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DIGITAL PLATFORMS AS NEW MODES OF COMMUNICATION: CASE STUDY OF ONLINE LEARNING EXPERIENCE DURING COVID-19 IN UNIVERSITY COLLEGE OF BAHRAIN

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ABSTRACT

The education sector is severely affected during COVID-19 among every other walk of life. In these times, there are no or limited traditional classes in colleges and universities - online platforms and tools have been playing a major role for educationists and students to communicate. These virtual learning environments have ensured that students will not be left behind in their educational progress. The current study examines sudden shift of traditional learning process to the digital platform of Microsoft TEAMS, among the students of UCB, Bahrain; in May 2020. The students survey responses show that, transition was smooth. Mixed methods of quantitative and qualitative approaches were adopted to analyze learning experience and their already-changed lifestyle. SPSS is used for descriptive, linear correlation, regression and curve fit by applying ANOVA. Sentiment analysis shows that such platforms can enhance productivity and convenience. Although a more multidimensional approach is needed to assess the usage of digital platforms of learning in universities.

KEYWORDS

COVID-19, digital platforms, Microsoft TEAMS, mixed method, qualitative and quantitative approaches.

INTRODUCTION

Bahrain had the first confirmed patient of COVID-19 on Feb 21, 2020. Based on the active causes of the virus spread, educational institutes can become the ideal place for the virus to spread exponentially.

To stop the transmission of the virus, the government acted swiftly and as an action of preventive measures, all the educational institutes were instructed to close the operations until further notice. However, keeping educational institutes closed for a long period of time was not possible as it would have resulted in losing the academic momentum of

thousands of the students in the Kingdom of Bahrain. Therefore, another order was issued by the government to start the operations and convert the educational model to virtual educational model for the period till COVID-19 crisis is over. However, most of the educational institutes were not ready for this transition and have to put a lot of efforts into the transitions. This transition was not difficult only for the educational institutes but also for the students. This research study targets the students and aims to analyse their sentiments on virtual learning experience during COVID-19 crisis.

COVID-19 pandemic has presented a unique opportunity to the academicians to study the real -time effectiveness of the usage of digital platforms in higher education. For a decade now, these online platforms have been a rigorous focus of research whether higher education should embrace these systems and their practicality for the overall educational system. This unique scenario has given us an opportunity to study various implications of the new mode of communication among teachers and students.

This study is part of the series of ongoing research to fully comprehend the effectiveness of digital platforms of learning. Moreover, it aims to understand students' response towards the transition and their adaptability to this new system of convergence.

These online platforms are observed to play a vital role in lending a fresh approach to the conventional means of education across the globe. Although these platforms were primarily developed for online communication between the teachers and students, who knew that in these troubled times, these would be the basic source of communication for teaching and learning. Possibly because of the pedagogical use and the distraction-nature of digital platforms, experts were skeptical in using them fully.

Some online platforms are utilizing their spaces to offer free basic skills courses while others are being used as a source of communication between the university and students.

Of course, such drastic times called for equally drastic actions from the institutes. Teachers woke up to the emergency emails and calls for staying home and they were asked to shift their study materials to digital platforms overnight. This shift might have been overwhelming for many tenured professors. But it might have proven to be an easy learning opportunity for many students.

The current study is based on the premise that the university students have a better response to this mode of education. The case under consideration is that of graduate and undergraduate students of University College of Bahrain in the Kingdom of Bahrain. The survey was done in May 2020.

LITERATURE REVIEW

The past decade, extensive research and debates have been carried out to weigh the practicality and suitability of digital platforms in the active process of learning. Until 2020, academicians were not ready to fully accept the practicality of digital platforms in higher education. The primary action taken by governments around the globe was to restrict the movements of students. What started as a step taken from one city, quickly spread to many nations. At this moment in time (April 2020), almost all the schools, colleges and universities are closed for classes and lectures, globally. The initial precautionary period of 15 days has been extended to an indefinite time frame.

Online learning is largely driven by the individual motivations of students along with the willingness to adjust the schedules in their lives. Such conveniences have proved to be more beneficial to creative people as they are liberated from time constraints. Therefore, the driving force behind online learning is convenience and ease of access which was observed in the current study also (Christensen & Erying 2011 and Song et al, 2004).

(Cole et al., 2014), showed that students' satisfaction was dependent on the convenience and the ease of access to study material.

