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## Lecturers' Perspectives on Blended Learning Approach at Private Universities in Mogadishu: Using Multiple Regression Analysis

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### Abstract

Blended learning is the main popular approach adopted in higher education. Due to waves of COVID-19 over the world including Somalia, several universities in Somalia in general, and Mogadishu in particular combined face-to-face and virtual classrooms to minimize the spread of COVID -19 pandemic or for the lockdown imposed by the government. Based on that, the study aims at exploring lecturers' perspectives at private universities in Mogadishu on adapting blended learning approaches under COVID-19 Pandemic. Sample of 127 respondents was randomly selected Descriptive and multiple linear regression analyses were used to determine the prediction of variables. The main findings showed by the study that the weighted combination of the predictor variables predicts 45% of the lecturers' satisfaction with the blended learning approach to the private universities in Mogadishu. The study addressed recommendations, mainly; improving teaching and learning and assessment strategies online and training both teachers and students on teaching and learning online. Finally, upholding internet power in collaboration with national and international institutions and companies.

**Key Words:** Perspectives, Blended Learning, Private Universities, Multiple Regression.

### Introduction

As a common teaching phenomenon, blended learning has increased in popularity and demand in higher education. It's becoming clear that blended learning will solve some of the drawbacks of online learning and face-to-face instruction. Blended learning is more successful than either online or face-to-face learning. (Means et al., 2009).

In middle- and low-income countries, blended learning, or the use of a combination of media and learning environments to gain mastery and application of knowledge and skills, is rapidly being used to create capability. (*Blended Learning for Social and Behavior Change Communication* :, 2014). C. R. Graham (2006) coined the word "blended learning," which is now being used more often in scholarly and business circles. (Zhang & Zhu, 2017).

Beginning in the year 2000, blended learning became one of the most common pedagogical principles. Since blended learning became popular, a growing number of researchers have focused on it (Güzer & Caner, 2014).

B. Khan (2005) defines blended learning as "making computers and local and global networks of information accessible for learners," "developing teachers' duties as leaders and mentors to their students in addition to being providers rather than importers of content," and "enabling learning groups to use multimedia." (Oweis, 2018). Teachers showed a more positive attitude towards blended learning post- COVID-19 Pandemic (Saboowala & Manghirmalani-Mishra, 2020).

Blended learning is a result of the digital age, and higher education institutions around the world are gradually adopting it as a modern distribution method. The COVID-19 pandemic has increased the visibility of blended learning as a critical component of conventional higher education. (Calderón et al., 2020).

As the results of the experimental study, the experimental students showed a more positive attitude towards the use of blended learning (Alsalhi et al., 2019). There was a statistically significant increase in student performance under the blended learning approach comparing with previous academic performance. Moreover, student evaluations of the blended approach were very positive and the majority of students (83%) preferred the blended learning approach (Calderón et al., 2020). Similarly, the findings found explored student' satisfaction with blended learning (Kintu et al., 2017).

Kanuka, Brooks, and Saranchuck (2009) define blended learning as a teaching approach that reduces time, location, and situational obstacles while allowing high-quality interactions between teachers and students. (Jeffrey et al., 2014).

Blended learning is a formal education program in which a student learns at least in part through online delivery of content and instruction. Additionally, blended learning is called different terms such as distributed learning, open and flexible learning, and hybrid learning.(Kim, 2013). Russel T. Osguthorpe and Charles R. Graham in 2003, Osguthorpe and Graham's (2003) defined blended learning as: "combination between face-to-face and distance delivery systems (Güzer & Caner, 2014). Learning Environment, Media, and Instruction are the three components of the blended learning model. (Kaur, 2013). The following figure shows this model.

