabad, regarding online teaching during the second wave of Covid-19 pandemic.

**Material & Methods:** A cross sectional survey was conducted from March 2021 to April 2021 on students of the National University of Science & Technology Islamabad, using an online questionnaire distributed to subjects through email and social media. The survey requested demographic and socioeconomic information, as well as information related to online learning and electronic devices; education status during the COVID-19 pandemic; and e-learning knowledge, attitudes, and practices. SPSS was used to analyze data.

**Results:** A total of 256 valid questionnaires were retrieved. Among them 57% (n= 146) consist of male and 43% (n=110) were female. The majority of the participants (27.3%; n=70) were studying in the second semester of the Software Engineering department. Majority of the students (57%) were not satisfied with online teaching as compared to conventional classroom teaching and considered not to prefer online teaching; 67.2% students complained about difficulty in understanding topics and questions during online classes. However, the online system is not a total failure, as the majority of students (71.4%) were satisfied with the fact that teachers were supportive, responsive and quick enough to solve their queries.

**Conclusion:** Overall, there was dissatisfaction and negative comments regarding interaction among students, practical learning, focus on study as well as technological and infrastructural flaws.

**Keywords:** COVID-19; Online Teaching; Satisfaction Levels; Satisfaction Index; Student.

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## INTRODUCTION

The world has been shocked by fatal results of Covid -19. From the year 2019-2021 this virus has caused morbidity of many lives all across the world. Currently this pandemic has hit as second wave in Pakistan. This deadly virus has created troubles in education field also, apart from human lives.<sup>1</sup> Continuous mutation, uncertainty of pandemic and unavailability of vaccine of this virus has caused closing of educational institution (schools, colleges, universities). To prevent infection of covid-19 virus, social distancing is necessary to protect human lives, especially young children and adults. In this situation traditional methods of teaching among student and teachers are not possible.<sup>2,3</sup> Closure of educational institutions, however, has a negative impact on educational system especially in country like Pakistan, where already literacy level is not very much high. Therefore, an online teaching system has been adopted in order to continue the professional curriculum for undergraduate students of different universities and medical colleges.

Distance learning has been an adopted and optional valuable tool from last decade.<sup>4</sup> Due to advancement in telecommunication too system technology, online education system has emerged as new method of teaching via different digital platforms.<sup>5,6</sup> This also proves that in this pandemic situation online/distance learning is a viable choice. Nowadays, as compared to conventional teaching system, online learning has some advantages which includes, easy accessibility, time efficiency, student's flexibility and availability to widen number of students in different areas where face to face teaching is not feasible (villages, mountain areas, snowy climate areas, etc.). On the contrary, online system also has disadvantages such as internet speed issues, no physical interaction with faculty, lack of motivation, lack of communication among students, no immediate feedback response from instructor, social distancing and good class room environment which otherwise helps to maintain nervous and physical activities of students.<sup>7</sup>

In Covid-19 pandemic when accessibility to college and universities class rooms is not possible, online teaching system is the only option.

However, university and medical students' satisfaction level for web-based learning system via different digital and social platforms is questionable.<sup>8</sup>

The literature data shows different type of responses from students about online/distance learning.<sup>9,10</sup> According to data some technical problems faced by students in web-based learning set up are poor internet connection, poor video, and audio transmission and electricity issues.<sup>11-13</sup> Apart from technical problems university and medical students require professional, practical and clinical learning which is merely possible via distance learning. But due to covid-19 severe pandemic, fear of virus spreading and its dangerous effect on health of students' online learning is only best option in current scenario.<sup>14</sup> Regarding this scenario present study is conducted to measure the satisfaction level and analysis of associate problems of undergraduate students during online teaching system.

