

## **Online Class Satisfaction among College Teachers during COVID-19 Pandemic in Bangladesh: An Ordered Logit Analysis**

Amina Khatun<sup>1</sup>

Barna Bose<sup>2</sup>

### **Abstract**

The COVID-19 breakout has created enormous challenges yet has allowed checking the technical competencies and prospects of digital platforms in the education sector of Bangladesh. Responding to the emergence, many educational institutions started online classes; while, whether the teachers were satisfied with the process remained unknown. The study examined the level of satisfaction in online classes compared to traditional classes among college teachers in Bangladesh during the COVID-19 pandemic. It also found out the factors influencing the satisfaction level. 154 college teachers from Dhaka, Chattagram, Khulna and Barishal divisions were surveyed. Teacher's satisfaction level was measured through descriptive statistics and the influencing determinants through an ordered logit model. The study revealed that the teachers were as much satisfied as the physical class. Factors like gender, income, teaching experience, teaching platforms, accessed devices, class control, student presence and assessment procedures significantly influenced online class satisfaction. Based on the findings, the study simulated that institutional support, provision of teaching equipment, adequate training, and an uninterrupted internet connection can accelerate the satisfaction level which may advance the effective digitalization of the education system forward.

*Keywords:* online class; college teachers; teacher's satisfaction; ordered logit.

### **Introduction**

The COVID-19 pandemic put stress not only on human health but also affected the education system worldwide. Many countries have decided to close educational institutions along with the impasse between closing and keeping them open. As a result, the education system has changed dramatically, with the distinctive rise of e-learning processes steered extensively on digital platforms (Borup & Stevens, n.d.). With this sudden shift from the classroom to online

---

<sup>1</sup>Asst. Professor, Dept. of Economics, Bangladesh University of Professionals, Email: [amina.khatun@bup.edu.bd](mailto:amina.khatun@bup.edu.bd)

<sup>2</sup>Asst. Professor, Dept. of Economics, Bangladesh University of Professionals, Email: [barna.bose@bup.edu.bd](mailto:barna.bose@bup.edu.bd)

learning in many parts of the world, countless people were thinking about whether the adoption would continue to endure in the post-pandemic arena and how such a shift would impact the worldwide education system.

According to the report of UNESCO, closures in April 2020, 94 percent of students in 188 different countries – or 1.6 billion children – were out of school worldwide; and around 825 million students were studying from home with huge uncertainty and participating across the option of remote learning or no schooling at all. Among all, 23 country's schools were closed nationally, 40 were locally and 112 country's schools remained open during COVID-19 (UNESCO, 2020). On 16 March 2020, the Education Minister of Bangladesh stated the encloser of all educational institutions (schools, colleges and universities) for the next April 04, 2020 (MOE, n.d.). There was a total of 39,936,843 learners who were affected by this situation where 3,578,384 were pre-learners, 17,338,100 were primary school students, 15,869,820 were secondary level students and 3,150,539 were tertiary level students (Begum et al., 2020). Luckily, the SSC examination in 2020 could occur and its result was published; however, the HSC examination could not take place.

In Bangladesh, according to MOE's statistics, there are more than 3000 colleges affiliated with National University and higher secondary HSC programmes. Almost 0.27 million college students and 20,000 teachers could not enjoy face-to-face teaching-learning environments due to COVID- 19. At the urban level, most of the colleges accessed the digital platforms as classrooms by June but at the rural level, it was not functioning fully. This situation increased the disparity between the teachers and students living in remote rural areas with their urban counterparts (Barua, 2020).

Carlson (2005) stated that, with the changing nature of time and technology a new cohort of college students has appeared. To meet the needs of these students, colleges must rethink how they operate; educators need to reorganize and reequip the way they hold their physical classes (Carlson, 2005). Even before COVID-19, there was a high growth rate of adoption of technology in education i. e. global edtech investments in the year 2019 were almost \$18.66 billion which would rise to \$350 billion by 2025 (UNESCO,2020). However, these investments were effectively used in developed countries mostly. Countries like Bangladesh were not so much adapted to online platforms like language apps, virtual learning or teaching tools or online learning software and applications. Due to this pandemic, the attention on the continuation of the education system strictly increased the use of innovative technologies not just for the learners as well as the educators.

Satisfaction is a key factor in the spread of the e-learning environment (Aşkar et al., 2005). Rivera and Rice (2001) did a comparison among face to face, web-based and coeducation class platforms and they compared student performance, student satisfaction, and teacher experiences and they found the lowest satisfaction level was the web-based education platform. The reasons he concluded for such findings were the teaching format and method of the lesson, lack of flexible and efficient platforms and less support available for both students and teachers for provisioning fast and solid internet (Rivera et al., 2001).

In the teaching-learning process, satisfaction is a primary objective and it is hard to imagine a teacher who does not anecdote to be satisfied imparting their knowledge (Singh, 2014). A study by Chapman and Lowther (2014) indicated that, abilities and values are highly related to the accomplishment of a teaching career. Black & Brooke, 1997 also highlighted gender, marital status, salary and increment as a part of the satisfaction of teaching. It is worth remarking that satisfaction in teaching is influenced by demographic profile (Guazzelli & Zilli, 2016), workplace (Singh, 2014), fair treatment at teaching loads (Chaiprasit & Sandiitrakul, 2011), leisure activities (Wolf and Beblo, 2004), positive social and family relationship (Golden et al, 2013) and health status (Anderson, 2014). Despite these underlying factors for determining satisfaction with teaching, COVID-19 generates a new dimension for online class satisfaction. There were several actors creating barriers to online teaching, such as administrative issues, social interaction, academic skills, technical skills, learner motivation, time and support for studies, technical problems, cost, and access to the internet (Wasilik and Bolliger, 2009). Other factors, for example, are an ineffective design and arrangement of multimedia materials (Mayer, 2002).

