

# Performance Evaluation Of Online Education Management During Covid-19 Situation In Bangladesh

Md. Iftekhar Arif<sup>1\*</sup>, Md. Shahidul Islam<sup>2</sup>, Dr. Md. Shahnur Azad Chowdhury<sup>3</sup>, Mohammad Jonaed Kabir<sup>4</sup>

<sup>1</sup>Institute of Education and Research, University of Chittagong, Bangladesh

<sup>2</sup>Service Engineering Division, Bangladesh Forest Research Institute, Chittagong

<sup>3,4</sup>Department of Business Administration, Int'l Islamic University Chittagong, Bangladesh

\*Corresponding Author:

Email: [iftekhararif1979@gmail.com](mailto:iftekhararif1979@gmail.com)

---

## Abstract.

The physical education system collapse during the Covid-19 situation in Bangladesh and then online education was becoming popular to overcome the problem. The present study is conducted to measure the effect of online education in Covid-19 situation and the performance of the education system. The educational material, teaching facility and skill, online connection service, student acceptability, social acceptability and digital learning perception are identified as the main factor that influence online education, which are measured as (each five) close ended survey (five point Likert scale) questionnaire. The 400 survey response data are finalized by purposefully sampling in randomized block design from public and private university teachers of different division of Bangladesh and analyzed by descriptive analysis, Kolmogorov–Smirnov test, Shapiro –Wilk test, One-Sample Wilcoxon Signed Rank Test, Spearman's rho correlation, Mann–Whitney test, Kruskal–Wallis H test and ordinal logistic regression model by MS Excel 2016 and IBM SPSS Statistics 26 software. The result shows academic performance of online education, online educational material, online teaching facility and skill, online connection service, online student acceptability, online social acceptability and online digital learning perception are significantly higher than the median test value 3, which are significantly increasing during Covid-19 situation. It is observed that the quality of educational material, teaching facility and skill are significantly affect the academic performance of online education. But online connection service, student acceptability and social acceptability have no significant effect on the academic performance of online education. Also digital learning perception is significantly affect the academic performance of online education. It is observed from the study that the contribution of both male and female gender to the academic performance of online education are same, which are significantly higher perception from the median test value 3. The perception of private university is significantly higher than public university in the academic performance of online education, which are significantly higher perception from the median value. The perception of lower experience group has significantly higher perception on the academic performance of online education gradually. So, the experience of this study may be utilized in the planning and implementing online education management in Bangladesh.

**Keywords:** Performance Management and Online education.

---

## I. INTRODUCTION

It is widely recognized that the SARS-CoV-2 virus was the initial cause of the newly described Coronavirus illness that was published in December 2019 (COVID-19). Infections and fatalities in the respiratory system spread rapidly over the world as a result of this disease. Most people only have mild to moderate symptoms, but some may be so severe that they need medical attention. Symptoms of COVID-19 include high body temperature, coughing, and a diminished sense of smell and taste. Incubation periods range from 5–6 days, with the longest being 14 days, and the corona virus epidemic reached every country in the world rapidly. Coughing, sneezing, talking, singing, and even breathing all contribute to the fast transmission of the COVID-19 virus. One strategy for managing infectious illnesses is reducing contact between carriers and vulnerable individuals.

On January 30, 2020, the World Health Organization (WHO) announced a global public health emergency due to the widespread spread of the COVID-19 virus. With the initial confirmation of the virus in Bangladesh in March 2020, strict lockdown measures were implemented, including the closure of businesses, the suspension of public meetings, the closing of borders, and the establishment of quarantines. Education has been profoundly affected by this. The Bangladesh government issued an order on March 18, 2020, suspending indoor and outdoor activities across all sectors, including education, in an effort to stem the spread of the deadly COVID-19 virus. Many educational online learning studies occurred during the COVID-19 epidemic. To the best of our knowledge, however, there has been surprisingly little reporting on how Bangladeshi educators, particularly those in Universities, see online learning. As a result, this research set out to investigate how the Universities felt about online education in the midst of the epidemic.

