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SATISFACTION OF HIGHER EDUCATION STUDENTS WITH BLACKBOARD LEARNING SYSTEM DURING COVID-19

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ABSTRACT

Purpose- With the advent of the novel COVID-19 disease, the world has become facing an extraordinary situation that has changed the course of normal human life upside down and pushed them towards compulsory, recent technology-based alternative solutions, education being not an exception. Higher education institutions in Turkey rushed from the first moments to avoid the disruption of education process, and transformed into the full-fledged online learning system. Current study addressed aims to investigate how satisfied higher education students are with the transformation to Blackboard Learning System in İstanbul, Turkey during COVID-19. The study compares undergraduate and postgraduate students' perceptions via thirty items divided into six axes, which are included in a single model.

Methodology- An online questionnaire survey sent through BLS itself and WhatsApp was filled out by a total of 294 student respondents, wherein afterwards an inferential and descriptive study with quantitative approach has been employed for analyzing their perceptions.

Findings- The results are indicative that the Usefulness, Engagement, Communication and Ease of Use, Self-efficacy, and Challenges axes respectively have a statistically significant effect on students' perceptions concerning satisfaction with the BLS. As the Usefulness and Engagement axes have the highest contribution to students' satisfaction with the BLS, the Challenges axis has the least contribution. The findings state that satisfaction of postgraduate students, in terms of Self-efficacy, Communication and Ease of Use and Challenges axes, along with a clear supremacy over the Overall axes level is higher than undergraduate students. Moreover, all demographic dimensions except gender, place of living, the kind of device preferred and the willingness in using BLS in the future, influence students' perceptions.

Conclusion- It can be concluded that the transformation into BLS during COVID-19 has been satisfactory for higher education students, especially for postgraduate students. Some traits and drawbacks of BLS have been inferred along with recommendations which may contribute to successful implementation of BLS.

Keywords: Blackboard Learning System, COVID-19, Satisfaction, Learning Management System, Higher Education
JEL Codes: I10, I20, I23

1. INTRODUCTION

After COVID-19 has been categorized as pandemic worldwide, it has become the first main concern of the world' nations and institutions to stand up in the front of their responsibilities toward their nationals not only to protect their health, but also to ensure economic, social and educational aspects of life as before. In Turkey as well, the traditional in-class education in all schools as well as universities was halted and suspended. From then on education was executed through online education platforms and every university identified their own online learning systems (MEB, 2020).

As Sarac (2021) stated, the Turkish higher education system with 207 universities, 129 state universities and 78 foundation universities, has the largest number of students when compared with the European area. Number of students recorded a national total of 8 million or so, distributed as follows: 101,242 Doctoral, 3,002,964, 297,001 Master's, 4,538,926 Bachelor's, and

Associate's and around 51% female, 49% male as reported in Study in Turkey (2020). The fast evolution in the technology of information has revolutionized the teaching-learning practices in instructional environment in Turkey as well (Alokluk, 2018). According to another study (Isik, et al., 2010:222), an increasing demand exists for postgraduate education in Turkey that can only be met by online learning. The online or distance learning in Turkey was not completely spur of the moment decision. Very early on, Turkey had been in an effort to keep up with the latest technologies in education so far. Turkey has adopted the Digital Transformation in Higher Education Project since the early years wherein 120 universities have Distance Education Application and Research Centers (DEARC) to support online learning for more two million students (Elçi, 2021:345).

In the related literature, it has been reported that although the technology has become an integral part of establishments, the transformative effect of the tools of Technology-Enhanced Learning (TEL) on processes of teaching and learning has still not been realized (Jenkins, et al., 2011:462). As far as the technology is concerned, some consideration should be made to enhance satisfaction with the transition to online learning system. Investigating tendency of users towards online teaching and learning system is an important issue, with a view to identify which online education format is convenient for users' needs on one hand, and to support strengths and better weaknesses for both system and users alike, on the other hand. Moreover, very little information exists pertained to the experiences of students towards Learning Management System (LMS) in Turkish universities during COVID-19 outbreak. This study, therefore, will center on how satisfied higher education students have been with BLS during COVID-19.