Finally, Thompson (2002a, b) incorporated previous studies on faculty satisfaction in online education and tried to formulate how faculty satisfaction could be improved. Issues of online class satisfaction can be categorized as: (a) student-related, (b) teaching-related, and (c) institution-related (Needha and Sloan, 2006). Fig 1 shows the framework of the study.

The paper aims to investigate the level of satisfaction in online classes compared to traditional classes among college teachers in Bangladesh. More specifically the study serves the following objectives:

1. estimate the level of satisfaction of the college teachers and describe their socio-economic profile; and
2. analyse the significant determinants affecting the degree of contentment of the college teachers using order logit model.

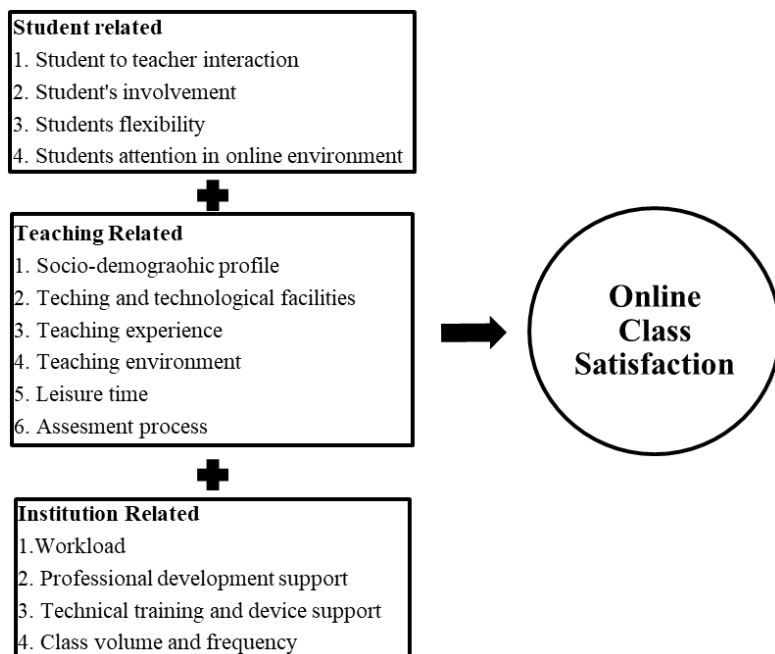


*Figure 1: theoretical framework of the study*

Source: Thomson, 2002

## Methodology

### Motivational Background

According to the Ministry of Education, almost 0.3 million students are currently studying Higher Secondary Certificate (HSC) level which is the college level. Enormous research works are already done at the university level and even primary-level students considering different issues. However, college students and teachers had often been neglected due to the short tenure of this level. Though these two years are very crucial for every student to pursue higher education as well as access career opportunities, research works on college students and teachers are rare to find. During this pandemic, the HSC-2020 batch did not get a chance to prove themselves by sitting in the examination. Again HSC-2021 is also pending and uncertain. In this situation, the continuation of classes, finishing the courses and assessment in this short period of time was a big challenge for the college teachers. Moreover, the platform was online. This overall situation encouraged the study to conduct research work on college teachers, their satisfaction with online classes and influencing factors.

### Study Area, Sample Size, Sampling Method, and Data Analysing Tools

The study area was mainly Dhaka, Chattogram, Khulna and Barisal. The population for the study was the college teachers in Bangladesh. The sample size was projected as many as 200 college teachers but due to non-response and incomplete responses, only 154 were chosen finally. Data was collected following the snowball sampling method through an online based questionnaire survey during mid-August 2020. The collected data was cross-section in nature and composed of the socio-demographic profile, level of satisfaction and its influencing determinants- technical literacy profile, access to devices profile, access to internet profile, class performance and lesson assessment profile. Descriptive measures used to describe the data were frequency distribution, minimum and maximum value, mean and standard deviation. To understand the level of satisfaction among the college teachers, an ordered logit regression model was adopted.

### Ethical Procedure

The study considers ethical procedure, furthermore, participation in the study was voluntary. Before the conduct of the study, teachers were assured that the data gathered would be treated with high confidentiality and only for research purposes. At the beginning of the questionnaire, there was a consent form for respondents. Moreover, teachers were protected by not revealing their personal and sensitive information that potentially recognises any of them.

*Table 1: variable descriptions of the study*

| Variable                   | Type                                            | Measuring Unit                                                                          | Reference                   |
|----------------------------|-------------------------------------------------|-----------------------------------------------------------------------------------------|-----------------------------|
| Socio- demographic Profile |                                                 |                                                                                         |                             |
| Age                        | Continuous                                      | in years                                                                                | Casinillo & Casinillo, 2020 |
| Gender                     | Dummy                                           | 0 = female, 1= male                                                                     | Casinillo & Casinillo, 2020 |
| Education                  |                                                 | in years                                                                                | Casinillo & Casinillo, 2020 |
| Household size             |                                                 | in number                                                                               | Casinillo & Casinillo, 2020 |
| Income                     | Interval, (in scale of 1 to 5, in BDT, monthly) | 1= less 20000, 2 = 20000 to 30000, 3 = 30000-40000, 4 = 40000-50000 5 = more than 50000 | Casinillo & Casinillo, 2020 |