## MATERIALS & METHODS

The present study was a prospective, cross-sectional, observational study conducted on the undergraduate students of NUST (National University of Science and Technology) who were receiving online teaching for their professional course (Software engineering) due to the lockdown imposed in view of the current pandemic of COVID-19 across Pakistan. The study was conducted during the period of March 2021-April 2021 using a semi-structured questionnaire. The questionnaire section 1 contained socio-demographic details and section 2 had the questions about student's satisfaction regarding online classes. There were a total 23 questions associated with their satisfaction with online classes, each of which was scored 1–5 on a five-point Likert scale (5 =Strongly agree, 4 = Agree, 3 = Neutral, 2 = Disagree, and 1= Strongly disagree). The questionnaire was administered through online mode by preparing Google questionnaire forms and the link of the questionnaire was shared and distributed through different online platforms such as emails and messaging applications. Online consent was taken from the participants at the beginning of study. Data collection was done on electronic platform. Total 256 students participated in this

study. The data were recorded into Microsoft Excel v.365 and analysis was performed using SPSS software (Statistical Package for the Social Sciences version 23, IBM®. The data validity and reliability were evaluated through Cronbach's alpha.

## RESULTS

### Socio-demographic Profile of NUST Undergraduates' Students

The alpha coefficient for this study was 74.8% suggesting that the items in questionnaire have relatively high internal consistency. According to Table 1, the majority of students (55.5%) belonged to age group 18-20 years, of whom 57% were male and 43% were female. All students were studying in undergraduate BS Software engineering in different semesters. Major of the participants (27.3%) were studying in 2<sup>nd</sup> semester. Among electronic device used for online study, laptop was used as major electronic device (34.8%) followed by mobile phone (25.8%).

**Table 1 Summary of socio-demographic Profile of NUST undergraduates students (n=256).**

Socio-demographic Characteristics		No. of Students (%)
Age (years)	18-20	142 (55.5)
	21-23	83 (32.4)
	24-28	31 (12.1)
Gender	Male	146 (57)
	Female	110 (43)
Semester	1 <sup>st</sup>	60 (23.4)
	2 <sup>nd</sup>	70 (27.3)
	3 <sup>rd</sup>	44 (17.2)
	4 <sup>th</sup>	44 (17.2)
	5 <sup>th</sup>	21 (8.2)
	6 <sup>th</sup>	17 (6.7)
Type of electronic device	Mobile Phone	66 (25.8)
	Laptop	89 (34.8)
	Tablet	54 (21.2)
	Mobile phone & laptop	47 (18.2)

### Perception of Students towards Online Teaching

Overall, there was mixed response by the students regarding their satisfaction level for online classes (Table 2).

**Table 2 Perception of NUST undergraduates regarding online learning (n=256).**

Questions	SA n(%)	A n(%)	N n(%)	D n(%)	SD n(%)
Comfort level with teachers/faculty during online classes, as compared to conventional class rooms	28(10.9)	66(25.8)	54(21.1)	32(12.5)	76(29.7)
Objectives/ goals regarding topics' completion by faculty during online classes	18(7.0)	86(33.6)	60(23.4)	76(29.7)	16(6.3)
Content of class communication	27(10.5)	87(34.0)	80(31.3)	48(18.8)	14(5.5)
Time consumption by teachers of faculty	57(22.3)	114(44.5)	57(22.3)	20(7.8)	8(3.1)
response and support of faculty	64(24.9)	119(46.5)	47(18.4)	26(10.2)	0(0.0)
response time of faculty about asked question during online Lectures	66(25.8)	113(44.1)	60(23.4)	17(6.6)	0(0.0)
difficulty in understanding topics and question during online classes	75(29.3)	97(37.9)	34(13.3)	42(16.4)	8(3.1)
During online teaching, at times I often felt confused or lost	90(35.2)	74(28.9)	38(14.8)	44(17.2)	10(3.9)
the teachers made learning an active process by helping to develop thoughts, motivating us and encouraging us in participating in the discussion	21(8.2)	95(37.1)	87(34.0)	34(13.3)	18(7.0)
This style of communication enabled me to get engaged with the faculty during class discussions	29(11.3)	50(19.5)	73(28.5)	76(29.7)	28(10.9)