2. LITERATURE ON TECHNOLOGY-BASED LEARNING SYSTEMS

There is a growing literature on the definitions of different types of Technology-based Learning Systems - Distance Education, eLearning, Online Learning, LMS etc. The numerous terminologies that referred to the digital technology-built education are used in many different names and nomenclatures with varied forms and manners (Littlefield, 2018; Moore, et al., 2011). Soroka (2019) cited that digital education has undergone a shift from offline to online education thanks to Internet, and online learning and distance education have much in commonality. Another study (Maity, et al., 2021) overviewed the digital education through online teaching and learning, eLearning and distance learning to explore the effectiveness, accessibility and quality of digital education during COVID-19. Furthermore, Sari & Nayır (2020) stated that open education, eLearning, virtual learning, m-learning, online learning, all are in fact various tools of distance learning, and they are different from each other in terms of the system or approach they utilize. Parker & Martin (2010) point out that distance learning is nearly a synonym for the word online learning. In favor of previous saying, in another study (Moore, et al., 2011) it has been mentioned that a relation between online learning and distance learning exists but while they themselves observe inconsistency in using the terminology. Moreover, Goi & Ng (2008) believe that eLearning stemmed from distance education but there are differences between them in terms of interaction, paradigm in education and the technology used in instructional activities. In another study (Saputro, et al., 2021) online learning is part of technology-based learning that employs the internet, intranet, and extranet resources and requires a LMS in its implementation and stages to get its effectiveness. It has been also stated that the growth in use of LMSs is associated with the growth in online learning (Malikowski, et al., 2007).

The growing introduction of LMS, which is defined as "a technology platform that can be used to automate the administration, development, and delivery of all of a company's training programs", in all levels of instruction has been noted across the world (Noe et al., 2017:292). Thus, it has become a crucial tool for almost all tertiary instruction institutions, and a driving force in online learning (Rhode, et al., 2017). Balkaya and Akkucuk (2021) add that it has become a major strategic component of instructional institutions, wherein, as for some researchers (Gautam, D. K., & Gautam, P. K., 2021), it is a space designed to meet learners, rate learners, assign, interact, and distribute material virtually.

As a result, what is manifestly explicit is that some ambiguity still exists in relation to the differences among terminologies that express Technology-based Education System. Nonetheless, it can be said that all the different terms fall within a larger term of technology-based learning. Moreover, it can be noted that LMSs are employed by all of Technology-based Learning Systems as a core tool or media to deliver instruction to the beneficiaries (Liaw, 2008; Baber, 2020; Giray, 2021).

Several literature reviews have tried to evaluate satisfaction with online learning system or LMS in various ways and methods, wherein some strived to look for users' perception, attitude and belief towards LMS, some others focused on addressing factors or dimensions that have an effect on users and their learning outcomes. Other scholars have touched on measurement of LMSs' features and their effects on users' performance along with the advantages and disadvantages of LMS. There are considerable variances of perspectives about satisfaction in using online learning system or LMS, ranging from positive, moderate to negative perceptions (Parker & Martin, (2010); Hall (2006); Liaw, 2008; Findik-Coşkunçay, et al., 2018; Acar & Kayaoğlu 2020; Gautam, D. K., & Gautam, P. K., 2021; Evişen, et al., 2020; Giray, 2021; Aguilera-Hermida, 2020; Maqableh, 2015).

The Blackboard, hereinafter referred to as the Blackboard Learning System (BLS), is one of the salient LMSs, which has been used for the application of eLearning in many countries (AlKhunzain & Khan, 2021). It was launched by Blackboard Inc. in 1998 and the number of users reached 12 Million in over 60 countries in 2006 (Bradford, et al., 2007). This number went up more than 100 Million users in 90 countries (Gonzalez, 2020). In this line of discussion, it can be concluded that BLS is deemed as one of the most common web-built education system tools within tertiary instruction and one of the more widely used user-friendly platforms (Carvalho, et al., 2011; Tarhini, et al., 2015). In the current study BLS has been chosen as the platform due to the mentioned reasons.

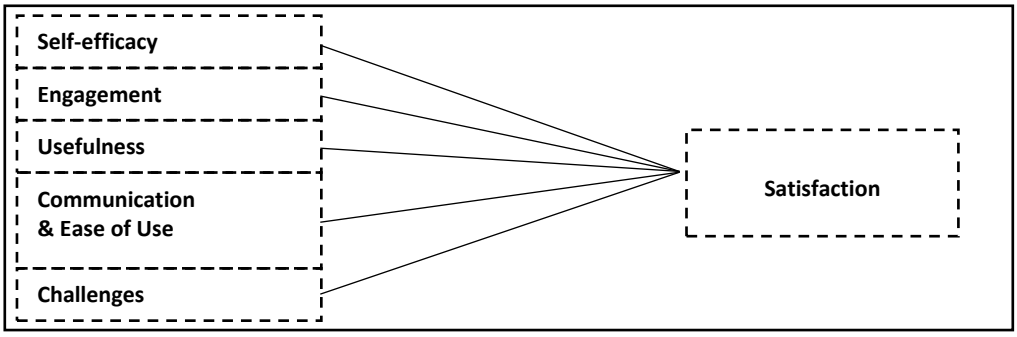
3. RESEARCH MODEL AND HYPOTHESES

Investigating how satisfactory the transformation of educational process has been during COVID-19 in Istanbul for higher education students is deemed as the problem statement and TAM model will be employed in the current paper. The main idea of Technology Acceptance Model (TAM), which was introduced by Davis (1989), investigates if the users have a positive perception about usefulness and ease of use of technology. This in turn gives rise to a positive attitude towards adopting the technology, which will contribute to enhance the actual use of system later on. The model has undergone many developments, the external variables were investigated as well in order to understand direct and indirect influences on users' attitudes towards technology use, especially in education (Aguilera-Hermida, 2020; Al-hawari & Mouakket, 2010; Kemp, et al., 2019; Maqableh, 2015; Sahin & Shelley, 2008).