Although adopting to the online learning platforms proved to be a little challenging for many teachers and students, but it has been proved that such classes are a source comfort and reduce the stress of workload. It induces a sense of satisfaction with a more confidential way of communication for many (Westra, 2016).

Online / Digital Platforms of Learning

Over the years the digital platforms have developed into sophisticated systems that can be used for instructional objectives and create active learning experiences for students. These have been categorized into paid and unpaid platforms, based on the ease of access and usage by the institute as well as students. TEAMS, ZOOM, Edmodo, Socrative and many such are freely accessible, thus creating a win-win scenario for all the involved stakeholders.

These digital platforms have made the transition from traditional to digital mode of teaching; smoother for students. The critical dimensions that were constructed by Alber et al (2015) are taken into account while creating the questionnaire for this study, for a better understanding of students' behaviour during COVID 19 quarantine times. These dimensions include self-sufficiency, the overall user experience, the expectations, performance and facilitations when it comes to students' experience of using TEAMS as a learning platform.

Such an increased involvement of students with digital platforms makes it completely understandable when institutes immediately switch to many such digital platforms to maintain a level of educational interactions with their students. This convergence of traditional and digital methods of instructions have posed many challenges both for students and teachers, where students were quick to adapt to these new systems much more smoothly. This has called for new social rules of interaction among the concerned parties, and calls for more extensive research for a better understanding.

Using digital platforms for a meaningful interaction have posed many challenges. Ribble and Miller, (2013), provided a framework that is helpful in addressing the challenges that emerge due to inappropriate digital behaviour. Since humanity is faced with a unique communication challenge, such inappropriate digital behaviour presents interesting grounds for research and study. The current study (and there will be many more) will help us in understanding digital behaviour of youth when it comes to the usage of online platforms for education, especially when these are the only options left to learn.

Previous literature has clearly shown the concern and focus on partial aspects; of academicians about the pedagogical usage of such mediums. Studies were focused on

mainly reading skills, IT skills or web 2.0 in higher education (Takacs et al., 2015 and Hew & Cheung, 2013).

The research has shown that students in higher education show a flair for digital processing and behaviours, depending on the time they spend on social networking sites (Van Deursen and Van Dijk, 2011). Lee and Ma (2012) also found that social media usage is directly related to the intentions of usage by students.

According to Rauniar et al., (2014), people respond more efficiently when they understand or realize that the digital platforms will benefit their experience, thus a more positive response from students when it comes to education. This factor of positive intention directly influences students' behaviors into trust and better intentions of learning (Taddei and Contena, 2013; Lin et al., 2016).

As many studies have been conducted to integrate digital platforms into learning experiences of students but 2020 has actually experienced a paradigm shift in the practical implications of digital platforms for education. Mobile technologies and better internet connections have modified the conditions to immerse in digital learning experience.

According to Selwyn et al., (2018), the transformative nature of technologies has made them suitable and desirable in the daily lives of youngsters, which has prompted us to study students' behaviour COVID-19 lock down period. This has ensured an interaction and experience that is geared towards acquirement of knowledge.

Researches on students learning have shown that motivation for learning is dependent on goal setting and self-efficacy. Motivation becomes a determining factor for online class activities (Che-Ha, Mavondo, & Mohd-Said, 2014; Law & Breznik, 2017).

Hypotheses

H1: students have experienced positive performance outcomes while using digital platforms for learning during COVID-19 lockdown.

H2: Students' have transitioned smoothly into learning system through digital platforms during COVID-19 lockdown

H3: Students favor the use of digital platforms in contrast to traditional methods of learning.

Research Questions

1. What are students' experiences with and views on the use of digital platforms for learning during COVID-19 lockdown?
2. What difficulties were faced by students in using digital platforms?
3. What are students' views in incorporating digital platforms in their educational life?

Research Methodology

This study has adopted qualitative and quantitative methods as a mixed method approach for data collection. The reason behind this choice is that none of the methods alone are sufficient to gauge the full understanding of the issue at hand. But when the research is done as a mixed method approach then we get a rather comprehensive understanding of the problem, thus paving way for the future research process. Qualitative

research is used to analyze items in the questionnaire. It has helped understanding the underlying principle of the topic of research.