## II. LITERATURE REVIEW

The purpose of the research conducted by Albet Maydian et al was to collect the views of 276 Indonesian educators teaching students in grades K-12 about using online resources for instruction during the 2009 COVID-19 pandemic. The results show that elementary and secondary school educators in Indonesia are pessimistic about the efficacy of online education amid the current COVID-19 epidemic. The purpose of the article by Aditya Wicaksono and Lestari Setyowati is to convey the perspectives of English instructors at Geeta School National Plus in Cirebon, West Java on the merits of both online and offline environments and the feasibility of integrating them. After analyzing the data, it was concluded that online education is the most effective response to the COVID-19 epidemic. The authors, Armmagi deon Estrellan et al set out to conduct this research to better understand how educators feel about the COVID-19 pandemic and what obstacles they may face when implementing an e-learning strategy. This study collected its data using semi-structured interviews and evaluated the results through theme analysis. According to the results, educators see this innovative approach to education as a viable option for their students. To better comprehend improving and advancing medical education in China, researchers Yan Wang, Rongbin Yu, Ying Liu, and Wenyi Qian set out to conduct a review of the current state of online medical education and identify the inherent obstacles and likely solutions in this area. Investigators disseminated piloted and self-administered surveys about the use of WeChat and Wenjuanxing for online medical education. Around three-quarters of students were pleased with their experience at medical school online, and that number barely budged after a month. Due to the unprecedented days produced by the COVID-19 epidemic over the world, a paper by Mohammad Monirujjaman Khan et al finds digital education as one of the most popular forms of education. In addition to examining the benefits and drawbacks of using technology in the classroom in Bangladesh, the authors of this study also explore the current state of digital education in the country.

For this reason, Sheng-Yi Wu set out to investigate how educators at different grade levels adapted their use of online learning environments and pedagogical practices throughout the epidemic. Most schools had to resort to online instruction during the COVID-19 epidemic because students at all educational levels were unable to attend classes. The primary goal of this article by Md. Abdur Rouf et al is to investigate how various respondent subgroups see the elements that affect distance learning for higher education in Bangladesh in the midst of the current COVID-19 epidemic. A total of 250 participants (Bangladeshi university students, professors, and administration staff) were surveyed using a standardized questionnaire to collect qualitative data. According to the results of this survey, the vast majority of students view online courses as more challenging than traditional ones because of factors such as teachers' inexperience with technology, students' own lack of access to necessary devices, and the lack of a supportive learning environment. The research conducted by Mimma Tabassum, Seefat E. Mannan, Md. Iftakhar Parvej, and Firoz Ahmed will enable government and educational authorities understand the state of online education. Their views on e-learning and the challenges they've encountered were uncovered using descriptive statistics. The goal of the articles by Andreea Barbu et al is to present a synopsis of the online learning process from the vantage points of both students and teachers in Romanian universities. Research was conducted with 844 undergraduates from several Romanian universities. The primary aim of this article was accomplished through the use of both qualitative (in-depth interviews) and quantitative (surveys) methodologies, with data processed with the SPSS Statistical program. This paper's findings draw attention to a gap in expectations between university faculty and students.

*Md. Shahidul Islam et al The study shows that personal factor, task assignment factor, and course factor have significant positive contribution and technical factor has a significant negative contribution to the performance in the online education. But perceive factor and social factor have no significant contribution to the performance in online education.*

Covid19's bound closure has a significant impact on the education sector, one of the world's most vital businesses. Locking down schools and making a fast switch to online education will have far-reaching consequences for the teaching and learning process because they will exclude more effective and direct forms of communication and engagement in favor of less effective and less effective alternatives (Burgess & Sievertsen, 2020). Yet, there are reports that distant learning through online mode is struggling to keep up

with and manage its communication streams due to a number of acute issues linked to skills, pedagogies, and infrastructure (Marinoni et al., 2020). The teaching community has also been negatively affected by the disturbance and the rapid change. The epidemic persisted at a time when the majority of educators were not prepared to transition to a digital-only curriculum (Schleicher, 2020). Acceptance and self-assurance in employing technology for successful instruction differed considerably across students of different ages and degrees of familiarity with and experience with digital media (van der Spoel et al., 2020). Objective of the study is to determine the factors that affects the academic performance of online education during Covid-19 situation in Bangladesh.

### III. MATERIALS AND METHODS

The educational material, teaching facility and skill, online connection service, student acceptability, social acceptability and digital learning perception factors are identified from the experience and literature review that effects the academic performance of online education during Covid-19 situation in Bangladesh. The factors are measured by closed ended survey questionnaire (five point Likert scale ranging from 1 = very poor to 5 = excellent). The survey questionnaire was pre-tested with the selected 20 experienced respondents and then necessary corrections and modifications were made according to their suggestions. The corrected and finalized survey questionnaire was distributed by purposefully selected sampling in randomized block design method to the selected 500 university teachers for their opinion in the different division of Bangladesh, which used online education during Covid-19 situation via E-mail, WhatsApp and hand-to-hand.