Sahin & Shelley, (2008) stated that it is not easy to address students' needs and optimize their education if the satisfaction of students in terms of online learning is not investigated. The satisfaction about technology is conceptualized as a key link in their outcomes, with increased enjoyment connected to greater levels of student engagement, which is also linked to increasing student learning. They added that usefulness, computer expertise and flexibility are essential to enforce student satisfaction with online learning. Students' satisfaction, motivation, and attendance are essential to the success of online learning (Haleem et al., 2021). For their sides, Al-hawari & Mouakket, (2010) stated that, according to the previous study conducted by Lin and Sun (2009), there is a positive and association between satisfaction and TAM factors. Moreover, the usefulness and ease of use, along with the external variables are significant factors that play a role in the satisfaction of online learning or LMS (Hall, 2006; Liaw, 2008; Parker & Martin, 2010; Carvalho, et al., 2011; Maqableh, 2015; Findik-Coşkunçay, et al., 2018; Hamid, et al., 2020; Aguilera-Hermida, 2020; Emiroglu, et al., 2021). Self-efficacy, is another flexible indicator for establishing student satisfaction and with the advent of technology, technology self-efficacy level of students has been considerably developed (Haleem et al., 2021). Santoso, (2021), based on his model, claimed that engagement has an effect on satisfaction significantly and positively. Hall (2006) also confirmed that students' engagement contributes highly to the successful implementation of LMS.

Therefore, the proposed research model in this paper will count on six axes; Self-efficacy, Engagement, Usefulness, Communication and Ease of Use, Challenges and Satisfaction. The Satisfaction axis will be employed as dependent variable and the others as independent variables (see Figure 1).

Figure 1: Research Model



H1: The Self-efficacy, Engagement, Usefulness, Communication and Ease of Use, and Challenges axes positively have no effect on students' Satisfaction.

H2: There is no statistically significant difference between undergraduate and postgraduate students' perception on the level of Overall axis of the satisfaction with BLS.

H2a: There is no statistically significant difference between undergraduate and postgraduate students' perception on the level of Self-efficacy axis of the satisfaction with BLS.

H2b: There is no statistically significant difference between undergraduate and postgraduate students' perception on the level of Engagement axis of the satisfaction with BLS.

H2c: There is no statistically significant difference between undergraduate and postgraduate students' perception on the level of Communication and Ease of Use axis of the satisfaction with BLS.

H2d: There is no statistically significant difference between undergraduate and postgraduate students' perception on the level of Usefulness axis of the satisfaction with BLS.

H2e: There is no statistically significant difference between undergraduate and postgraduate students' perception on the level of Challenges axis of the satisfaction with BLS.

H2f: There is no statistically significant difference between undergraduate and postgraduate students' perception on the level of Satisfaction axis of the BLS.

H3: The demographic dimensions positively have no an effect on the program students study on the satisfaction with BLS.

4. RESEARCH METHODOLOGY

4.1 Data Collection Progress

The study design at hand can be described as an inferential and descriptive study with a quantitative method. Therefore, the online self-reported two-part questionnaire survey formulated by Google Form were employed with a view to compiling the primary data. Further, it was adopted from similar studies and subjected to be developed through extensive review to keep up with the requirements of the proposed research. The eleven demographic questions as well as thirty students' perceptions questions listed in the survey were closed-ended in two formats, multiple-choice and rating questions on a five-point Likert scale ranging from strongly disagree (1) to strongly agree (5). Due to the reasons that the majority of the population targeted are predominantly Turkish-speaking students and are unable to talk English, the survey was firstly created in both English and Turkish languages. The second part having thirty items is made up of six axes: Self-efficacy has four items adopted from (Aguilera-Hermida, 2020; Ituma, 2011; Liaw, 2008), Engagement has four items from (Aguilera-Hermida, 2020), Usefulness with a five-item from (Ituma, 2011; Liaw, 2008; Maqableh, 2015), Communication and Ease of Use has six-items from (Al-hawari & Mouakket, 2010; Ituma, 2011; Salloum et. al., 2019), Challenges has seven items from (Aguilera-Hermida, 2020; Maqableh, 2015; Parker & Martin, 2010). Finally, Satisfaction has four items from (Liaw, 2008; Salloum et. al., 2019).