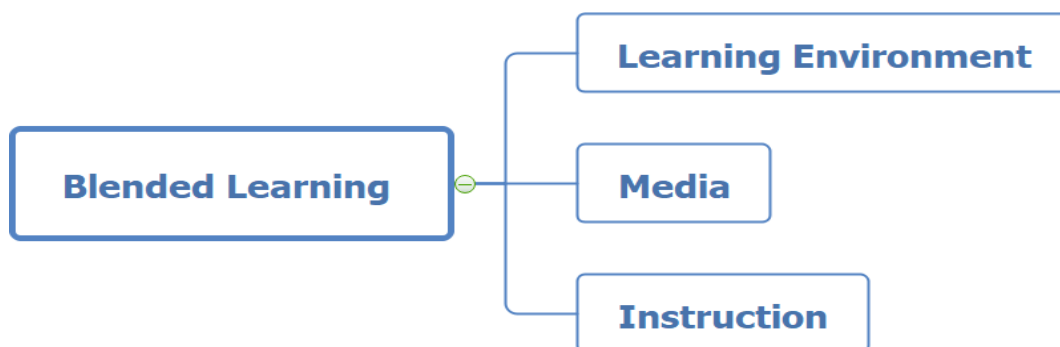


Figure 1. Component of Blended Learning-(Edrow Mind Master)

The main issue with implementing blended learning is pedagogical and technical issues, as the results of the study by Calderón et al.,(2020) show that teachers only need a minimal quantity of pedagogical and technical preparation to successfully implement BL. Throughout the semester, joint preparation, as well as technological and pedagogical assistance, proved to be highly helpful. (Jacob et al., 2012).

Because of the importance of technology in education, we experienced and witnessed its crucial role in continuing education in the world during the COVID-19 Pandemic; colleges, institutes, and universities. Under COVID-19, Somalia's public and private universities used ICT extensively in the educational process. Studies were conducted in Somalia to assess the degree of the efficacy of virtual classroom instruction during the COVID-19 first wave for higher education, and one of the study's key findings (Abubakar & Ahmed, 2020) reported students' satisfaction with virtual classroom instruction at private universities in Mogadishu.. The second wave of COVID-19, similarly, all Universities in Mogadishu city adapted again virtual classrooms as an alternative to face-to-face classes. Based on that, the researcher felt that there is a need to investigate the possibility to combine online and face-to-face classrooms as a new approach to higher education in Mogadishu, Somalia from the view of lecturers.

### Methodology

The study is a descriptive research design to predict using a blended learning approach at private universities in Mogadishu from the perspective of the lecturers using Multiple Linear Regression Analysis. To obtain the required data, the random sampling technique was applied to draw the sample size of (127) lecturers. The questionnaire was administered for data collection containing (29) items established by the researcher. The instrument consists of 5 sections; demographic characteristics, Accessibility to ICT, Materials & Instruction, Assessment, and Satisfaction with BL. The reliability of the instrument was estimated by using SPSS, the result showed (0.91). This value is a high level of acceptance.

For the descriptive analysis, the weightings of the responses from research questions computed using means values intervals as options of; Very Good Predictor (VGP) = 4.20-5.00 points; Good Predictor (GP) = 3.40-4.19 points; Average Predictor (AP) = 2.60-3.39 points; Fair Predictor (FP) = 1.80-2.59 points and Poor Predictor (PP)=1.00-1.79..

### Results and Discussion

**Table 1.Demographic Data Analysis:**

		Frequency	%
<b>Gender</b>	Male	108	85.0
	Female	19	15
<b>Age</b>	25-30	70	55.1
	31-35	38	29.9
	36-40	3	2.4
	41-45	8	6.3
	46-50	8	6.3
<b>Experience</b>	1-5	51	40.2

	6-10	43	33.9
	11-15	15	11.8
	16-20	5	3.9
	20 above	13	10.2
<b>Degree</b>	Bachelor	4	3.1
	H. Diploma	45	35.4
	Master	71	56
	PH.D	7	5.5

Table (1) presents the demographic data of participants of the study. The male made up 85% whereas the female 15%, therefore the majority of lecturers at the private universities in Mogadishu city are male. For the age 25–30 (55.1%) and 31-35 (29.9%) made up (85%). For the Experience, 40.2% of respondents have (1-5 years) while (39.9%) have (6-10 years), this shows that the majority of lecturers (80.1%) have (1-10 years) of experience. For the qualification degree, most lecturers at the private universities in Mogadishu hold Master 'degree (56% and (35.4% for H, Diploma and (3.1%) for Bachelor' degree, while Ph.D. holders represent (5.5%).