Since the 2 items are based on students' opinions therefore, Sentiment Analysis creates an insight into the problem presented in this study and its relative implications for the digital platform users for learning processes. The questions were included; to see the demographic profile of the students, to analyse the understanding of crisis, digital platform, and communication during crisis. Sentiment analysis is a subfield of artificial intelligence and natural language processing which provides the facilities for automatic categorization of the digital natural language text based on the sentiments expressed in the text such as positive, negative, or neutral opinion (Astya, 2017; Shahnawaz, 2011). Natural language processing techniques enable the computing system to understand the semantic meaning of the text. A pilot study was conducted to examine the reliability and validity of the questionnaire, which was later distributed through TEAMS.

Participants

Quantitative research is used through a survey method to analyse students' responses statistically. The questionnaire was distributed through TEAMS among the students of University College of Bahrain. Registered students in the 2019/2020 Spring semester are 180 and the submitted responses are 103. The sample comprise of the representative gender ratio of UCB, which is also true for other higher education institutes in the region using digital platforms for education during the lockdown period in Bahrain.

Data Collection and Analysis

All the responses from students recorded and interpreted through SPSS. Surveys were given to the respondents through Google Forms. Later, the data collection and entry were done in SPSS. Collected responses were recorded. Demographic analysis of the participants was followed by the calculation of Mean and Standard Deviation. Correlation and Regression were used as two main tests for the assessment of the association between independent and dependent variables.

Instrumentation

The survey was distributed into 3 sections. The 1st section collected demographic information and the time spent online. Second section helped in analysing students' understanding of crisis communication and whether digital platforms facilitated their learning.

The questionnaire was divided into Four sections:

1) Demographic profiling
2) Understanding crisis communication and crisis communication experience (measuring the attitude) - 7, 8, 9 independents. This section presented all the items in a 5-point Likert scale with a range from 1 = strongly disagree to 5 = strongly agree.
3) Reasons for using virtual learning platforms (10, 11, 12) dependent: Third section studied their experience in using TEAMS. First item in this section was based on Yes or NO responses
4) while the last 2 items were opinion-based questions.

RESULTS

The data was entered in SPSS for analysis, and the results are below:

Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation
DPL	103	1	5	3.72	.977
UCC	103	1	5	3.83	.856
CCE	103	1	5	3.68	1.042
Valid N (listwise)	103				

The Minimum shows the lowest value of the variable, while the columns of Maximum tell us about the highest data value, of the particular variable. Mean shows the average data value of the variable. The standard deviation (SD) quantifies variability. Average variance is measured through Standard deviation and is one of the prominent elements in statistical analysis. In any set of data, the SD measures how varied the numbers are from the average value. For example, the SD value of DPL (Digital Platforms of Learning during Crisis) means that it is .977 percent away from the mean.

However, this may be because of the current situation as almost all the public places are closed and the government of Bahrain has restricted the gathering of more than 5 people which have given the students plenty of time which they are spending online. It is evident that the demographic profile and the time they spent online is diverse and covers almost all of the groups of the students have participated in the survey.

Gender

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	59	57.3	57.3	57.3
	Male	42	40.8	40.8	98.1
	Prefer not to say	2	1.9	1.9	100.0
	Total	103	100.0	100.0	

The above table showed that 57.3% of the total respondents were females while 40.8% of the respondents were male while gender was not mentioned by 1.9%.

Age

		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Female	59	57.3	57.3	57.3
	Male	42	40.8	40.8	98.1
	Prefer not to say	2	1.9	1.9	100.0
	Total	103	100.0	100.0	

The above table reveals that 76.7% of the respondents were aged between 18-24 years, 23.3% were aged between 25-34 years.

Correlations

		DPL	UCC	CCE
DPL	Pearson Correlation	1	.510**	.895**
	Sig. (2-tailed)		.000	.000
	N	103	103	103
UCC	Pearson Correlation	.510**	1	.424**
	Sig. (2-tailed)	.000		.000
	N	103	103	103
CCE	Pearson Correlation	.895**	.424**	1
	Sig. (2-tailed)	.000	.000	
	N	103	103	103

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

The Pearson's correlation test is used for the measurement of strength and direction of association existing between two variables which are measured on at least an interval scale. Pearson's correlation is employed for an understanding whether there is a relationship between the variables. The p-value of UCC (Understanding Crisis Communication), and CCE (Crisis Communication Experience) is less than 0.05 which means that they explain the DPL (Digital Platforms of Learning during Crisis). The value of 0.510 and 0.895 tells us a significant relationship among these variables. The most closed and strong relationship among variables can be find between CCE (Crisis Communication Experience) and DPL (Digital Platforms of Learning during Crisis) which is .895. It is strongest because it is closed to 1.