Once approved by Ethics Committee, the questionnaire link was distributed by WhatsApp group and BLS itself to all registered higher education students of a private university in Istanbul/Turkey especially those who have witnessed lockdown actions to mitigate the effects of pandemic due to the prevalence of COVID-19, in 2020-2021. As a result, the actual overall size of the random sample was 294 students whose data were brought together and analyzed, where most of them were in the 18-29 age group, male and undergraduate. Moreover, the most rated respondents have previous experience using LMS, live in city, use laptop, and would like to have 45 minutes' classes, two classes per day and multiple choice & true-false exams (Table 1).

Table 1: Demographic Information

		Total 294	100%
Demographic Dimensions		**Frequency**	**Percent**
Age	18-29	268	91.2
	30-39	19	6.5
	40 & above	7	2.4
Gender	Male	160	54.4
	Female	134	45.6
The current program you study	Undergraduate	242	82.3
	Postgraduate	52	17.7
Where do you live?	City	271	92.2
	Village	12	4.1
	Others	11	3.7

The device you prefer to use for Blackboard	Mobile	24	8.2
	Laptop	240	81.6
	Desktop	26	8.8
	Tablet	4	1.4
How long would you like the online classes (per class) to be?	45 Min	196	66.7
	60 Min	69	23.5
	90 Min	24	8.2
	More than two hours	5	1.7
How many classes per day would you like to take on Blackboard collaborate?	Only one class	54	18.4
	Two classes	116	39.5
	Three classes	76	25.9
	Over three classes	48	16.3
What kind of exams would you like?	Take home	57	19.4
	Multiple choice & true-false	125	42.5
	Both	112	38.1
What kind of subjects do you study?	Practical and Theoretical	211	71.8
	Only theoretical	83	28.2
Are you willing to continue the classes through Blackboard system in the future after COVID-19?	Yes	144	49.0
	No	79	26.9
	Not sure	71	24.1
I have a previous experience in using the Learning Management Systems (Blackboard).	Yes	176	59.9
	No	118	40.1
No missing data			

4.2. Questionnaire Test

The pilot study that is "pre-test the questionnaire on a small number of people before it is used in earnest" (Walliman, 2010:98) was applied to a twenty-student sample to measure the reliability by Cronbach's Alpha Coefficient test. The reliability coefficient above 0.7 are seen as satisfactory, as Cronbach's Coefficient value ranges from 0.0 to +1.0. Cronbach's Coefficient of sample was valued by $\alpha = 0.838$, pointing out that it is acceptable value. In the same vein, the reliability in either each axis or allover axes, demonstrates to be assumed as Cronbach's alpha Coefficient goes through 0.70 (Table 2).

Table 2: Reliability Test

Axes	Items No.	Cronbach's Alpha Coefficient
Self-Efficacy	4	.799
Engagement	4	.848
Usefulness	5	.920
Communication and Ease of use	6	.784
Challenges	7	.762
Satisfaction	4	.813
Overall Axes	30	.848

4.3. Data Analysis Progress

Multiple Regression Analysis is implemented to investigate the extent to which Self-efficacy, Engagement, Usefulness, Communication and Ease of Use, and Challenges axes (Independent Variables) influence satisfaction axis that is considered in the current thesis as a measure of Dependent Variable. The Independent Samples T-test is adopted to tell the differences between the undergraduate and postgraduate students' perceptions, as the level of significance is 0.05.

Moreover, to arrive at the degree to which the students perceive each Item in a bid to infer the traits and drawbacks of BLS, the five-point Likert Scale will be employed to establish if an approval is high, moderate, or low level through examining Items' means meaning; high level the mean value is more than or equal 3.4, moderate level the mean value ranges from 2.6 to 3.39, low level the mean value is less than 2.6. To establish the extent of the influence of demographic dimensions Pearson's Chi Square Test has been conducted.

5. FINDINGS

Since the P-value (significance level) in terms of the Self-efficacy, Engagement, Usefulness, Communication and Ease of Use and Challenges axes show to be less than 0.001, the regression is statistically significant (Table 3). There is a positive correlation between Satisfaction dependent variable and the independent variables- Self-efficacy, Engagement, Usefulness, Communication and Ease of Use and Challenges. It turns out that theses axes have a positive effect on students' Satisfaction axis (Dependent Variable). This certainly leads to the argument that Hypothesis H1 is rejected. Moreover, an axis that has the most effective contribution to students' satisfaction with the transformation towards BLS is the Usefulness axis, followed by the Engagement axis. Challenges axis has the lowest effective contributor (4.1%), as it has the lowest R-squared (R^2) value (.041).

Table 3: Stepwise Multiple Regression Analysis & Correlation Path

Dependent variable	Independent variables	B	R^2	Correlation	P-value
Satisfaction	**Usefulness**	.045	.229	.679	<0.001
	Engagement	.052	.224	.646	<0.001
	Communication and Ease of Use	.061	.164	.593	<0.001
	Self-efficacy	.054	.140	.570	<0.001
	Challenges	.168	.041	.202	<0.001

The level of significance (P-value) at 0.001.