The received 421 survey questionnaire are quoted in MS Excel 2016 and IBS SPSS Statistics 26 for further analysis. Finally, 400 response data (which covers confidence level 95%, margin of error 5%, population proportion 50% with unlimited population size) are selected (as some respondents answered all the questions are the same rank and did not answer many questions). Among the valid 400 respondents, 272 (68%) is male and 128 (32%) is female respondents from which 160 (40%) engaged in public university and 240 (60%) engaged in private university. Moreover 84 (21%) are less than 5 years, 116 (29%) are 5 – 10 years of experience, 114 (28.5%) are 10 – 15 years of experience and 86 (21.5%) are more than 15 years of experience. The descriptive analysis values of each response variable in the survey response data are calculated. Then Kolmogorov– Smirnov test and Shapiro – Wilk test are conducted to determine the normality of survey response variable data. Based on the normality test result, median values are considered to test the non-parametric test (One-Sample Wilcoxon Signed Rank Test, Spearman's rho correlation, ordinal logistic regression model, Mann–Whitney test and Kruskal – Wallis H test) for the hypothesis testing.

### IV. RESULTS AND DISCUSSIONS

#### Descriptive Statistics of Respondents

The questionnaire responds percent of the respondents are shown in Figure 1.

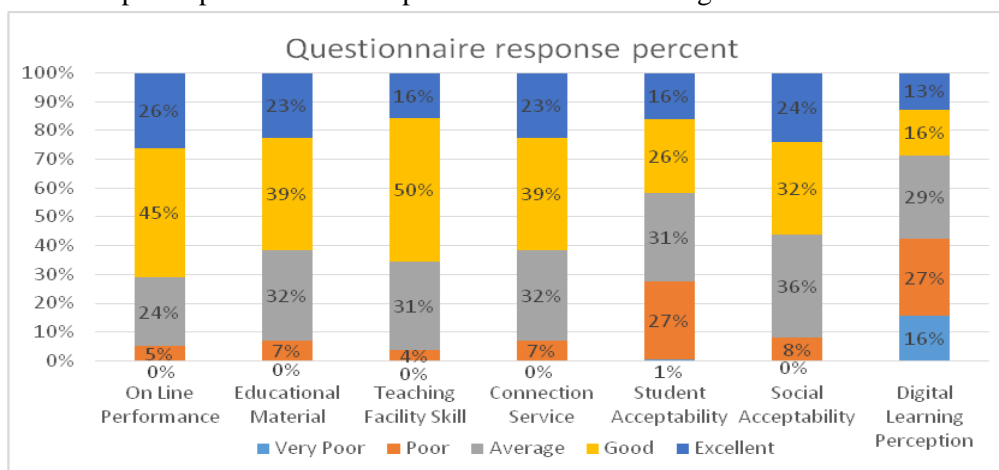


Fig 1. Questionnaire response percent

The response percent of online performance is excellent 26%, good 45%, average 24% and poor 5%, educational material is excellent 23%, good 39%, average 32% and poor 7%, teaching facility and skill is excellent 16%, good 50%, average 31% and poor 4%, connection service is excellent 23%, good 39%, average 32% and poor 7%, student acceptability is excellent 16%, good 26%, average 31%, poor 27% and very poor 1%, social acceptability is excellent 24%, good 32%, average 36% and poor 8% and digital learning perception is excellent 13%, good 16%, average 29%, poor 27% and very poor 16% respectively. The descriptive statistics (N, Min, Max, Median), normality test (Kolmogorov–Smirnov Test and Shapiro–Wilk Test) and One-Sample (test value = 3) Wilcoxon Signed Rank Test result of the respondent values for academic performance of online education, online educational material, online teaching facility and skill, online connection service, online student acceptability, online social acceptability and online digital learning perception are shown in Table 1.