The communication and discussion with other students were easier during online classes	28(10.9)	48(18.8)	32(12.5)	94(36.7)	54(21.1)
many of my question about left un answered by Teachers of faculty	26(10.2)	103(40.2)	73(28.5)	50(19.5)	4(1.6)
I found myself more engaged with studies during online classes	16(6.3)	41(16.0)	65(25.4)	68(26.6)	66(25.8)
In comparison with conventional teaching, I felt more communication with teachers during online classes	28(10.9)	28(10.9)	39(15.2)	103(40.2)	58(22.7)
With online teaching, I felt it is easy to ask questions to the faculty and clear my doubts as compared to conventional classroom teaching	16(6.3)	33(12.9)	87(34.0)	66(25.8)	54(21.1)
Management of studies is easier during online classes as compared to conventional teaching	30(11.7)	56(21.9)	47(18.4)	59(23.0)	64(25.0)
Teaching quality was same as same as compared to conventional methods	22(8.6)	87(34.0)	67(26.2)	40(15.6)	40(15.6)
An interactive online discussion along with a Power Point presentation is an effective way of learning	30(11.7)	74(28.9)	50(19.5)	68(26.6)	34(13.3)
I prefer online teaching and feel online education is worth my time	30(11.7)	30(11.7)	50(19.5)	64(25.0)	82(32.0)
The faculties during online classes helped to build discussion and recognize problem areas in my studies	20(7.8)	56(21.9)	74(28.9)	68(26.6)	38(14.8)
I got constructive (positive and negative) feedback from the faculties on my assignments	24(9.4)	91(35.5)	69(27.0)	54(21.1)	18(7.0)
These online classes have helped me to gain knowledge regarding technology and being technically sound	22(8.6)	80(31.3)	68(26.6)	48(18.8)	38(14.8)
Overall, how will you grade your experience with online teaching	25(9.4)	47(18.4)	102(40.0)	54(21.1)	28(11.0)

**Abbreviations:** SA, strongly agree; A, agree; N, neutral; D, disagree; SD, strongly disagree;

In some respects, regarding online education system, students were highly satisfied such as teacher/faculty behavior, response, covering of topics, representation of lectures. But on the other side students believe that face to face or conventional teaching is better in communication with teachers, with other students and for better management of studies. Discussing their problems with teachers is more convenient in conventional teaching as compared to online teaching.

## DISCUSSION

The study was conducted to measure the satisfaction level of student of software engineering department of national university of science and technology Islamabad, regarding online classes during covid-19 pandemic. According to data analyzed overall students were satisfied with faculty behavior, response and their teaching strategy. 40.6% of the participants were agreed that faculty completed objective of topic during online classes. 66.8 % students were satisfied that time consumption was enough for online classes. But they were not satisfied that online setup can replace conventional teaching methods. 67.2% of the students complained about difficulty in understanding topics and question during online classes. 64.1% students reported feeling of lost and confused during online classes. Majority of the students (57%) were not satisfied with online teaching as compared to conventional classroom teaching and considered not to prefer online teaching and felt that online education is not worthy of their time.

According to study physical classes are better platform than online setup even if virtual classes were well adopted. But we cannot say online system is a total failure, as students were satisfied in many aspects, as majority of students were satisfied with the fact that teachers were supportive, responsive and quick enough to solve their queries. 71.4% of students reported that teachers were very supportive and responsive during online setup of classes. The study results were supported by previous studies 15, 16, 17.

Technological aspect was another challenge observed in this

study. Poor internet connection, electricity issues during online classes, costly data packages, and electronic devices were important limitations' that were potential cause of lower satisfaction rate among students. According to another study lack of reliable network was a major drawback in online teaching setup. E-Learning or virtual implementation in higher education system, is a meticulous task especially in low-middle-income countries like Pakistan because set-up and technological issues affect the transition to online self-directed learning from lecture-based conventional teaching 18,19

Every student has different way of learning style in conventional class room system, which only a teacher can observe via face-to-face interaction with students. So, we can say online/ digital learning system may not be applicable and feasible for every student according to their mental capability and lecture picking ability, and also it is not possible for faculty to assess and analyze the problem of students. In this regard opinion by students should be taken in order to improve every student confidence and performance during online setup 20.

## LIMITATION

Only a single department from a university has been included. So, study findings may not be generalized for the students of other disciplines or other universities.

## CONCLUSION

Online setup of teaching and learning can be improved by removing objections and issues faced by students. There is need of development of faculty training program regarding this issue. As web based or virtual teaching is sometime complementary in education system in certain ways like COVID-19 pandemic when physical or conventional teaching is not possible. Development of supplementary e - resources for higher education medical and university students will enable them to focus on their studies. This can also establish the effectiveness of online learning system and classes.

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