|                                          |                                |                                                                                                                            |                             |
|------------------------------------------|--------------------------------|----------------------------------------------------------------------------------------------------------------------------|-----------------------------|
| Type of institution                      | Dummy                          | 0 = rural, 1= sub-urban, 2 = urban                                                                                         | Casinillo & Casinillo, 2020 |
| Teaching experience                      | Continuous                     | in years                                                                                                                   | Lindsey and Kolb, 1993      |
| Technical Literacy Profile               |                                |                                                                                                                            |                             |
| Computer based skill                     | Continuous                     | in number                                                                                                                  | Leomarich et al., 2020      |
| Online teaching platform accessed        | Continuous                     | in number                                                                                                                  | Wasilik & Bolliger, 2009    |
| Online based Study material accessed     | Continuous                     | in number                                                                                                                  | Wasilik & Bolliger, 2009    |
| Access to Device Profile                 |                                |                                                                                                                            |                             |
| Device accessed to take class            | Continuous                     | in number                                                                                                                  | Wasilik & Bolliger, 2009    |
| Access to Internet Profile               |                                |                                                                                                                            |                             |
| Speed of internet                        | Dummy                          | 0= low, 1= medium, 2 = high                                                                                                | Wasilik & Bolliger, 2009    |
| Cost of internet                         | Continuous (monthly)           | In BDT                                                                                                                     | Wasilik & olliger, 2009     |
| Class Performance and Assessment Profile |                                |                                                                                                                            |                             |
| Student's presence in the class          | Continuous                     | in percentage                                                                                                              | Arbugh, 2000                |
| Class control                            | Interval, (in scale of 1 to 5) | 1=no control, 2= less than physical class<br>3=same as physical class.<br>4= more than physical class, 5= complete control | Casinillo & Casinillo, 2020 |
| Response during class                    | Interval, (in scale of 1 to 5) | 1= not at all, 2= less satisfied<br>3= same as physical class<br>4= moderately satisfied,<br>5= highly satisfied           | Inman & Kerwin, 1999        |
| Number of                                | Continuous                     | in number                                                                                                                  | Finaly &                    |

|                                        |                                |                                                                                                             |                        |
|----------------------------------------|--------------------------------|-------------------------------------------------------------------------------------------------------------|------------------------|
| assessments taken                      |                                |                                                                                                             | Neumann, 1994          |
| Interest of students in assessment     | Dummy                          | 0= no, 1= yes                                                                                               | Finaly & Neumann, 1994 |
| Student's attendance during assessment | Continuous                     | (in percentage)                                                                                             | Finaly & Neumann, 1994 |
| <hr/>                                  |                                |                                                                                                             |                        |
|                                        | Satisfaction from online class |                                                                                                             |                        |
| Satisfaction                           | Interval, (in scale of 1 to 5) | 1= not at all, 2= less satisfied<br>3= same as physical, class 4= moderately satisfied, 5= highly satisfied | Frasers, 1993          |
| <hr/>                                  |                                |                                                                                                             |                        |

### Survey Instruments and Variable Description

The study applied a self-assessing, semi-structured questionnaire to determine the socio-demographic profile, level of satisfaction and the determinants of satisfaction among college teachers. The questionnaire contains some open-ended and some close-ended peer-reviewed questions designed to collect an assortment of information to accomplish the aims of the study (Reja et al, 2002). Data is collected across different profiles containing a group of variables. Table 01 summarizes the variable list along with the type, measuring unit and source of literature.

### Ordered Logit Model

For analysing the data, at first, descriptive statistics were taken into account in describing and evaluating the dependent and independent variables. With the help of STATA v.15, various descriptive statistics such as mean, standard deviation, and minimum and maximum values were obtained. While determining the significant factors of happiness in teaching, an ordered logit model was constructed. An ordered logit model is an econometric model that is also called ordered logistic regression or proportional odds model is an ordinal regression model that deals with ordinal dependent variables (Stock & Watson, 2007). This model is an extension of the dichotomous logistic regression model, which allows more than two ordered response categories. Thus, the ordinal response  $S_i$  (Scale of 1 to 5) for  $i$  th college teacher and with  $k$  categories ( $k = 0$ ,

1, 2, ..., 9) is defined by two equations where the cumulative probabilities are defined by-

$$g_{ci} = P_r(S_i) \leq (kx_1, x_2, \dots, x_n) \text{ ----- (1)}$$

where  $S_i$  is the satisfaction for  $i$  th teacher and  $n$  is the number of explanatory variables. Let  $\beta'X_i = \beta_1x_1 + \beta_2x_2 + \dots + \beta_nx_n + \varepsilon_i$  be a linear predictor. Then, the ordered logit function can be written as:

$$\text{logit}(g_{ki}) = \log \frac{g_{ki}}{1 - g_{ki}} = \alpha_k - \beta'X_i \text{ ----- (2)}$$

where  $x_1, x_1, \dots, x_n$  are independent variables such as demographic profile and other determinants of happiness,  $\alpha_k$  is a parameter called thresholds or cut points and it is increasing order, that is,  $\alpha_1 < \alpha_2 < \dots < \alpha_{k-1}$ . A vector  $\beta$  of parameters to be estimated and  $X_i$  is a vector of factors or predictors. From equation (5), the given cumulative probability for category  $k$  is given by

$$g_{ki} = \frac{e^{\alpha_k - \beta'X_i}}{1 + e^{\alpha_k - \beta'X_i}} = \frac{1}{1 + e^{-\alpha_k - \beta'X_i}} \text{ ----- (3)}$$

The parallel regression assumption implies the proportionality of the odds of not exceeding the  $k^{\text{th}}$  category, that is,  $\text{odds}_{ki} = \frac{g_{ki}}{1 - g_{ki}}$ . The ratio of these odds for two units say,  $i$  and  $j$ , is given by

$$\frac{\text{odds}_{ki}}{\text{odds}_{kj}} = e^{[\beta'(X_j - X_i)]} \text{ ----- (4)}$$

And this is constant across response categories (Stock & Watson, 2007). The probabilities of the categories  $k$  are obtained by difference:

$$P_{ki} = \frac{1}{1 + e^{-\alpha_k - \beta'X_i}} = \frac{1}{1 + e^{-\alpha_{k-1} - \beta'X_i}} \text{ ----- (5)}$$

Some diagnostic tests for the econometric model are used to ensure valid results for interpretation such as the multicollinearity test, homoscedasticity test, omitted variables test, and normality test for residuals (Casinillo & Aure, 2018; Greene, 2008).