**Table 1.** Descriptive statistics, normality test and Wilcoxon Signed Rank Test result

Sl. No.	Questionnaire	N	Min	Max	Kolmogorov–Smirnov Test (Sig)	Shapiro–Wilk Test (Sig)	Median	One-Sample (test value = 3) Wilcoxon Signed Rank Test (Sig)
1.	Academic Performance of online education	400	2	5	0.248 (0.000)	0.854 (0.000)	4	14.395 (0.000)
2.	Online educational material	400	2	5	0.218 (0.000)	0.869 (0.000)	4	12.931 (0.000)
3.	Online teaching facility and skill	400	2	5	0.274 (0.000)	0.844 (0.000)	4	14.132 (0.000)
4.	Online connection service	400	2	5	0.218 (0.000)	0.869 (0.000)	4	12.931 (0.000)
5.	Online student acceptability	400	1	5	0.196 (0.000)	0.877 (0.000)	3	5.785 (0.000)
6.	Online social acceptability	400	2	5	0.223 (0.000)	0.866 (0.000)	4	12.155 (0.000)
7.	Online digital learning perception	400	1	5	0.174 (0.000)	0.908 (0.000)	3	2.451 (0.014)

The minimum and maximum values of 400 respondents for academic performance of online education, online educational material, online teaching facility and skill, online connection service, online student acceptability, online social acceptability and online digital learning perception are 2 and 5, 2 and 5, 2 and 5, 2 and 5, 1 and 5, 2 and 5, 1 and 5 respectively. The Kolmogorov–Smirnov test statistics and Shapiro–Wilk test statistics values for academic performance of online education, online educational material, online teaching facility and skill, online connection service, online student acceptability, online social acceptability and online digital learning perception are 0.248 and 0.854, 0.218 and 0.869, 0.274 and 0.844, 0.218 and 0.869, 0.196 and 0.877, 0.223 and 0.866, 0.174 and 0.908 respectively at the significance level 0.000. So, the survey response values from the respondents are not normally distributed. In this cases, median values are calculated for mean rank comparison in the non-parametric test (Spearman's rho Correlation, one-sample Wilcoxon signed rank test, Mann-Whitney Test and Kruskal-Wallis Test).

The median values of academic performance of online education is 4, online educational material is 4, online teaching facility and skill is 4, online connection service is 4, online student acceptability is 3, online social acceptability is 4 and online digital learning perception is 3 respectively. Now to determine the significant difference of survey response values from the median test value 3, one-sample Wilcoxon signed rank test is conducted and observed the result as academic performance of online education is 14.395 (0.000), online educational material 12.931 (0.000), online teaching facility and skill 14.132 (0.000), online connection service 12.931 (0.000), online student acceptability 5.785 (0.000), online social acceptability 12.155 (0.000) and online digital learning perception 2.451 (0.014) respectively. So, the null hypothesis 1 is rejected (as the p values are less than 0.05). It may be concluded that academic performance of online education, online educational material, online teaching facility and skill, online connection service, online student acceptability, online social acceptability and online digital learning perception are significantly higher than the median test value 3. The Spearman's rho correlation between online educational material, online teaching facility and skill, online connection service, online student acceptability, online social

acceptability and online digital learning perception with academic performance of online education are shown in Table 2.

**Table 2.** Spearman's rho correlation of academic performance of online education with its factor

Correlations		On Line Performance	
Spearman's rho	Educational Material	Correlation Coefficient	0.163**
		Sig. (2-tailed)	0.001
	Teaching Facility Skill	Correlation Coefficient	0.228**
		Sig. (2-tailed)	0.000
	Connection Service	Correlation Coefficient	0.031
		Sig. (2-tailed)	0.542
	Student Acceptability	Correlation Coefficient	0.190**
		Sig. (2-tailed)	0.000
	Social Acceptability	Correlation Coefficient	0.054
		Sig. (2-tailed)	0.280
	Digital Learning Perception	Correlation Coefficient	0.184**
		Sig. (2-tailed)	0.000

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

The Spearman's rho correlation coefficient between academic performance of online education with online educational material is 0.163 ( $p = 0.001$ ), online teaching facility and skill is 0.228 ( $p = 0.000$ ), online student acceptability is 0.190 ( $p = 0.000$ ) and online digital learning perception is 0.184 ( $p = 0.000$ ). So, there are strong positive correlation between online educational material, online teaching facility and skill, online student acceptability and online digital learning perception with academic performance of online education. But the Spearman's rho correlation coefficient between academic performance of online education with online connection service is 0.031 ( $p = 0.542$ ) and online social acceptability is 0.054 ( $p = 0.280$ ). So, there are no significant correlation between online connection service and online social acceptability with academic performance of online education. As there is some correlation between academic performance of online education with its factors and academic performance of online education is Likert five point scale ordinal data, an ordinal logistic regression model is developed to determine the contribution on academic performance of online education with its factors and the model result is shown in Table 3.

**Table 3.** Ordinal logistic regression model fitted result

Model Fitting Information				
Model	-2 Log Likelihood	Chi-Square	df	Sig.
Intercept Only	953.747			
Final	804.019	149.729	11	.000
McFadden Pseudo R-Square	0.156			
Link function: Logit.				