Regression Analysis

Regression analysis uses various explanatory variables for predicting the outcome of the respondent variable. Regression analysis is mainly used to model the association between 2 variables - explanatory variables and the response variables.

Normally, a positive value is acceptable having sig value of less than 0.05. R Square in Linear Regression must be positive and preferably the value should be close to 100%.

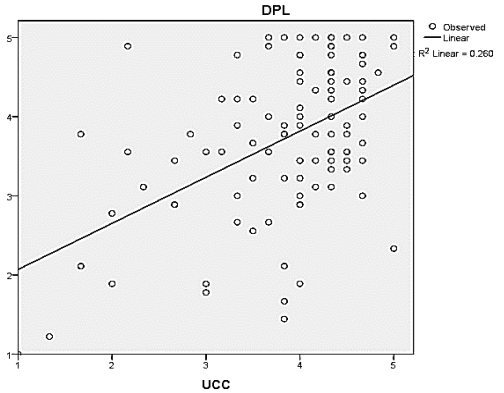
Curve Fit

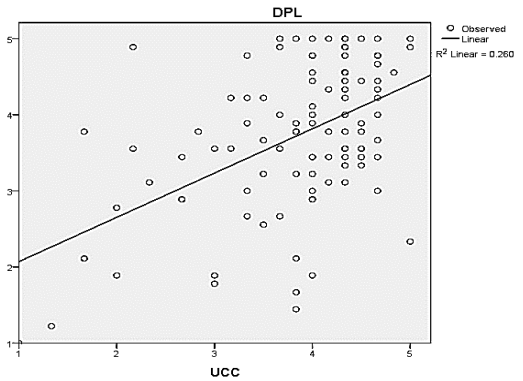
Model Summary and Parameter Estimates

Dependent Variable: DPL

Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Linear	.260	35.496	1	101	.000	1.488	.582

The independent variable is UCC



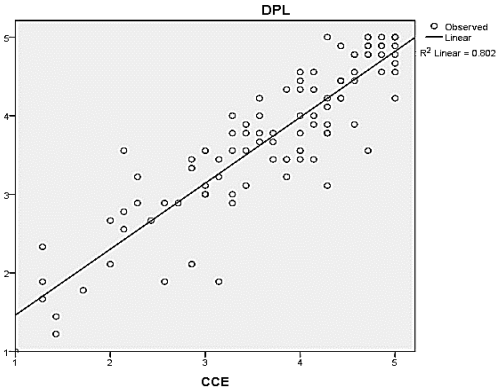


Model Summary and Parameter Estimates

Dependent Variable: DPL

Equation	Model Summary					Parameter Estimates	
	R Square	F	df1	df2	Sig.	Constant	b1
Linear	.802	407.870	1	101	.000	.623	.839

The independent variable is CCE.



Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.907[a]	.822	.819	.416

a. Predictors: (Constant), CCE, UCC

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	80.064	2	40.032	231.251	.000[b]
	Residual	17.311	100	.173		
	Total	97.375	102			

a. Dependent Variable: DPL

b. Predictors: (Constant), CCE, UCC

The value of the R-square is always between 0 and 100%. While the 0% reveals that the model does not explain the variability of the data while 100% reflects used model used in the research explains all the variability. Therefore, the more value is close to 100%, the more it is better. The R-sq. is around 82% that is good and the higher is the R-squared value. Similarly, table also highlights significant relationship as the sig value is less than .05.

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.162	.203		.800	.425
	UCC	.181	.053	.159	3.412	.001
	CCE	.776	.044	.828	17.783	.000

a. Dependent Variable: DPL

UCC (Understanding the Crisis Communication) - The coefficient for Understanding the Crisis Communication is 0.181. So, for every unit change in Understanding the Crisis Communication, a 0.181-unit change in DPL (Digital Platforms of Learning during Crisis) is predicted, holding all other variables constant.

The coefficient for UCC (Understanding the Crisis Communication) (0.181) is statistically significant because its p-value of .000 is not greater than .05 CCE (Crisis communication Experience) - The coefficient for CCE (Crisis communication Experience) is 0.776. So, for every unit change in Understanding the Crisis Communication, a 0.776-unit change in DPL (Digital Platforms of Learning during Crisis) is predicted, holding all other variables constant.