## Findings

### Descriptive Analysis of the Study

The summary statistics table (Table 02) shows the descriptive analysis of the variables considered in the study. The dependent variable portrayed the overall satisfaction derived from online classes. Teachers were as satisfied as physically taking classes at college ( $\mu=3.32$ ,  $\sigma=1.04$ ). In the Socio-demographic profile of the teachers, the results show that the age of the teachers ranges from 27 years to 60 years ( $\mu=34.76$ ,  $\sigma=6.76$ ); 46 percent male and 54 percent female. All the teachers had a minimum bachelor's degree in the specialized subject area. The number of years of education had been satisfactory with an average of 18

years approximately ( $\mu=17.67$ ,  $\sigma= 1.21$ ) which ranges from 15 (new teachers) to 29 (old teachers). Household size ranged from 1 to 10 ( $\mu=4.56$ ,  $\sigma= 1.75$ ). The value of income was measured on a scale of 1 to 5 and on average it is found 3.76 meaning that the average income of teachers was between BDT 30000 to BDT 40000 ( $\mu=3.76$ ,  $\sigma= 1.29$ ). The majority (78 percent) of the surveyed colleges were private institutions ( $\mu=.78$ ,  $\sigma= .41$ ). The teachers were experienced for 8 years approximately on average ( $\mu=8.08$ ,  $\sigma= 6.04$ ) ranging from 1 to 29 years.

In the technical literacy profile, the college teachers were found technologically sound for taking online classes - they had basic computer-based skills and had access to different online teaching platforms and study materials. The study considered some basic computer-based skills-operating Microsoft Word, Microsoft Excel, Microsoft PowerPoint etc. which are very important for preparing study material and doing official work. It is found that the teachers possess 3 key computer-based skills approximately on average out of 4 ( $\mu=2.87$ ,  $\sigma= .89$ ). There are various online-based teaching platforms on which the teachers can conduct classes virtually. Among them- Zoom, Google Classroom, Google Meet etc. are the renowned platforms. Again, some colleges preferred the teacher to upload video classes on YouTube and contact students through Facebook groups. The study considered all these platforms and found that the teachers had access to 2 teaching platforms on average to take online classes ( $\mu=2.07$ ,  $\sigma= 1.03$ ). They had also accessed online-based study materials-images, graphs, charts, videos, articles etc. on an average of 2 ( $\mu=2.46$ ,  $\sigma= .92$ ) from these popular categories.

In the access to a device profile, the devices that were required to conduct online classes were considered. Digital smartphones, laptop, whiteboards, tripod etc. were found the most common devices accessed by teachers. They could be said well-equipped to take online classes as they possess 3 equipment on average out of 5 ( $\mu=3.09$ ,  $\sigma= 1.03$ ).

*Table 2: descriptive measure for online class satisfaction and influencing determinants among college teachers during COVID-19 (n=154)*

| Variable                                                | Mean ( $\mu$ ) | Min | Max  | Std. dev. ( $\sigma$ ) |
|---------------------------------------------------------|----------------|-----|------|------------------------|
| Satisfaction <sup>a</sup>                               | 3.3181         | 2   | 5    | 1.0397                 |
| <b>Socio- demographic profile</b>                       |                |     |      |                        |
| Age (in years)                                          | 34.7662        | 27  | 60   | 6.7608                 |
| Gender (Dummy)                                          | .4675          | 0   | 1    | .5005                  |
| Education (in years)                                    | 17.6753        | 15  | 22   | 1.2147                 |
| Household size (in number of people)                    | 4.5649         | 1   | 10   | 1.7449                 |
| Income (in scale of 1 to 5), monthly)                   | 3.7662         | 1   | 5    | 1.2924                 |
| Type of Institution (dummy)                             | .7792          | 0   | 1    | .4161                  |
| Teaching Experience (in years)                          | 8.0779         | 1   | 29   | 6.0364                 |
| <b>Technical literacy profile</b>                       |                |     |      |                        |
| Computer based skill (in number)                        | 2.8701         | 1   | 4    | .8977                  |
| Online teaching platform accessed (in number)           | 2.0714         | 1   | 5    | 1.036                  |
| Online based Study material Accessed (in number)        | 2.4610         | 1   | 4    | .9297                  |
| <b>Access to Device Profile</b>                         |                |     |      |                        |
| Equipment accessed to take class (in number)            | 3.0909         | 1   | 5    | 1.0376                 |
| <b>Access to Internet Profile</b>                       |                |     |      |                        |
| Speed of internet (dummy)                               | 1.4675         | 0   | 2    | .5382                  |
| Cost of internet (in BDT, per month)                    | 922.0519       | 300 | 1800 | 472.9663               |
| <b>Class performance and Lesson Assessment Profile</b>  |                |     |      |                        |
| Average student's presence in the class (in percentage) | 59.9220        | 10  | 100  | 25.2810                |
| Class control (in scale of 1 to 5)                      | 3.3961         | 2   | 5    | 1.2855                 |
| Response during class (in scale of 1 to 5)              | 2.7987         | 1   | 5    | .7701                  |
| Number of assessments taken (in number)                 | 1.7012         | 0   | 4    | 1.0548                 |
| Interest of students in assessment (dummy)              | .8051          | 0   | 1    | .3973                  |
| Student's attendance during assessment (in percentage)  | 70.1622        | 10  | 100  | 28.4723                |
| Missing student's physical existence (dummy)            | .9025          | 0   | 1    | .2974                  |