**Table 2. Results of Accessibility to Online Learning**

No	Statements	Mean	Std. Deviation	Decision
<b>Q1</b>	I have enough experience to access ICT	4.08	.878	GP
<b>Q2</b>	I experienced teaching online	4.02	.992	GP
<b>Q3</b>	Students can access ICT	3.53	1.060	GP
<b>Q4</b>	The university is technology oriented	3.43	1.179	GP
<b>Grand Mean</b>		3.76	0.807	GP

*\*Very Good Predictor (VGP) = 4.20-5.00 points; Good Predictor (GP) = 3.40-4.19 points; Average Predictor (AP) = 2.60-3.39 points; Fair Predictor (FP) = 1.80-2.59 points and Poor Predictor (PP) = 1.00-1.79.*

The results of table (2) and figure (2) show the four items of the Accessibility to online learning for the lecturers and students scored up the level of 'Good predictor'. Item (1) reached the highest scores (M=4.08, SD=0.78), (M=4.02, SD=0.992) for the item (2) as second rank and item (3) made up the third rank (M=3.53, SD=1.060), while item (4) obtained the fourth rank (M=3.43, SD=1.179). However, the grand mean of all items reached (3.76) as a 'Good Predictor'. This is an overall implication that the private universities in Mogadishu according to the PAccessibility to online learning have a 'Good Prediction' for the blended learning approach.

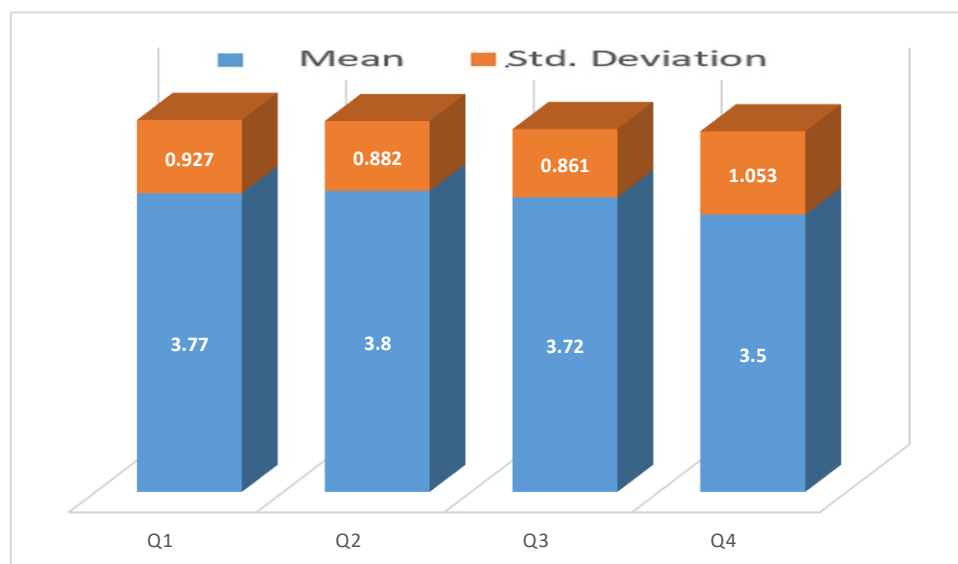


Figure.2 Accessibility to Online Learning

**Table 3. Results of Materials and Instruction Delivery**

	Statements	Mean	Std. Deviation	Decision
Q1	I can manage the blending learning schedule.	3.77	.927	GP
Q2	I can formulate goals and objectives of topics to cover in blended learning.	3.80	.882	GP
Q3	Having a proper outline /syllabus for blended learning is obtainable.	3.72	.861	GP
Q4	Required materials for blending learning are accessible.	3.50	1.053	GP
Q5	Blended learning makes learning more effective	3.39	1.141	AP
Q6	Blended learning increases motivation.	3.31	1.158	AP
Q7	With the blending learning, students will be self-disciplined to learn	3.27	1.178	AP
Q8	Blended learning promotes learning after face- to - face class	3.46	1.227	GP
Q9	Blended learning enables students to become more involved in the learning.	3.20	1.215	AP
Q10	Blended learning will help the student to better understand.	3.20	1.281	AP
Q11	The combination of online and face-to-face learning methods would facilitate meaningful and reliable learning.	3.68	1.053	GP
Q12	In blended learning, you can control how fast or slow you move through lessons.	3.68	1.101	GP
Q13	Blended learning increases the interaction among students as themselves and teachers.	3.18	1.224	AP