Since the P-value (significance level) on the overall axes level is less than 0.05 in the 95% confidence interval, the discrepancy between undergraduate and postgraduate students is statistically significant (Table 4). It turns out that students' perceptions towards the satisfaction with BLS make a distinction as concerns overall axes. Such leads unquestionably to the argument that the Hypothesis H2 is rejected. The mean of the overall axes level of postgraduate students (M = 93.6, SD = 12.89) shows to be greater than that undergraduate students (M = 87.2, SD =15.40).

As for sub-hypotheses, since the P-value (significance level) on the Self-efficacy, Communication and Ease of Use, and Challenges axes level is evident to be less than 0.05 in the 95% confidence interval, the discrepancy between undergraduate and postgraduate students is statistically significant. It turns out that students' perceptions towards the satisfaction with BLS make a distinction as concerns self-efficacy axis. Such leads unquestionably to the argument that the Hypotheses H2a, H2d, H2e is rejected. The mean of the Self-efficacy, Communication and Ease of Use, and Challenges axes level of postgraduate students is evident to be greater than that undergraduate students. Conversely, the Engagement, Usefulness, and Satisfaction axes are not statistically significant due to the P-value shows to be more than 0.05, It turns out that students' perceptions towards the satisfaction with BLS do not make a distinction as it concerns Engagement, Usefulness and Satisfaction axes. Such leads unquestionably to the argument that the Hypotheses H2b, H2c, H2f is accepted.

Table 4: Independent Sample t-test Analysis Results

	The current program you study			
	Undergraduate No.= 242	**Postgraduate No.= 52**		
Axes	**M (SD)**	**M (SD)**	**t- value**	**P-value**
Self-Efficacy	14.1 (3.32)	15.3 (2.99)	-2.473	.014
Engagement	11.6 (4.50)	12.7 (3.62)	-1.656	.099
Usefulness	16.5 (5.13)	17.5 (4.65)	-1.338	.182
Communication and Ease of use	20.2 (3.20)	21.8 (2.57)	-3.227	.001
Challenges	21.8 (3.21)	23.1 (3.05)	-2.645	.009
Satisfaction	15.4 (2.70)	15.8 (2.52)	-1.155	.249
Overall Axes	87.2 (15.40)	93.6 (12.89)	-2.803	.005

The level of significance at 0.05.

Furthermore, Table (5) spells out the students' approval in terms of thirty items tends to range from high to moderate level with superiority of high approval level, except tow items tend to be low approval level.

Table 5: Mean of Question Items

No.	Item	M	S.D	Level of Approval
1	I feel confident using the Blackboard system.	3.98	0.88	High
2	Blackboard enabled me to organization and time management.	3.45	1.05	High
3	Blackboard helped me with knowledge of new tools.	3.61	1.05	High
4	Blackboard added value to your learning skills.	3.25	1.16	Moderate
5	Blackboard increased the level of involvement activities.	3.04	1.18	Moderate
6	Blackboard encouraged me on the class attendance more than face-to-face.	2.87	1.42	Moderate
7	Blackboard aided me to concentrate more than traditional learning.	2.77	1.39	Moderate
8	Blackboard improved my grades.	3.13	1.27	Moderate
9	Blackboard increased my productivity.	3.08	1.15	Moderate
10	I believe Blackboard can assist learning efficiency.	3.37	1.18	Moderate
11	I believe Blackboard can assist learning performance.	3.41	1.16	High
12	I believe Blackboard can assist learning motivation.	3.22	1.22	Moderate
13	I believe Blackboard can assist learning assessment / evaluation (quizzes / surveys / self-tests).	3.57	1.10	High
14	Posting announcements, other timely news and information by your instructor or department were in time.	3.77	0.96	High
15	I got feedback from instructors/staff immediately.	3.47	1.01	High
16	Discussions and Submissions (email, chat, post, etc.) were active and effective.	3.71	0.89	High
17	Blackboard Collaborate (virtual classroom) is very beneficial.	3.42	1.09	High
18	Blackboard enables me to access to learning resources / materials (files / content/ assignments / learning modules).	4.08	0.78	High
19	It was difficult for me to use Blackboard.	2.06	1.06	Low
20	I felt time-consumption.	2.78	1.17	Moderate
21	I felt isolated.	3.27	1.26	Moderate
22	I was ready to study using Blackboard system (Having intention).	3.50	1.02	High
23	Using Blackboard was costly of internet access.	2.59	1.16	Low
24	Blackboard increased family time during COVID-19.	3.42	1.24	High
25	Blackboard helped me with personal improvement during COVID-19.	3.21	1.23	Moderate
26	Blackboard allowed me to practice new activities during COVID-19.	3.25	1.19	Moderate
27	I am satisfied with using Blackboard as a learning assisted tool.	3.81	0.92	High
28	I am satisfied with Blackboard functions.	3.94	0.78	High
29	I am satisfied with Blackboard contents.	3.96	0.74	High
30	I am satisfied with Blackboard interaction.	3.72	0.89	High

As can be noted from Table 6, it is abundantly clear that all demographic dimensions except gender, place of the living, the sort of preferred device and the willingness in using BLS in the future, positively have an effect and association with undergraduate and postgraduate students meaning that the third hypothesis concerning them is rejected.