Access to the internet is a must to conduct online classes. Remarkably, the study found all the teachers had access to the internet; however, the speed of the internet they experienced was found moderate to a high level ( $\mu=1.46$ ,  $\sigma=$

.53). The monthly cost of expenditure to avail internet service appeared quite high, ranging from BDT 300 to BDT 1800 ( $\mu=922.05$ ,  $\sigma= .472.96$ ). Student's active presence in the class and their response were very significant factors for the teacher's satisfaction. Though online classes are virtual classes, the presence of students is still a fundamental element. In the class performance and lesson assessment profile, the study found that on average 60 percent of the students remained present in class ( $\mu=59.92$ ,  $\sigma= 25.28$ ). The teachers had class control the same as physical classes ( $\mu=3.39$ ,  $\sigma= 1.28$ ). Nevertheless, students' responses in online classes were less satisfactory than in physical classes with a value of 2.79 on average ( $\mu=2.79$ ,  $\sigma= .77$ ). One major difficulty online education has posed is the assessment process of learning outcomes. Taking summative assessments i.e., the final exam has been very difficult. With the direction of the respective authority, the college teachers tried to conduct assessment processes in different forms. Out of 4 common online-based assessment process- assignment, presentation, quiz and exam, the teachers conducted more than one assessment method on average ( $\mu=1.70$ ,  $\sigma= 1.05$ ) during the online classes. The majority of the students ( $\mu=.81$ ,  $\sigma= .39$ ) appeared to be eager to participate in the online assessment process and the average participation is 70 percent ( $\mu=70.16$ ,  $\sigma= .28.47$ ).

### **Checking Effectiveness of Ordered Logit Model: The Diagnostic Test Results**

The study performed required diagnostic tests to check and verify the fineness of the dataset and fulfilled compulsory assumptions to conduct an ordered logit model (O'cone and Lie, 2011) The Breusch-Pagan test (Zeileis and Hothorn, 2002) indicated that the model is heteroscedastic ( $\chi^2= 12.81$  and  $p= 0.0003$ ). To see if there was any omitted variable bias, the study performed a regression specification error test (RESET) through linktest and ovtest (Zeileis and Hothorn, 2002). The linktest showed an expected result that there was no specification error ( $-\text{hat}= 1.006$ ,  $p= 0.00$ ;  $_{\text{hatsq}}= - 0.0004$ ,  $p= 0.50$ ); and ovtest exhibited no omitted variable bias ( $F= 9.83$ ,  $P= 0.00$ ) in the model. For the multicollinearity test, the Variance Inflation Factor (VIF) has been tested. It showed how much the variance of a coefficient is inflated because of linear dependence with other predictors (Allison, 2012). Then as a rule of thumb, the mean VIF value should be less than 10 to safely ignore a multicollinearity problem. The study found the VIF test value is 2.84. The residuals were not normal by Shapiro-Wilk (Greene, 2003) test ( $z= 3.141$ ,  $p=0.000$ ) which rejected the null hypothesis that the residuals were normal. However, the Kernel Density

graph (Greene, 2003) estimated graph showed that the residuals are almost normal.

### **Result & Discussion**

A teacher's satisfaction with a class is a function of different aspects. In the case of online classes, those aspects range from the socio-demographic indicators; teacher's technological capabilities; their access to required devices and internet connection; the virtual class environment, student's presence and response and the overall assessment process of learning outcomes. The study measured all the aspects and found their significant relationships with online class satisfaction.

The general finding of the study is that college teachers are as satisfied with online classes as they were with physical classes (also see Hampel & Hauck, 2004; Trotter, 2002). The exclusive features of online classes that generate this satisfaction level are:

- Teachers can take classes at their convenient time;
- Travelling time and costs to go to the college is saved;
- Teacher can take classes from anywhere;
- They can give more time to family;
- They can share digital content very easily during the class;
- They can take as much time to prepare the lecture;
- Preparing results for online quizzes is very easy;
- Class controlling is easy; they need not shout at students or resolve disputes;
- It is possible to record classes; and
- Students can watch over the recorded class according to their needs and suitable time.

All these prospects of online classes had positively boosted the satisfaction level of college teachers. However, further investigation showed which factors are significantly influencing the satisfaction level. The result revealed that socio-demographic variables like gender, household size, income and teaching experience significantly influenced the college teacher's online class satisfaction level; the result is parallel to the study of Gray and Di Loreto (2016); while other factors like age and type of institution had insignificant influence.

Gender is found the most influencing factor from the socio-demographic profile and the result showed that male teachers are more satisfied with online

classes than female teachers. The reason could be the pressure of household chores, technological incompetence, less access to equipment and less technological practices among female teachers. However, this result does not match the outcome of Raisani (1988), Li (1999) and Demato (2002). The study found that household size positively influenced the satisfaction level. If there were more people at home, the teachers could distribute the household work to them. Thus, they got more time to prepare for online classes and could take them peacefully which might have increased their class satisfaction.

The variable income was found to have a positive influence on online class satisfaction. However, this finding did not match with Herzberg, (Behling et.al. 1968) who viewed salary as only hygiene but not a motivating factor. Nevertheless, disagreement arises when online classes are being considered. More income enables teachers to avail high-speed internet, efficient equipment etc. which are some preconditions for successful online classes. Thus, more income could accelerate the satisfaction of online classes. Teaching experience had also a positive impact on online class satisfaction and the finding matches with the study of Wasilik and Bolliger (2009). The more a teacher is experienced, the more he can manage class, whether the class is online or offline. Apart from these, the type of institution (private) positively and age influenced online class satisfaction negatively. However, the variables were not significant.