Q14	Communication during blending learning is more active	3.17	1.207	AP
Q15	With blended learning, arranging student class activities are flexible.	3.29	1.032	AP
Q16	Blended learning is easy to use resources effectively.	3.43	1.116	GP
Q17	Blended learning promotes self-learning	3.76	1.067	GP
<b>Grand Mean</b>		<b>3.45</b>	<b>1.101</b>	<b>GP</b>

\* Very Good Predictor (VGP) = 4.20-5.00 points; Good Predictor (GP) = 3.40-4.19 points; Average Predictor (AP) = 2.60-3.39 points; Fair Predictor (FP) = 1.80-2.59 points and Poor Predictor (PP) = 1.00-1.79.

Table (3) and figure (3) indicate the results of Materials and Instruction delivery used in the predicted blended learning approach at the private universities in Mogadishu. The results in the table illustrate that the 9 items out of the 17 items got the level of 'Good Predictor', namely; (1,2,3,4,8,11,12,16 and 17), their means sequenced as (M=3.77, 3.80, 3.72, 3.50, 3.46, 3.68, 3.68, 3.43 and 3.76) with their corresponding standard deviations as (0.927, 0.882, 0.861, 1.053, 1.227, 1.053, 1.101, 1.116, and, 1.067). Eight items out of the 17 items obtained the level of 'Average Predictor', namely; (5,6,7,9,10,13,14 and 15), their means illustrated as (3.39, 3.31, 3.27, 3.20, 3.20, 3.18, 3.17, and, 3.29) with their corresponding standard deviations as (1.141, 1.158, 1.178, 1.215, 1.281, 1.224, 1.207, and, 1.032). However, the grand mean of all means of the 17 items explored the level of 'Good Predictor', Thus, the Materials and Instruction Delivery variable for predicting the blended learning approach to the private universities in Mogadishu indicates the level of 'Good Predictor'.