The Chi-Square value of model fitting information is 149.729 ( $p = 0.000$ ). As the p-value is significant ( $p < 0.05$ ), so the model has a significant prediction of outcome (academic performance of online education) from the predictors (online educational material, online teaching facility and skill, online connection service, online student acceptability, online social acceptability and online digital learning perception). The McFadden Pseudo R-Square value is 0.156, which indicates 15.6% improvement in the prediction of the academic performance of online education based on the predictors in comparison the null model (without predictor). The parameter estimates of the selected model is shown in Table 4.

**Table 4.** Parameter estimates from an ordinary logistic regression model

Parameter Estimates		Estimate	Std. Error	Wald	df	Sig.
Threshold	[On Line Performance = 2]	2.216	.965	5.274	1	0.022
	[On Line Performance = 3]	4.653	.978	22.628	1	0.000
	[On Line Performance = 4]	7.256	1.017	50.887	1	0.000
Location	Educational Material	0.278	.115	5.871	1	0.015
	Teaching Facility Skill	0.645	.136	22.340	1	0.000
	Connection Service	0.033	.112	.089	1	0.765
	Student Acceptability	0.082	.109	.562	1	0.453
	Social Acceptability	0.091	.109	.702	1	0.402
	Digital Learning Perception	0.216	.089	5.907	1	0.015



[Gender=1]	0.351	.212	2.737	1	0.098
[Gender=2]	0 <sup>a</sup>	.	.	0	.
[University=1]	-1.007	.217	21.500	1	0.000
[University=2]	0 <sup>a</sup>	.	.	0	.
[Teaching Experience=1]	2.344	.325	51.871	1	0.000
[Teaching Experience=2]	1.819	.295	37.916	1	0.000
[Teaching Experience=3]	0.676	.280	5.819	1	0.016
[Teaching Experience=4]	0 <sup>a</sup>	.	.	0	.
Link function: Logit.					
a. As a result of its redundancy, this value has been set to 0.					

The estimated probability of educational material is 0.278 (which is positive) at the significance level 0.015 (which is less than 0.05), so there is a positive impact of educational material on academic performance of online education. Also the Spearman's rho correlation coefficient of academic performance of online education and educational material is 0.163 ( $p = 0.001$ ). So, the null hypothesis 2 is rejected for educational material. It may be concluded that the quality of educational material is significantly effects the academic performance of online education. The estimated probability of teaching facility and skill is 0.645 (which is positive) at the significance level 0.000 (which is less than 0.05), so there is a positive impact of teaching facility and skill on academic performance of online education. Also the Spearman's rho correlation coefficient of academic performance of online education and teaching facility and skill is 0.228 ( $p = 0.000$ ). So, the null hypothesis 2 is rejected for teaching facility and skill. It may be concluded that the quality of teaching facility and skill is significantly effects the academic performance of online education. The estimated probability of online connection service is 0.033 (which is positive) at the significance level 0.765 (which is greater than 0.05), so there is not a significant impact of online connection service on academic performance of online education. Also the Spearman's rho correlation coefficient of academic performance of online education and online connection service is 0.031 ( $p = 0.542$ ). So, there is not enough evidence to reject the null hypothesis 2 for online connection service.

It may be concluded that the online connection service is not significantly effects the academic performance of online education. The Spearman's rho correlation coefficient of academic performance of online education and student acceptability is 0.190 ( $p = 0.000$ ). The estimated probability of student acceptability is 0.082 (which is positive) at the significance level 0.453 (which is greater than 0.05), so there is not a significant impact of student acceptability on academic performance of online education. So, there is not enough evidence to reject the null hypothesis 2 for student acceptability. It may be concluded that the student acceptability is not significantly effects the academic performance of online education. The estimated probability of social acceptability is 0.091 (which is positive) at the significance level 0.402 (which is greater than 0.05), so there is not a significant impact of social acceptability on academic performance of online education. Also, the Spearman's rho correlation coefficient of academic performance of online education and social acceptability is 0.054 ( $p = 0.280$ ). So, there is not enough evidence to reject the null hypothesis 2 for social acceptability. It may be concluded that the social acceptability is not significantly effects the academic performance of online education. The estimated probability of digital learning perception is 0.216 (which is positive) at the significance level 0.015 (which is less than 0.05), so there is a positive impact of digital learning perception on academic performance of online education. Also the Spearman's rho correlation coefficient of academic performance of online education and digital learning perception is 0.184 ( $p = 0.000$ ). So, the null hypothesis 2 is rejected for digital learning perception. It may be concluded that the digital learning perception is significantly effects the academic performance of online education. Now the Mann-Whitney test, Kruskal-Wallis H test and Wilcoxon signed rank test result of performance of online education for demographic variables (gender, university and experience) is shown in Table 5.