Table 6: Pearson's Chi Square Test Results

		The current program you study			
		Undergraduate	**Postgraduate**		
Demographic Dimensions		Count (%)	Count (%)	X2 value	P-value
Age	18-29	239 (89.2)	29 (10.8)	74.079*	< 0.001
	30-39	3 (15.8)	16 (84.2)		
	40 & above	0 (0.0)	7 (100)		
Gender	Male	128 (80)	32 (20)	1.290	.256
	Female	114 (85.1)	20 (14.9)		
Where do you live?	City	221 (81.5)	50 (18.5)	4.780	.092
	Village	12 (100)	0 (0.0)		

	Others	9 (81.8)	2 (18.2)		
The device you prefer to use for Blackboard	Mobile	16 (66.7)	8 (33.3)	5.223*	.156
	Laptop	200 (83.3)	40 (16.7)		
	Desktop	22 (84.6)	4 (15.4)		
	Tablet	4 (100)	0 (0.0)		
How long would you like the online classes (per class) to be?	45 Min	178 (90.8)	18 (9.2)	33.067*	< 0.001
	60 Min	50 (72.5)	19 (27.5)		
	90 Min	11 (45.8)	13 (54.2)		
	More than two hours	3 (60)	2 (40)		
How many classes per day would you like to take on Blackboard collaborate?	Only one class	29(53.7)	25 (46.3)	39.653*	< 0.001
	Two classes	96 (82.8)	20 (17.2)		
	Three classes	71 (93.4)	5 (6.6)		
	Over three classes	46 (95.8)	2 (4.2)		
What kind of exams would you like?	Take home	33 (57.9)	24 (42.1)	32.827	< 0.001
	Multiple choice & true-false	116 (92.8)	9 (7.2)		
	Both	93 (83)	19 (17)		
What kind of subjects do you study?	Practical and Theoretical	183 (86.7)	28 (13.3)	10.015	< 0.001
	Only theoretical	59 (71.1)	24 (28.9)		
Are you willing to continue the classes through Blackboard system in the future after COVID-19?	Yes	114 (79.2)	30 (20.8)	2.286	.319
	No	66 (83.5)	13 (16.5)		
	Not sure	62 (87.3)	9 (12.7)		
I have a previous experience in using the Learning Management Systems (Blackboard).	Yes	153 (86.9)	23 (13.1)	6.426	< 0.001
	No	89 (75.4)	29 (24.6)		

X2. Pearson's Chi square Test.

*. Likelihood Ratio used, as the expected count at one of group < 5. Source: Author

6. DISCUSSION

6.1. Self-efficacy Axis

Self-efficacy is defined as "perceived beliefs about one's own capability of achieving a task or being successful in a particular area" (Şimşek, 2012:1530). Students' self-efficacy, interaction environments and multimedia forms are considered by a study (Liaw, 2008:866) as dimensions for developing effective eLearning capabilities. Furthermore, Self-efficacy is also a strong determinant of a successful online educational experience (Albelbisi & Yusop, 2019). Thus, students should be aided to set out their resources and improve their confidence (Aguilera-Hermida, et al., 2021). The researcher therefore, in the present study, has opted this factor as axis because of its importance.

In line with the literature, Self-efficacy seems to be a somehow significant predictor of students' satisfaction. As well, it shows a statistically significant divergence among both groups in favor of postgraduate students. Namely, the postgraduate perceptions as concerns satisfaction with BLS are evident to be a bit more positive than the undergraduate perceptions on the Self-efficacy level. As such, the postgraduate students are apparent to be better in using BLS thanks to their feeling of confidence to this system, acquiring new tools and moderate learning skills which enable them to be able to manage and organize their time in a manner appropriate to their needs. In other terms, they look to be utilizing self-efficacy more than the undergraduate students are. Such result reflects a clear image about students' perceptions influenced by Self-efficacy, which complies with the existing literature (Aguilera-Hermida, 2020; Maqableh, 2015; Liaw, 2008).