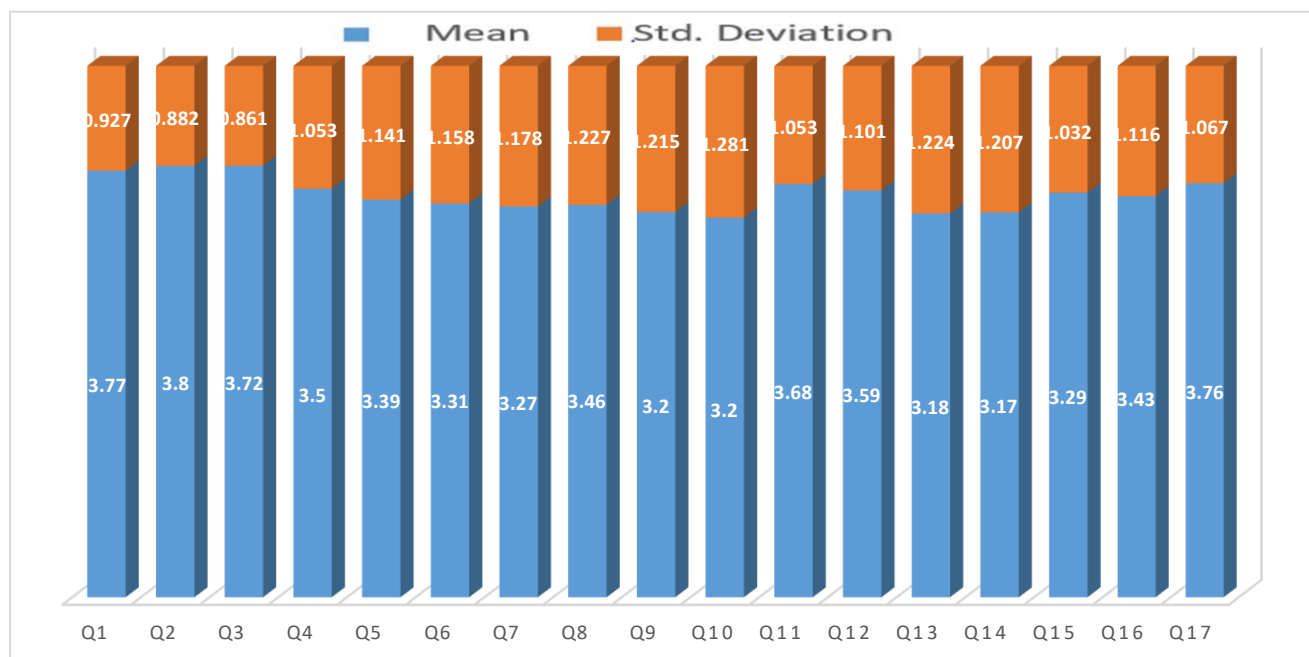


Figure 3. Materials and Instruction Delivery

**Table 4. Results of Assessment**

No	Statements	Mean	Std. Deviation	Decision
Q1	Assessments in blended learning would help the students to mark their improvement areas.	3.59	.979	GP
Q2	With blending learning, it would be easy to assess students' achievement.	3.27	1.123	AP
Q3	All assessment modes could be used in blending learning.	3.29	1.135	AP
	Grand Mean	3.38	1.079	AP

\*Very Good Predictor (VGP) = 4.20-5.00 points; Good Predictor (GP) = 3.40-4.19 points; Average Predictor (AP) = 2.60-3.39 points; Fair Predictor (FP) = 1.80-2.59 points and Poor Predictor (PP) = 1.00-1.79.

Table (4) and figure (4) demonstrate the results of the Assessment. All items – exclude item (1) - gained the level of 'Average Predictor. Item (1) scored up (M= 3.59, SD=.979) as the first rank. Item (3) got the second rank (M=3.29, SD=1.135), while item (2) made up a third rank (M=3.27, SD=1.123). However, the grand mean of the three items is (3.38). This result shows according to the interval mean weighting an average level due to the difficulty of assessing students during the blended learning approach pointed by item (2) and the difficulty to do all assessment modes in blending learning approach indicated by item(3).

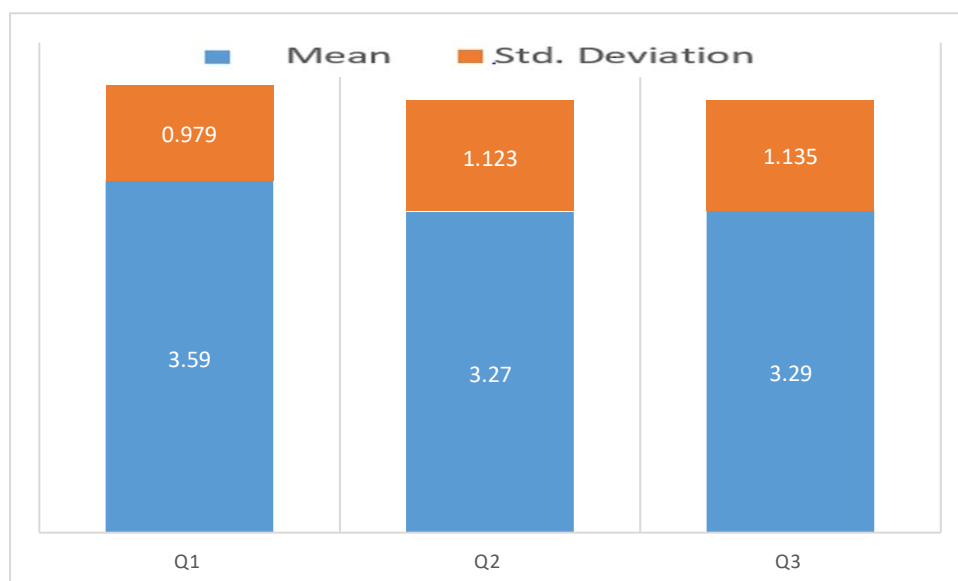


Figure.4 Assessment

**Table 5. Result of Satisfaction with Blended Learning Approach**

	N	Mean	Std. Deviation	Decision
Satisfaction	127	3.52	1.097	GP

\*Very Good Predictor (VGP) = 4.20-5.00 points; Good Predictor (GP) = 3.40-4.19 points; Average Predictor (AP) = 2.60-3.39 points; Fair Predictor (FP) = 1.80-2.59 points and Poor Predictor (PP) = 1.00-1.79.