*Table 3: Ordered Logit Model estimation for online class satisfaction and influencing determinants among college teachers during COVID 19 (n=154)*

| Independent Variable                             | Coefficient | Standard Error |
|--------------------------------------------------|-------------|----------------|
| <b>Socio- demographic Profile</b>                |             |                |
| Gender (dummy)                                   | 2.8694***   | .8568          |
| Age (in years)                                   | -.2039      | .1427          |
| Household size (in number of people)             | .5189**     | .2065          |
| Income (in scale of 1 to 5, monthly)             | .9007**     | .3500          |
| Type of Institution (dummy)                      | 1.3057      | .8942          |
| Teaching Experience (in years)                   | .3089**     | .1561          |
| <b>Technical Literacy Profile</b>                |             |                |
| Computer based skill (in number)                 | .2355       | .4541          |
| Online teaching platform accessed (in number)    | -.9540**    | .3725          |
| Online based Study material Accessed (in number) | 1.5486***   | .4996          |
| <b>Access to Device Profile</b>                  |             |                |

|                                                         |           |       |
|---------------------------------------------------------|-----------|-------|
| Equipment accessed to take class (In number)            | .6902**   | .3830 |
| Access to Internet Profile                              |           |       |
| Speed of internet (dummy)                               | .0844     | .5697 |
| Cost of internet (in BDT, monthly)                      | −.0003    | .0007 |
| Class performance and Lesson Assessment Profile         |           |       |
| Average student’s presence in the class (in percentage) | .06777**  | .0250 |
| Class control (in a scale of 1 to 5)                    | .7703**   | .3552 |
| Response during class (in a scale of 1 to 5)            | 2.3038*** | .5899 |
| Number of assessments taken (in number)                 | −.6489    | .3969 |
| Student’s attendance during assessment (in percentage)  | .0807***  | .0186 |
| LR chi                                                  | = 172.83  |       |
| Prob > Chi                                              | = 0.000   |       |
| Rseudo R                                                | = 0.6574  |       |
| Log likelihood                                          | =−45.0418 |       |
| p* < 0.10; p** < 0.05; p*** < 0.01                      |           |       |

In the technical literacy profile, competence in computer-based skills had a positive influence on college teacher's online class satisfaction. However, the impact is not found significant. Online class platforms possess some unique features which are often not available in offline classes. For example, the teachers can show images, videos, documentaries or data, charts etc. while conducting online classes. Though some colleges have equipment like multi-media projectors and internet access in the class, many others do not have such facilities. These exclusive features of online classes might have positively impacted the teacher's satisfaction.

Another significant and interesting finding was that the number of online teaching platforms used had a negative impact on college teacher's class satisfaction. The result was intuitive in the following way - accessing a single platform for taking classes is easy to adapt. However, when the teachers were asked to be accustomed to different platforms, it became problematic for them to adjust to newer teaching platforms. Thus, the introduction of more teaching platforms could have reduced online class satisfaction. Unlike access to teaching platforms, access to required devices positively influenced the satisfaction level of college teachers. The more they had devices like whiteboards, smartphones, laptops, tripods etc. the more they were satisfied taking online classes. These devices made online classes easy and effective. The findings were consistent with

the literature that points out online instructors invest more time than instructors who teach face-to-face (Hartman, et al., 2000; Bender, Wood, & Vredevoogd, 2004; Cavanaugh, 2005; Conceição, 2006; Liaw, 2012).

Access to the internet is not only a necessary condition for online classes but also the speed of the internet stimulates online class positively. The study also found a similar result which again matched with the study of Liaw, (2008). Though the cost of purchasing internet reduced the online class satisfaction, this factor is not found a significant influencer.

Students' feedback during the class and assessment process played a crucial role in determining the teacher's class satisfaction. In the class performance and lesson assessment profile, the study found a significant relationship between online class satisfaction and some variables related to student's feedback during the class. Students are an active part of any class. The number of students present in class highly influences the performance of the teacher as well as the satisfaction derived from the class (Arbaugh, 2000a). The study found a positive relation between student's presence and teacher's satisfaction with online classes. It is often difficult to recognize whether the students were actually active in the class, the teacher's satisfaction increased if the students were at least present in the class. Again, if the teachers had proper control over the class, they were satisfied. However, one of the most significant factors that influenced the satisfaction of teachers was the active participation of students in online classes. Another highly significant positive factor was student attendance during the lesson assessment processes i.e., exam. However, the number of assessment process negatively impacted satisfaction. This might be because checking scripts and assignments online is a troublesome, time-consuming, confusing as well as physically painful task. Teachers often suffer from headaches, spinal pain, eye-sight issues etc. while taking classes and checking scripts. Similar kinds of results regarding students' feedback, students' attention and assessment process were found in the literature of Traphagan et al. (2010).

### **Conclusion**

This study shows the socio-economic context of online class satisfaction among the college teachers of Bangladesh, where the result reveals that the teachers are as satisfied as the physical class. Factors like gender, income, teaching experience, teaching platforms accessed, teaching devices accessed, class control, student's presence in class and during the assessment, etc. significantly influence the online class satisfaction level of college teachers. Apart from the influencing factors, the teachers provide some thought-provoking

problems persisting in the online education system as - poor internet connection, speed fluctuation, less administrative/government support for the cost of internet, assessment problems and the lack of practical classes and improper classroom environment. Another inquisitive fact came to light as many teachers, especially the aged ones are not accustomed to the use of the current stream of technologies needed to be used in online classes. Furthermore, the students often remain absent from the online class making excuses, or they remain present but inattentive or absent-minded. Sometimes they sleep during class. The teachers also experience various health issues such as headaches, eyesight problems, and back pain aroused due to keeping their eyes on the screen continuously and sitting in a place for a long time. If these limitations are overcome, then online classes can be recognized as a suitable alternative to offline/physical class. The study postulates some corrective measures that can minimize these limitations-

- increasing internet speed, making the network stronger;
- reducing the cost of internet packages;
- providing internet connection/cost of internet to teachers by authority;
- providing required devices to teachers to take online class; otherwise giving subsidy on their purchases; or providing easy loan or instalment facilities;
- preparing easily understandable tutorials on online class management; for both teachers and students;
- providing free zoom licence to teachers and students;
- customizing online teaching platforms addressing the needs of teachers and students;
- provide training facilities on online class platforms, devices, and skills; for both teachers and students.