**Table 5.** Mann-Whitney test, Kruskal-Wallis H test and Wilcoxon signed rank test result

Variable Name	Measured variable	Number of observation	Median value of academic performance of online education	One-Sample Wilcoxon Signed Rank Test (Sig.)	Measured variable for comparison Test	Test statistic (Sig.)
Gender	Male	272	4	11.821 (0.000)	Mann-Whitney	0.285 (0.776)
	Female	128	4	8.238 (0.012)		

Variable Name	Measured variable	Number of observation	Median value of academic performance of online education	One-Sample Wilcoxon Signed Rank Test (Sig.)	Measured variable for comparison Test	Test statistic (Sig.)
University	Public university	160	4	8.425 (0.000)	Mann-	5.587
	Private university	240	4	11.797 (0.000)	Whitney	(0.000)
Experience	Less than 5 years	84	4	7.619 (0.000)	Kruskal-	72.485
	5 – 10 years	116	4	8.775 (0.000)	Wallis	(0.000)
	10 – 15 years	114	4	6.985 (0.000)		
	More than 15 years	86	3	4.464 (0.000)		

The median values of academic performance of online education for 272 male and 128 female gender are 4. Now the one-sample Wilcoxon signed rank test statistics (median test value 3) for male and female gender are 11.821 and 8.238 at the significance level of 0.000 and 0.012 respectively. So, both male and female gender have significantly higher perception on academic performance of online education from the median test value. The Mann–Whitney test (z) statistic value for male and female gender is 0.285 ( $p = 0.778$ ). So, there is no significant difference of academic performance of online education perception for male and female gender (as the p-value is greater than 0.05). In the ordinal logistic regression model, the estimated probability of gender to academic performance of online education is 0.351 ( $p = 0.098$ ). There is not enough evidence to reject the null hypothesis 3 for male and female gender. So, the contribution of both male and female gender to the academic performance of online education during Covid-19 are same in Bangladesh. The median values of academic performance of online education for 160 public university and 240 private university respondents are 4. Now the one-sample Wilcoxon signed rank test statistics (median test value 3) for public university and private university respondents are 8.425 and 11.797 at the Significance level of 0.000. So, both public university and private university respondents have significantly higher perception on academic performance of online education.

The Mann–Whitney test (z) statistic value for public university and private university respondents is 5.587 ( $p = 0.000$ ). So, there is a significantly higher academic performance of online education perception for private university than public university respondents (as the p-value is less than 0.05). In the ordinal logistic regression model, the estimated probability of public university and private university respondents to academic performance of online education is – 1.007 ( $p = 0.000$ ). Here university 1 is public university and university 2 is private university. The null hypothesis 3 is rejected for public university and private university respondents. So, the perception of private university in the academic performance of online education are significantly higher than public university. The median values of academic performance of online education for less than 5 years, 5 – 10 years, 10 – 15 years and more than 15 years of experience are 4, 4, 4 and 3 respectively. Now the one-sample Wilcoxon signed rank test statistics (median test value 3) for less than 5 years, 5 – 10 years, 10 – 15 years and more than 15 years of experience are 7.619, 8.775, 6.985 and 4.464 respectively at the significance level of 0.000. So, all the experience respondents group have significantly higher perception on academic performance of online education from the median test value (as the p-value is less than 0.05). The Kruskal- WallisH test statistic value for experienced group on academic performance of online education is 72.485 ( $p = 0.000$ ).

So, there is a significantly different perception on academic performance of online education experience (as the p-value is less than 0.05). In the ordinal logistic regression model, the estimated probability of less than 5 years of experience [Teaching Experience = 1] is 2.344 ( $p = 0.000$ ), 5 – 10 years of experience [Teaching Experience = 2] is 1.819 ( $p = 0.000$ ) and 10 – 15 years of experience [Teaching Experience = 3] is 0.676 ( $p = 0.016$ ). So, less than 5 years, 5 – 10 years and 10 – 15 years of experience groups have most significant, more significant and significant academic performance of online education than more than 15 years of experienced group and gradually increases in the lower experience teachers. The

null hypothesis 3 is rejected for experienced group respondents. So, the perception of lower experience group has gradually significant higher perception on the academic performance of online education.