According to the interval mean weighting of the study, the level of lecturers’ satisfaction with predicting blended learning approach to private universities in Mogadishu is a ‘Good Predictor’ (M= 3.52, SD=1.096).

### Multiple Linear Regression Analysis

Multiple linear regression analysis was applied to explore lecturers’ perspectives on the blended learning approach at the private universities in Mogadishu under COVID-19 Pandemic. The analysis covers Normal distribution of data, Correlations, Model summary of standard regression, Auto-correlation-Durbin Watson, Analysis of variance, Residuals Statistics, Collinearity, and Standardized Regression Coefficients. The normal distribution of data was examined, and the result revealed well normal distribution as shown in figure (5) and (6):

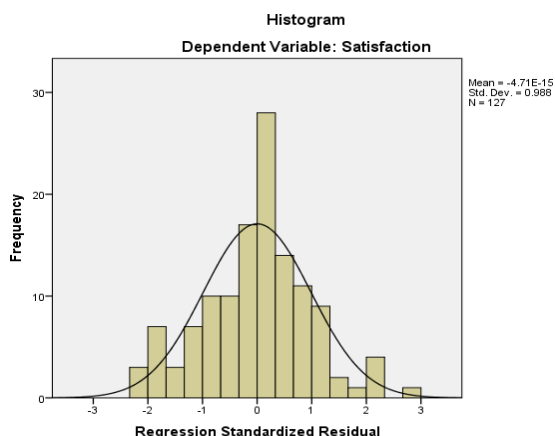


Figure (5) Normal Distribution

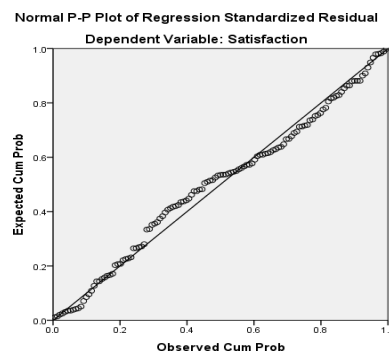


Figure (6) Normal Distribution

The result of the correlation analysis presented in Table (6) indicates a positive relationship among variables significantly in general and a positive correlation between independent variables (Accessibility to ICT, Materials & Instruction, and Assessment) and dependent variable (Satisfaction with BL).

**Table 6. Inter-correlation Analysis among Variables**

		Satisfaction	Accessibility to ICT	Materials & Instruction	Assessment
Pearson Correlation	Satisfaction with BL	1.000	.453	.630	.560
	Accessibility to ICT	.453	1.000	.405	.358
	Materials & Instruction	.630	.405	1.000	.728
	Assessment	.560	.358	.728	1.000
Sig. (1-tailed)	Satisfaction with BL	.	.000	.000	.000
	Accessibility to ICT	.000	.	.000	.000
	Materials & Instruction	.000	.000	.	.000
	Assessment	.000	.000	.000	.

The results of table (7) illustrate the model summary includes the R Square of (0.460), and Adjusted R Square (0.447). These values indicate that the weighted combination of the predictor variables (Accessibility to ICT, Materials & Instruction, and Assessment) can predict 45% of the lecturers' satisfaction with the blended learning approach to the private universities in Mogadishu. Durbin-Watson value in the table indicates (1.952) less than (2). Thus, the data of the study has a positive autocorrelation.

**Table 7. Model Summary**

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Durbin-Watson
	.678	.460	.447	.816	1.952

Table (8) reveals the variance of the standard regression model. The result presented in the table proved statistically significant F (34.932), and P-value = 000 <0.05 this approximately indicates 45% of the variance of the lecturers' satisfaction with the blended learning approach to the private universities in Mogadishu based on the R Square = (0.460) , and Adjusted R Square = (0.447).

**Table 8. Analysis of Variance for Standard Regression Model**

Model	Sum of Squares	df	Mean Square	F	Sig.
Regression	69.789	3	23.263	34.932	.000
Residual	81.912	123	.666		
Total	151.701	126			

Table (9) demonstrates residuals statistics. The minimum and maximum standardized residual values between (-2.281 and 2.974). These values are less than (2.9), therefore, there are no outlier values.