The coefficient for CCE (Crisis communication Experience) (0.776) is statistically significant because its p-value of .000 is not greater than .05.

The 2nd section of the survey questionnaire comprises the four main research questions Communication and proper dissemination of the information becomes critically important during the time of crisis. Communication and information dissemination are important in general as well, however, it has been observed during the normal days that some of the

students complain about the information communication. However, the reason usually is that the students fails to notice the notifications because of lack of focus.

Section III: Reasons for using TEAMS during the Crisis. Tick YES or NO

The researcher also asked the respondents about the reason for which they use TEAMS and the respondents were to give answer as a "Yes or No".

Clarification of Concepts

		Frequency	%	Valid %	Cumulative %
Valid	No	11	10.7	10.7	10.7
	Yes	92	89.3	89.3	100.0
	Total	103	100.0	100.0	

To Listen to Lectures

		Frequency	%	Valid %	Cumulative %
Valid	No	5	4.9	4.9	4.9
	Yes	98	95.1	95.1	100.0
	Total	103	100.0	100.0	

Research Purposes

		Frequency	%	Valid %	Cumulative %
Valid	No	32	31.1	31.1	31.1
	Yes	71	68.9	68.9	100.0
	Total	103	100.0	100.0	

Syllabus Based Access
Research Purposes

		Frequency	%	Valid %	Cumulative %
Valid	No	16	15.5	15.5	15.5
	Yes	87	84.5	84.5	100.0
	Total	103	100.0	100.0	

Syllabus Based Access
Research Purposes

		Frequency	%	Valid %	Cumulative %
Valid	No	16	15.5	15.5	15.5
	Yes	87	84.5	84.5	100.0
	Total	103	100.0	100.0	

Research Purposes

		Frequency	%	Valid %	Cumulative %
Valid	No	29	*28.2*	28.2	28.2
	Yes	74	*71.8*	71.8	100.0
	Total	103	100.0	100.0	

Research Purposes

		Frequency	%	Valid %	Cumulative %
Valid	No	8	7.8	7.8	7.8
	Yes	95	92.2	92.2	100.0
	Total	103	100.0	100.0	

To Submit Assignments
Research Purposes

		Frequency	%	Valid %	Cumulative %
Valid	No	9	8.7	8.7	8.7
	Yes	94	91.3	91.3	100.0
	Total	103	100.0	100.0	

To Check Announcements
Research Purposes

		Frequency	%	Valid %	Cumulative %
Valid	No	3	2.9	2.9	2.9
	Yes	100	97.1	97.1	100.0
	Total	103	100.0	100.0	

Analysis of Items 11 and 12

In the end of the questionnaire, two open ended questions were included, and respondents were asked to record their responses in detail. The first question was *What problems are you facing in learning through an online platform?* The majority of the respondents highlighted the connectivity issues and problems of slow browsing and according to them, they said slow or poor internet connection makes it difficult for them to study. Some of them also mentioned that sometimes the home environment did not help them enough in focusing on their classes and online learning while few of them were of the opinion that sometimes the instructors overburden them with loads of assignments without giving clear instructions. It doesn't mean that everyone had a problem, there were also most of the respondents who mentioned that they don't feel any problem in learning through online platform and in-fact apart from just connectivity, none of the respondent mentioned any major problem.

The second question researchers asked was *How is the learning experience of in-class and internet differ from each other?* And the responses and opinions were divided. Some students felt that in online classes there was very less one on one interaction and they feel more connected and have attention during physical classes. They said that online experience can be sometimes very tiring and frustrating. While on the other hand, there were also many respondents who said that they didn't feel any major difference and they preferred the online mood of learning as they were of the opinion that even before the lockdown, they were taking help from internet and online videos. They were of the opinion that they were more relaxed and could sit in any comfortable place in their room.