Despite this outrageous pandemic situation, college teachers in Bangladesh are using digital education platforms and steering youthful minds through online classes. They are satisfied with the system though it suffers from various limitations. Their satisfaction reveals their eager efforts to introduce and nurture the culture of the digital education system in college level education in Bangladesh.

### **References**

- Andersson, P. (2008). Happiness and health: Well-being among the self-employed. *The Journal of Socio-Economics*, 37(1), 213-236.
- Arbaugh, J. B. (2000b). Virtual classroom versus physical classroom: An exploratory study of class discussion patterns and student learning in an

- asynchronous Internet-based MBA course. *Journal of Management Education*, 24, 213-233.
- Arbaugh, J. B. (2001). How instructor immediacy behaviours affect student satisfaction and learning in Web-based courses. *Business Communication Quarterly*, 64(4), 42-54
- Arbaugh, J. B. (2000c). How classroom environment and student engagement affect learning In internet-based MBA courses. *Business Communication Quarterly*, 63(4), 9-26.
- Aşkar, P., & Umay, A. (2001). Perceived computer self-efficacy of the students in the Elementary mathematics teaching programme. *Hacettepe Üniversitesi Eğitim Fakültesi Dergisi*, 21, 1-8.
- Barua, S. (2020). COVID-19 Pandemic and world trade: Some analytical notes (SSRN Scholarly Paper ID 3577627). *Social Science Research Network*.
- Behling, O., Labovitz, G., & Kosmo, R. (1968). The Herzberg controversy: A critical reappraisal. *Academy of Management Journal*, 11(1), 99-108.
- Begum, M., Farid, M. S., Alam, M. J., & Barua, S. (2020). COVID-19 and Bangladesh: Socio-economic analysis towards the future correspondence. *Asian Journal of Agricultural Extension, Economics & Sociology*, 143-155.
- Bird, R. C. (2015). Why don't more employers adopt flexible working time. *W. Va. L. Rev.*, 118, 327.
- Bender, D.M., Wood, B.J., & Vredevoogd, J.D. (2004). Teaching time: Distance education versus classroom instruction. *American Journal of Distance Education*, 18(2), 103-114.
- Black, A., & Brooke, S. (1997). The labour party, women, and the problem of gender, 1951- 1966. *Journal of British Studies*, 36(4), 419-452.
- Borup, J., & Stevens, M. A. (n.d.). *Factors influencing teacher satisfaction at an online charter school*. 20.
- Carlson, S. M. (2005). Developmentally sensitive measures of executive function in preschool children. *Developmental Neuropsychology*, 28(2), 595-616.
- Casinillo, L. F., Casinillo, E. L., & Casinillo, M. F. (2020). On happiness in teaching: an ordered logit modelling approach. *JPI (Jurnal Pendidikan Indonesia)*, 9(2), 290-300.
- Casinillo, L. F., & Casinillo, E. L. (2020). Econometric modelling on happiness in learning mathematics: The case of senior high students. *Indonesian Journal of Curriculum and Educational Technology Studies*, 8(1), 22-31.
- Chaiprasit, K., & Santidhiraku, O. (2011). Happiness at work of employees in small and medium-sized enterprises, Thailand. *Procedia-Social and Behavioural Sciences*, 25, 189-200.

- Chapman, D. W., & Lowther, M. A. (1982). Teachers' satisfaction with teaching. *The Journal of Educational Research*, 75(4), 241–247.
- Chase, F. S. (1951). Factors for satisfaction in teaching. *The Phi Delta Kappan*, 33(3), 127–132.
- Cavanaugh, J. (2005). Teaching online – A time comparison. *Online Journal of Distance Learning Administration*, 8(1). Retrieved January 1, 2009, from <http://www.westga.edu/~distance/ojdla/spring81/cavanaugh81.html>
- Conceição, S.C.O. (2006). Faculty lived experiences in the online environment. *Adult Education Quarterly*, 57(1), 26–45.
- DeMato, D. S. (2002). *Job satisfaction among elementary school counsellors in Virginia: Thirteen years later* (Doctoral dissertation, Virginia Tech).
- ERIC EJ1154780, Education faculty students' levels of satisfaction with e-learning process. *European Journal of Contemporary Education*, 2017. (n.d.). Retrieved March 26, 2021, from <https://eric.ed.gov/?id=EJ1154780>
- Finally-Neumann, E. (1994). Course work characteristics and students' satisfaction with instruction. *Journal of Instructional Psychology*.
- Gray, J. A., & DiLoreto, M. (2016). The effects of student engagement, student satisfaction, and perceived learning in online learning environments. *International Journal of Educational Leadership Preparation*, 11(1), 1.
- Golden, J., Conroy, R. M., & Lawlor, B. A. (2009). Social support network structure in older people: underlying dimensions and association with psychological and physical health. *Psychology, Health & Medicine*, 14(3), 280-290.
- Greene, W. H. (2003). *Econometric analysis*. Pearson Education India.
- GUZZELLI, G. P., & Zilli, J. B. (2016). Economics of happiness: a study on happiness indicators in university professors. *Eco Forum Journal*, 5(1).
- Hampel, R., & Hauck, M. (2004). Towards an effective use of audio conferencing in distance language courses. *Language Learning & Technology*, 8(1), 66–82
- Hartman, J., Dziuban, C., & Moskal, P. (2000). Faculty satisfaction in ALNs: A dependent or independent variable? *Journal of Asynchronous Learning Networks*, 4(3), 155–177.
- Inman, E., Kerwin, M., & Mayes, L. (1999). Instructor and student attitudes toward distance learning. *Community College Journal of Research & Practice*, 23(6), 581-591.