## V. CONCLUSION

The result shows academic performance of online education, online educational material, online teaching facility and skill, online connection service, online student acceptability, online social acceptability and online digital learning perception are significantly higher than the median test value 3. So, online education factor (educational material, teaching facility and skill, connection service, student acceptability, social acceptability and digital learning perception) and performance of online education are significantly increases during Covid-19 situation. It is observed that the quality of educational material and teaching facility and skill are significantly affect the academic performance of online education. But online connection service, student acceptability and social acceptability have no significant effect on the academic performance of online education. Also digital learning perception is significantly affect the academic performance of online education. It is observed from the study that the contribution of both male and female gender to the academic performance of online education during Covid-19 are same, which are significantly higher perception from the median test value 3. The perception of private university in the academic performance of online education are significantly higher than public university, which are significantly higher perception on academic performance of online education from the median value. The perception of lower experience group has significantly higher perception on the academic performance of online education gradually.

## VI. RECOMMENDATION

1. Result shows online education factor (educational material, teaching facility and skill, connection service, student acceptability, social acceptability and digital learning perception) and performance of online education are significantly increases during Covid-19 situation. So, the increased online education perception may be utilized in the online education learning in Bangladesh.

2. It is observed that the quality of educational material significantly affects the academic performance of online education. So, the quality of educational material must be improved more to improve the academic performance of online education.

3. It is also observed that the quality of teaching facility and skill significantly affects the academic performance of online education. So, the quality of teaching facility and skill of the online teachers must be improved more to improve the academic performance of online education.

4. The result shows online connection service, student acceptability and social acceptability have no significant effect on the academic performance of online education.

5. The online digital learning perception significantly affect the academic performance of online education. So, this digital learning perception may be utilized in the growing of online digital education.

6. The study shows that contribution of both male and female gender to the academic performance of online education are same, which are significantly higher perception on academic performance of online education. So, the knowledge of both male and female may utilize in the expansion of online digital education which should increase the performance of the organization.

7. Both public university and private university respondents have significantly higher perception on academic performance of online education from the median test value 3, but the private university in the academic performance of online education are significantly higher than public university. So, public university respondents should take more attention to improve academic performance of online education.

8. The perception of lower experience group has gradually significant higher perception on the academic performance of online education, but all of which have significantly higher perception on academic performance of online education from the median test value. So, the lower experienced teachers may be utilized more in popularize the online education, which will increase the academic performance in Bangladesh.