Table 9. Residuals Statistics

	<u>Minimum</u>	<u>Maximum</u>	<u>Mean</u>	<u>Std. Deviation</u>	<u>N</u>
Predicted Value	.91	5.11	3.52	.744	127
Residual	-1.862	2.427	.000	.806	127
Std. Predicted Value	-3.507	2.133	.000	1.000	127
Std. Residual	-2.281	2.974	.000	.988	127

The Variance Inflation Factor (VIF) was measured to determine the impact of collinearity among the variables in the regression model. All values of the independent variables are ( $< 10$ ). Thus, there is no concern or problem about the collinearity. Some authors suggest a more conservative level of (2.5) or above is considered a high **VIF**. However, all values of **VIF** shown in table (10) are less than (2, 5,) therefore there is no collinearity concern.

Table 10. Collinearity Statistics Analysis

Model	Collinearity Statistics	
	Tolerance	VIF
Accessibility to ICT	.827	1.209
Materials & Instruction	.446	2.243
Assessment	.465	2.150

Table (11) presents the analysis of the Beta weights of the variables (standardized regression coefficients). The values shown in the table are to verify the statistical power of the multiple regression. The beta weights of the variables (Accessibility to ICT, Materials & Instruction, and Assessment) have a positive impact on the general regression model and are statistically significant excluding the 'Assessment' variable where P- value = 0.059 is  $> 0.05$ . The Beta weights represent means to evaluate the relative importance of the individual variables in the model. The Beta weight of 'Materials & Instruction' indicates (0.405) as the first importance of independent variables in the model followed by 'Accessibility to ICT' as second importance (0.223), and 'Assessment' made up third importance in the model (0.185).

Table 11. Standards of Multiple Linear Regression Coefficients

Model	Unstandardized Coefficients		Standardized Coefficients		
	B	Std. Error	Beta	t	Sig.
(Constant)	-.489	.421		-1.163	.247
Accessibility to ICT	.097	.032	.223	3.062	.003
Materials & Instruction	.037	.009	.405	4.082	.000
Assessment	.095	.050	.185	1.905	.059

Dependent Variable: Satisfaction with BL

### Conclusion and Recommendation

The main purpose of the study was to predict the blended learning approach to the private universities in Mogadishu from the perspective of lecturers. The multiple linear regression was examined to determine the level of prediction. Pre- Multiple linear regression analysis, the descriptive analysis was applied to describe weighted means items for each variable. The results of grand means of the variables showed a 'Good Predictor' excepting the variable 'Assessment' had a 'Moderate Predictor'. Besides, items of the variable 'Materials & Instruction' got also a 'Moderate Predictor', namely; learning effectiveness, motivation, self-disciplined, interaction among students as themselves and teachers, and flexibility of class activities. Based on that, multiple linear regression analysis was practiced to define the prediction level of the variables after validation of assumptions in terms of normal distribution, outliers, auto-correlation, and collinearity. All required level was estimated and acceptable values. The findings of the analysis of multiple linear regression analysis indicated that R Square was (0.460), and Adjusted R Square (0.447). These values designate that the weighted combination of the predictor variables predicts 45% of the lecturers' satisfaction with the blended learning approach to the private universities in Mogadishu. The findings also proved that beta weights of the variables (Accessibility to ICT, Materials & Instruction and Assessment) have a positive impact on the general regression model and are statistically significant excepting the 'Assessment' variable was not statistically significant. Based on that the study recommends: more attention should be given to teaching and learning strategies online, factors that motivate both teachers and students, self-disciplined factors for the students, interaction, and communication among students as themselves and teachers. In addition to the assessment modes as a critical issue for the learning online. Finally, upholding internet power in collaboration with national and international institutions and companies.

### Conflict of Interest Statement

The author declares that this article was conducted in the absence of any commercial or financial interest. Thus, no competing interests exist.

## Bibliography of the Author

Dr. Said Abubakar is an associate professor in education, curriculum at Mogadishu University, Somalia. His research areas include educational development in areas; curriculum development, educational technology and teaching and learning strategies. Dr. Said has educational articles published in Mogadishu University Journal and SERDEC Education Journal. He is currently the head of research department at Mogadishu University, Somalia.

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