Hypothesis	Accepted/Rejected
H1: Students have experienced positive performance outcome while using digital platforms for learning during COVID-19 lockdown.	Accepted
H2: Students' have transitioned smoothly into learning system through digital platforms during COVID-19 lockdown	Accepted
H3: Students favour the use of digital platforms in contrast to traditional methods of learning.	Accepted

Table: Acceptance/Rejection of Hypothesis

S*entiment Analysis and Problems Analysis*

Sentiment analysis is the subfield of natural language processing (NLP) which enables to process the natural language text data and recognize the sentiments of the person who wrote it. Natural language processing uses various artificial intelligence techniques including machine learning algorithms on the text corpus to extract the information or to translate it into different languages or to summarize the text or analyse the sentiments and for many more other applications (Khan, 2019). However, using machine learning algorithms for NLP requires handling the large amount of text corpus and handling large amounts of data creates various indexing issues (Khan, 2019). NLP does not only have to deal with these issues but have to pre-process the text data. Sentiment analysis and NLP text data pre-processing consists of various steps such as tokenization, stop word removal, stemming and lemmatization etc. There are several approaches which can be used in natural language processing for text classifications and processing such as Naive Bayes classifier, Support Vector Machines (SVM), Logistic Regression, Boosted Trees, Neural Network, Random Forest, etc. as applied in different research studies for various NLP research application areas (Astya, 2017; Khan, 2018). However, the current research study has not developed an automated sentiment analysis model or a text classifier, the researchers are considering to work in this direction for their future work. Based on the data collected, it has been labelled for positive, negative and neutral classes for understanding the difference in the learning experience of face-to-face learning and online learning. Figure 2 represents the students' sentiments for their learning experiences.

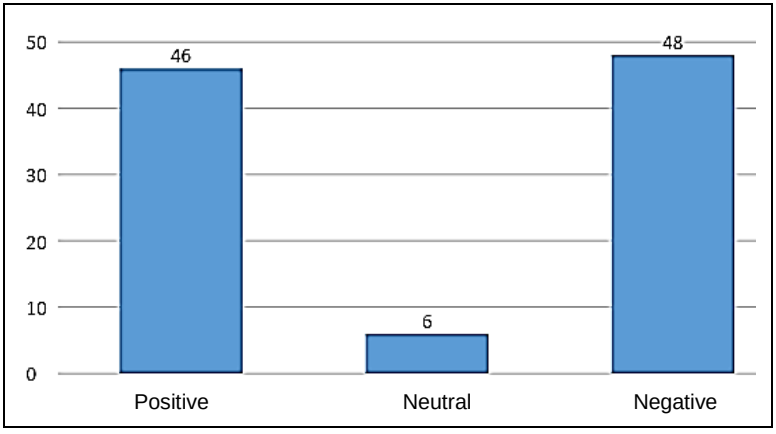


Figure 1: Analysis for Students Sentiments on Virtual Learning

The numbers presented in the figure are the percentages corresponding to the sentiment category. It represents that 46% of the students have a positive response towards digital learning processes and prefer it to be the medium of education delivery. However, 48% of the students prefer face to face education delivery methods while 6% of the students are not worried by the type of platforms they are using for learning in a virtual environment.

The research has also analysed the problems faced by the learners during the online transition and during the learning process on virtual learning platforms. For problem analysis which the students are facing or have faced during the online transition and virtual learning, the data collection was done through open ended questions. Students were not given the option, they have to explain their problems, however, after analysis, all the problems fall into these six categories.

The major categories of the problems can be divided into six different classes which are Adaptability, Insufficient Infrastructure, Learning, LMS awareness & aesthetics, Motivation, Network issue and No Issue.

10% of the students were having adaptability issues, adapting to the virtual learning environment has been difficult to these students and they have faced problem in time management and some other issues related to adaptation of the digital platform. Some of the students, 2%, faced infrastructure related issues such as unavailability of the proper physical workspace and studio for courses in art/graphic design. 3% of the students faced problems in understanding and learning online lectures, these students prefer face to face class than online class, and 5% students feel that they are not enthusiastic towards the virtual learning environment and feel demotivated to attend online lectures. 13% of students reflected that they had issues with online learning systems and do not like the looks and feels of the LMS. However, the majority of the students had only network connectivity related issues (32%) and 35% did not face any issue at all.