## REFERENCES

- [1] Barbu, A., Popescu, M. A. M., & Moiceanu, G. (2022). Perspective of Teachers and Students towards the Education Process during COVID-19 in Romanian Universities. *International Journal of Environmental Research and Public Health*, 19(6). <https://doi.org/10.3390/ijerph19063409>
- [2] Burgess, S., & Sievertsen, H. H. (2020, April 1). The impact of COVID-19 on education. VOX, CEPR Policy Portal. <https://voxeu.org/article/impact-covid-19-education>
- [3] Chowdhury, M. S. A., Bappi, M. A. U., Imtiaz, M. N., Hoque, S., Islam, S., & Haque, M. S. (2022). The Transition of E-Commerce Industry in Bangladesh: Added Concerns & Ways of Recovery. *International Journal of Economics and Finance*, 14(7), 1-18.
- [4] Chowdhury, S. A., Shahabuddin, C., Hoq, M. N., Chowdhury, M. M., Islam, S., & Tania, F. I. (2022). Challenges and Opportunities of Growing Performance of Online Animal Selling in Bangladesh During COVID-19 Situation. *Journal of Computer Science*, 567-577.
- [5] Chowdhury, S.A.; Akter, S.; Chowdhury, M.M.; Ahsan, S.M.H.; Yasir Arafat, A.B.M. Is COVID-19 a Blessing for Ecommerce: A View from Bangladesh. *Glob. J. Manag. Bus. Res.* 2021. Available online: <https://journalofbusiness.org/index.php/GJMBR/article/view/3366>
- [6] Estrellan, A., Ferrariz, K. J., Lazona, P. A., Madres, V. E., & Estrellan, J. C. (2021). E-Learning Amidst the Pandemic: Teachers' Perspective in the Philippines. *ASEAN Journal of Science and Engineering Education*, 1(2), 93–96. <https://doi.org/10.17509/ajsee.v1i2.33384>
- [7] Gurley, Lisa. (2018). Educators' Preparation to Teach, Perceived Teaching Presence, and Perceived Teaching Presence Behaviors in Blended and Online Learning Environments. *Online Learning*. 22. 10.24059/olj.v22i2.1255
- [8] Ifiti, M. H., Saona, P., Hossain, M. T., Chowdhury, S. A., & Azad, M. A. K. (2021). Student Engagement in Online Classes During COVID-19: A Sentiment Analysis. *Bangladesh Journal of Integrated Thoughts*, 17(2).
- [9] Islam, D., Chowdhury, S. A., Akter, S., Arafat, A.B.M.Y., & Azam, K.G. (2021). Challenges in distance learning during the pandemic situation of coronavirus (COVID-19): A perspective from Bangladesh. *American International Journal of Social Science Research* 6(2), 1-15.
- [10] Khan, M. M., Rahman, S. M. T., & Islam, S. T. A. (2021). Online Education System in Bangladesh during COVID-19 Pandemic. *Creative Education*, 12(02), 441–452. <https://doi.org/10.4236/ce.2021.122031>
- [11] Law, Kris & Geng, Shuang & Li, Tongmao. (2019). Student enrollment, motivation and learning performance in a blended learning environment: The mediating effects of social, teaching, and cognitive presence. *Computers & Education*. 136. 10.1016/j.compedu.2019.02.021.
- [12] Martin, Florence & Budhrani, Kiran & Wang, Chuang. (2019). Examining Faculty Perception of Their Readiness to Teach Online. *Online Learning*. 23. 97-119. 10.24059/olj.v23i3.1555.
- [13] Scherer, R., Howard, S. K., Tondeur, J., & Siddiq, F. (2021). Profiling teachers' readiness for online teaching and learning in higher education: Who's ready? *Computers in Human Behavior*, 118(December 2020), 106675.
- [14] Maydiantoro, A., Haenilah, E. Y., Hariri, H., Firdaus, R., Hestiningtyas, W., Putrawan, G. E., & Riadi, B. (2022). Teacher's Perspective on the Effectiveness of Online Learning during the COVID-19 Pandemic. *International Journal of Information and Education Technology*, 12(9), 977–982. <https://doi.org/10.18178/ijiet.2022.12.9.1709>
- [15] Marinoni, G., Van't Land, H., & Jensen, T. (2020). The impact of Covid-19 on higher education around the world. IAU Global Survey Report. [https://www.iauiau.net/IMG/pdf/iau\\_covid19\\_and\\_he\\_survey\\_report\\_final\\_may\\_2020.pdf](https://www.iauiau.net/IMG/pdf/iau_covid19_and_he_survey_report_final_may_2020.pdf)
- [16] Rouf, M. A., Hossain, M. S., Habibullah, M., & Ahmed, T. (2022). Online classes for higher education in Bangladesh during the COVID-19 pandemic: a perception-based study. *PSU Research Review*. <https://doi.org/10.1108/prr-05-2021-0026>.
- [17] Schleicher, A. (2020). The impact of COVID-19 on education: Insights from education at a glance 2020. *OECD Journal: Economic Studies*, 1–31. <https://www.oecd.org/education/the-impact-of-covid-19-on-education-insightseducation-at-a-glance-2020.pdf>
- [18] Tabassum, M., Mannan, S. E., Parvej, M. I., & Ahmed, F. (2021). Online Education during COVID-19 in Bangladesh: University Teachers' Perspective. *Aquademia*, 5(1), ep21005. <https://doi.org/10.21601/aquademia/9611>
- [19] Van der Spoel, I., Noroozi, O., Schuurink, E., & van Ginkel, S. (2020). Teachers' online teaching expectations and experiences during the Covid19-pandemic in the Netherlands. *European Journal of Teacher Education*, 43(4), 623–638.

- [20] Wang, Y., Yu, R., Liu, Y., & Qian, W. (2021). Students' and teachers' perspective on the implementation of online medical education in china: A qualitative study. *Advances in Medical Education and Practice*, 12, 895–903. <https://doi.org/10.2147/AMEP.S323397>
- [21] Wicaksono, A., & Setyowati, L. (2022). Teacher's Perspectives of Online Learning vs. Offline Learning: A Case Study from West Java. *KnE Social Sciences*, 2022, 86–95. <https://doi.org/10.18502/kss.v7i7.10653>
- [22] Wu, S. Y. (2021). How Teachers Conduct Online Teaching During the COVID-19 Pandemic: A Case Study of Taiwan. *Frontiers in Education*, 6(May), 1–11. <https://doi.org/10.3389/feduc.2021.675434>