6.2. Engagement Axis

Engagement is the users' knowledge, attention, curiosity, concentration, and flow during the process (Kemp, et al., 2019). It has been found that the successful embrace of eLearning modes relies on all the users' engagement, both instructors' and learners' (Yakubu, et al., 2019). According to the UTAUT framework, expectancy effort is one of the factors bearing on individual's behavioral intention to use technology, which refers to an individual's likelihood to participate in a specific behavior (Venkatesh, et al., 2003). Baber (2020:290) held the opinion that absence of physical socialization in online learning makes online student engagement to be a stronger factor of the student's perceived learning outcome. Thereof, the engagement axis was listed in the existing survey to observe involvement activities, level of attendance, grades and concentration.

According to the findings of this study, Engagement axis enjoys a relative high positive association to students' satisfaction, with a statistically significant impact. In other terms, Engagement seems to be a crucial predictor of students' satisfaction with the BLS. Additionally, the postgraduate perceptions as to Engagement are spotted not to be different from the undergraduate perceptions. Undergraduate and postgraduate students also show to be moderately able to attend the online classes in which they feel fairly encouraged to participate in line with the existing literature (Aguilera-Hermida, 2020; Carvalho, et al., 2011; Goi & Ng, 2008; Hamid, et al., 2020; Heirdsfield, et al., 2011) .

6.3. Usefulness Axis

Usefulness is technology functionality (Parker & Martin, 2010:137). Senel and Senel (2021) described that BLS provides the benefits for assessment like instant feedback, ease of editing, submitting/responding, control and storage, providing student participation, motivation and statistical data, enriching assessment tools and products and re-use. Thereof, the productivity, efficiency, performance, motivation and assessment are the main indicators employed in this research to scrutinize the usefulness of BLS pursuant to students' viewpoints in an effort to recognize their satisfaction.

Usefulness axis has the highest positive correlation with students' satisfaction towards BLS. It positively influences students' perceptions with satisfaction and has the highest effective contribution to students' satisfaction with the BLS. Furthermore, there is no statistically significant difference between students' perceptions on the level of Usefulness axis, the postgraduate perceptions as to the satisfaction with the transformation towards BLS are not different from the undergraduate perceptions.

BLS plays a high role in spurring highly their learning performance and in providing highly an auxiliary evaluation tool, wherein they could follow easily their evaluation via exam's grades provided on the BLS platform or feedbacks from academic staff any time, namely BLS can be characterized as a satisfying learning evaluation vehicle. Consequently, it can be asserted that they both, undergraduate and postgraduate, feel the usefulness with using BLS in the same line with (Evişen, et al., 2020) who perceived that online learning or LMS is useful during COVID-19.

6.4. Communication and Ease of Use Axis

BLS allows communication through announcements, email, virtual classroom, and discussions (Bradford, et al., 2007). Dhawan (2020) stated in his SOWC Analysis that immediate feedback is one of the strengths of online learning. Furthermore, ease of use is "how simple it is to become skillful in using the technology" (Parker & Martin, 2010:137). Aguilera-Hermida, et al. (2021) stated that ease of use is a strong factor for utilization of online learning. Therefore, the communication and ease of use was included in this paper as one of the axes.

Communication and Ease of Use axis has a moderate positive association with students' satisfaction, and a statistically significant effect. Wherein it also possesses the effective contribution but to a lesser extent than the Usefulness and Engagement axes, that is, it influences positively, to a certain extent, students' satisfaction with the BLS. In some sense, Communication and Ease of Use axis sounds to be a somewhat significant predictor of students' satisfaction with BLS. Furthermore, there is a statistically significant difference between undergraduate and postgraduate students. Postgraduate students' perception is evident to be a bit more positive than the undergraduates' perception. Such means that they are abler to communicate readily with each other or with their academic staff/staff. BLS allows them to make effectively discussion sessions via the beneficial virtual classroom feature, submit their active inputs and get timely to the information, feedbacks and announcements provided by academic staff/staff. Hence, BLS usage enables the students to catch up with the announcements and information on time. It also allows to access readily to instruction available resources and materials to support the learning and teaching process remotely.

6.5. Challenges Axis

Having some technical problems in LMS is possible owing to the transition of educational process method. The problems caused by distance education have been discussed by several scholars in the midst of COVID-19 time (Emiroglu, 2021, Bentata, 2020). Moreover, Bataineh, et al. (2021) indicated that majority of students confronted challenges and obstacles with online learning style. Giray (2021) raised questions on the challenges, positive and negative facets of online learning among COVID-19 to evaluate students' satisfaction. This axis then is chosen to attempt to reach out to learn about obstacles.

Despite an ineffectual association between Challenges and Satisfaction, Challenges axes confirms having a statistically significant impact on students' perceptions towards satisfaction. In addition to that, it has a statistically significant disparity between undergraduate and postgraduate students' perception. As well, postgraduate students and their perceptions as to the satisfaction with BLS are revealed to be a bit more positive than the undergraduate perceptions. The challenges or changes, except a sense of time-consumption and isolation, and a cost internet access coped by the postgraduate students seem to be less than those made by the undergraduate students.