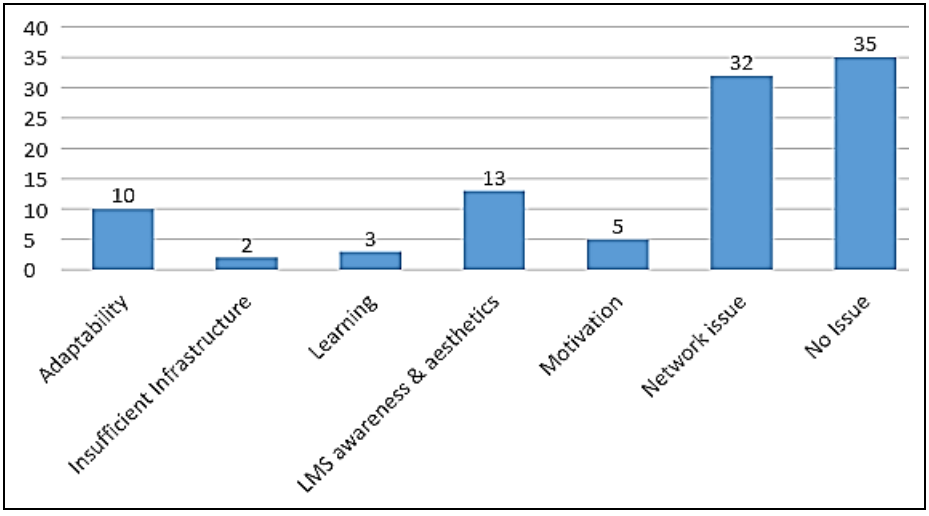


Figure 3: Problem Faced during Virtual Learning

DISCUSSION AND CONCLUSION

The introduction of digital platforms of learning, especially during crisis; has displayed a positive influence on students' behaviour. The current pandemic situation has brought a special global attention to the need of active usage of innovative ways of education online. Considering this one important element, the current study makes an important contribution to the literature, that is; the level of students' interaction and comfort is higher while working online.

As the institutions in the Kingdom of Bahrain are currently using MS-Teams as the official platform for all class related communication, therefore, this research aims to understand the students' perception for the usage of MS-Team in particular.

The quality of learning and teaching process through virtual learning and/or by integrating digital platforms into the learning and teaching can be measured through students' feedback. However, the author do not consider it a criterion to measure the quality of learning and teaching. The quality of learning and teaching cannot be measured merely by students' feedback. As it has been observed and concluded by earlier research studies that students' feedback is often biased and are not good measuring criteria of the quality of teaching. therefore, this study focuses on the quality of the usages and delivery process of learning and teaching because of the sudden transition to the online learning environment.

The current study also reflected that majority of the students are aware of the meaning of crisis, know the importance of crisis communication and information dissemination which is evident from the above responses, however, it is recommended that students can be made more aware about the importance of communication, information distribution and collection which will help them in their professional life as well.

The institutions have been using MS-Teams for virtual learning during this period, based on the survey data collected, almost 85% of the students have considered that MS-Teams has enhanced communication among instructors and students. This can be concluded that the majority of the students are in favour of using digital platforms and virtual learning environments.

To communicate effectively with the instructors and the peer student, it is essential for the students to understand the crisis communication and their familiarity with the digital platforms for communications and learning. There are multiple platforms available for digital communications and the current generation of students (iGen/gen z and millennials) are quite familiar with instant messaging and other communication applications. However, when it comes to using the digital platform such as MS-Teams, the familiarity with the platform differs as these digital platforms have been developed keeping work collaboration and resource sharing as the main objective.

Most of the students, over 85% responded that they interact with their instructors for discussion during non-lecture hours. However, the overall experience and perception of the students is a little bit, almost 40% of the students have the perception that online classes are different from face-to-face class and the learning experience through digital platforms is not the same as through face-to-face class. It goes to show that majority of the students are comfortable while using digital platforms for learning still a large number of students prefers face to face mode of learning.

It can be concluded that the institutes must consider virtual learning as an essential component of the learning process in future also. Given the proper environment and infrastructure - with or without crisis - students feel more comfortable and interactive while using technology.

One positive outcome of this pandemic can be seen that it is very much possible to create digital societies in the field of education. All the research that is being done nowadays will pave ways to develop and implement effective strategies for both teachers and students.

Finally, the normal means of mass communication have been taken to a higher and more digital level where the education sector is greatly impacted.

LIMITATIONS OF STUDY

The following elements were considered as limitations to the study:

- Due to the ongoing crisis, it is difficult to fully comprehend and come up with a final conclusion. Therefore, rigorous research is needed covering every aspect of online education.
- Once the dust is settled, a comprehensive plan is needed to switch to a crisis communication system smoothly.
- equipping and preparing students for the digital future.
- Active sessions to develop an understanding of the virtual learning platform; both for teachers and students.

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