- Liaw, S. S. (2008). Investigating students' perceived satisfaction, behavioural intention, and effectiveness of e-learning: A case study of the Blackboard system. *Computers & education*, 51(2), 864-873.
- Li, X. (1999). Gender relations and reproductive decision-making in the context of rural China in the post-reform period. *ISS Working Paper Series/General Series*, 284, 1-76.
- Lindsey, L., & Berger, N. (2009). Experiential approach to instruction. *Instructional-Design Theories and Models*, 3, 117-142.
- Mayer, R. E. (2002). Multimedia learning. *Psychology of Learning and Motivation*, 41, 85-139.
- Ministry of education (n.d.). Retrieved March 26, 2021, from <https://moedu.gov.bd/>
- Mollah, Md. A. H. (2020). Online higher education during COVID-19 pandemic in Bangladesh. *International Politics*, 2, 23-28.
- Needham., MA: Sloan-C (2006). Faculty satisfaction, Wiki. Retrieved September 18, 2007, from [http://www.sloan-c-wiki.org/wiki/index.php?title=Faculty\\_Satisfaction](http://www.sloan-c-wiki.org/wiki/index.php?title=Faculty_Satisfaction)
- Osman, M. (2020). Global impact of COVID-19 on education systems: The emergency remote teaching at Sultan Qaboos University. *Journal of Education for Teaching*, 46. <https://doi.org/10.1080/02607476.2020.1802583>
- Purwanto, A., Asbari, M., Fahlevi, M., Mufid, A., Agistiawati, E., Cahyono, Y., & Suryani, P. (2020). Impact of work from home (WFH) on Indonesian teachers performance during the COVID-19 pandemic: An exploratory study. *International Journal of Advanced Science and Technology*, 29(5), 11.
- Raisani, R. B. (1989). A study of relationship of organizational climate and teachers' and schools' selected demographic characteristics to teacher job satisfaction as perceived by the teachers in selected Michigan public secondary schools.
- Reja, U., Manfreda, K. L., Hlebec, V., & Vehovar, V. (2003). Open-ended vs. close-ended questions in web questionnaires. *Developments in Applied Statistics*, 19(1), 159-177.
- Rivera, J. C., Professor, A., Mcalister, M. K., & Rice, M. L. (2001). A comparison of student outcomes and satisfaction between traditional and web-based course offerings. In: *Proceedings of the 2001 Information Resources Management Association International Conference*, 770–772.

- Russo, T. C., & Benson, S. (2005, January). Learning with invisible others: Perceptions of online presence and their relationship to cognitive and affective learning. *International Forum of Educational Technology and Society*.
- Shammi, M., Bodrud-Doza, Md., Islam, A. R. Md. T., & Rahman, Md. M. (2020a). Strategic assessment of COVID-19 pandemic in Bangladesh: Comparative lockdown scenario analysis, public perception, and management for sustainability. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-020-00867-y>
- Shammi, M., Bodrud-Doza, Md., Islam, A. R. Md. T., & Rahman, Md. M. (2020b). Strategic assessment of COVID-19 pandemic in Bangladesh: Comparative lockdown scenario analysis, public perception, and management for sustainability. *Environment, Development and Sustainability*. <https://doi.org/10.1007/s10668-020-00867-y>
- Samanthi, W. (n.d.). *Survey on finding the Effectiveness of Online Teaching & Learning during COVID-19 Pandemic*. ResearchGate. Retrieved March 29, 2021, from <https://www.researchgate.net/post/Survey-on-finding-the-Effectiveness-of-Online-Teaching-Learning-during-COVID-19-Pandemic>
- Singh, A. (2014). Conducive classroom environment in schools. *International Journal of Science and Research*, 3(1), 387-392.
- Stock, J. H., & Watson, M. W. (2007). *Introduction to econometrics*. International edition Traphagan, T., Kucsera, J. V., & Kishi, K. (2010). Impact of class lecture webcasting on Attendance and learning. *Educational Technology Research and Development*, 58(1), 19-37.
- Thompson, M. (2002a). Practice: Analysis of faculty experience and initial identification of standards of excellence. Needham, MA: Retrieved September 26, 2007, from [http://www.sloan-c.org/effective/details4.asp?FS\\_ID=29](http://www.sloan-c.org/effective/details4.asp?FS_ID=29)
- Thompson, M. (2002b). Practice: Ongoing study/enhancement of faculty satisfaction. Needham, MA: Sloan-C. Retrieved September 18, 2007, from [http://www.sloan-c.org/effective/details4.asp?FS\\_ID=12](http://www.sloan-c.org/effective/details4.asp?FS_ID=12)
- Trotter, A. (2002). E-learning goes to school. *Education Week*, XXI (35), 16-18.
- Turley, C. A. (n.d.). *Interaction, Student Satisfaction, and Teacher Time Investment in Online High School Courses*. 79.
- UNESCO. (2020, March 4). Education: From disruption to recovery. *UNESCO*. <https://en.unesco.org/COVID19/educationresponse>.

- Wasilik, O., & Bolliger, D. U. (2009). Faculty satisfaction in the online environment: An institutional study. *The Internet and Higher Education*, 12(3-4), 173-178.
- Wolf, E., & Beblo, M. (2004). Does work time flexibility work? An empirical assessment of The efficiency effects for German firms (SSRN Scholarly Paper ID 567622). *Social Science Research Network*.
- Zeileis, A., & Hothorn, T. (2002). *Diagnostic checking in regression relationships*.