It turns out that the harsh transformation into BLS explicitly has no challenges that influence the satisfaction level, even has opportunities such as increasing the time spent with family, self-improvement and practicing new activities, which contribute to adjust some students' habits and activities amid COVID-19 period. As well, these changes are spotted in the undergraduate students less compared to postgraduate students.

6.6. Satisfaction Axis

Satisfaction is how convinced or pleased a user is with an information system (DeLone & McLean, 2003). The current and future use of LMS depends on the extent to which students are satisfied about their experience towards this kind of a system (Findik-Coşkunçay, et al., 2018). Another study (Shahzad et al., 2021) deduced that user satisfaction is significant in terms of eLearning, in some sense, there is positive relationships between eLearning and user satisfaction. Therefore, the axis of satisfaction is listed within the survey to rate undergraduate and postgraduate students' satisfaction in regard to the completely transformation to BLS and is used as dependent variable in the research model. To this end, the respondents were told to reply on four questions related to satisfy with contents, functions, interaction of BLS.

On the satisfaction axis level itself the postgraduate students or to the undergraduate students perceptions are not different from each other. Namely, it equally enables them to interact, to access to contents and to use functions satisfactorily and efficiently.

As the Usefulness enjoys a relative high positive correlation with students' satisfaction and the Challenges has a somewhat weak positive correlation to students' satisfaction over the BLS. Further, the Usefulness, Engagement, Communication and Ease of Use, Self-efficacy and Challenges respectively have an effective on students' satisfaction about the BLS, i.e. statistically significant influence. The Usefulness axis shows to be the highest effective contribution to students' satisfaction and the Challenges axis shows to be the least. Stated differently, the Usefulness axis is the most crucial predictor of students' satisfaction towards the BLS, in contrast, the Challenges axis is deemed the least students' satisfaction predictor with the BLS amongst COVID-19 disease period. As a result, it can be claimed that these five axes are considered as satisfaction indexes. It can be said that the axes emerging in this research are consistent with some factors stated by (Heirdsfield, et al., 2011; Siagian, et al., 2020; Sofi & Laafou, 2020).

In the light of the above, as was expected, it can be claimed that higher education students, both undergraduate and postgraduate have felt manifestly a high tendency of approval towards satisfaction with BLS. The transformation process into the BLS confirms to be satisfactory, with clear superiority and more firm preference for the postgraduate students as compared with their peers in the undergraduate, in terms of Self-efficacy, Communication and Ease of Use and Challenges. A clear superiority of the postgraduate students' perceptions on the overall axes level as well.

Yet some challenges such as absence of interaction and social life, is not because of using BLS itself, but over COVID-19 quarantine and lockdown measures which affect psychological status of students, as some researches. With respect to university, the causes of the success might be stemmed from a good implementation process by university administration, having dependable infrastructure, instant support services provided by academic staff/staff, along with the good knowledge capacities of academic staff.

An ease of use and communication, accessibility, flexibility, availability, affordability, transferability, increased self-efficacy, interactivity, saving-time moderately and positive changes in students' life are shown to be the most traits BLS enjoys, unlike,

there some drawbacks exist, among them a sense of isolation, lack of concentration, the reluctance of attendance, plus vulnerability of participation.

On the other hand, all demographic dimensions other than gender, the kind of device favored, place of the living and the willingness in using BLS in the future, have an effect on the undergraduate and postgraduate students. As well as, due to the fact that the number of undergraduate students is more than that of postgraduate, it is expected and logic that the undergraduate students were getting ahead of the postgraduate as regards demographic dimensions at large.

7. CONCLUSIONS AND RECOMMENDATIONS

The transformation into BLS during COVID-19 disease period appears to be satisfactory for higher education students, more for postgraduate students. Usefulness, Engagement, Communication and Ease of Use, Self-efficacy, and Challenges axes respectively have an effect on students' perceptions concerning satisfaction with the BLS. Usefulness creates the highest contribution to students' satisfaction while the Challenges axis does the least contribution. Moreover, all demographic dimensions except gender, the kind of device favored, place of living and the willingness in using BLS in the future, influence all higher education students.

Hence, these outcomes may lead to some recommendations for practitioners in delivering education by BLS for future terms. Universities should be working more on enhancing an intention and readiness to utilize BLS. It would be beneficiary to adopt micro-learning activities such as raising quizzes and questions to students before, during and at the end of the class. Grading systems could be diversified. Customization efforts can be increased such as, involving the students in setting up their calendar. In order the increase the efficiency of usage of technological devices, small electronic information brochures or publication of an electronic handbook in the form of drawings or video could be offered. Periodic meetings can be held between the students and administrators to discuss the problems and difficulties.

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