Sentiment Analysis on Synchronous Online Delivery of Instruction due to Extreme Community Quarantine in the Philippines caused by COVID-19 Pandemic

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Abstract – *COVID19 Pandemic, as declared by the World Health Organization, disrupts classes around the globe that include the Philippines. Students and teachers are facing challenges in instructional delivery due to unprepared situations caused by the decision of the government for community quarantine. This study aims to reveal the sentiment of the students in the view of synchronous online delivery of instruction due to extreme community quarantine caused by COVID-19 Pandemic. Students in the College of Business and Public Administration (CBPA) of Pangasinan State University, Lingayen Campus are the respondents of the study. All Students are invited to answer an open-ended question on the possible problems that they may encounter in synchronous online delivery of instruction. The majority of the respondents have forecasted that they might face issues, and the majority of the respondents are worried about internet connectivity in the area. This study concludes that the majority of the students are not yet ready in a synchronous mode of delivery, and it is recommended that institutions in the Philippines may provide an additional way of instructional delivery to maintain academic excellence in challenging times.*

Keywords – Online Education, COVID-19

INTRODUCTION

The COVID19 Pandemic was disrupting many operations in the world and brought challenges to the health and business sector of each affected countries [1]–[6]. The new disease continues to threaten the world on its estimated 2%-5% mortality rate. Person-to-person transmission may occur through droplets or contact transmission that should be avoided to slow down the transmission of the disease [7]. Institutions across the world are not excused in the effect of the Pandemic. Most of the institutions are closing down due to the threat and safety of the disease. In the Philippines, particularly Luzon, the government imposes an extreme community quarantine all over the area. The movement of people is restricted, and work has been suspended. Currently, there is no specific treatment for COVID-19, although some medicines are under study [7].

The effects of the disease have been felt all over Luzon, suspension of classes, temporary closure of businesses, restricted operations, curfew, and disruptions of logistics operations. The challenging times have left others to suffer due to no work, no pay policy that is imposed by some small companies. An institution such as Pangasinan State University abides by the government's decision to allow teaching and non-teaching personnel to work from home, and only the skeletal forces are required to attend the workplace with precautions.

The College of Business and Public Administration (CBPA) of Pangasinan State University, Lingayen Campus, initiated a survey to determine the sentiment of the students in terms of asynchronous learning [8]–[10]. The result of the study helps the faculty members for the possible recommendation in instructional delivery.

Research Objective

This study aims to reveal the sentiment of the students in the view of synchronous online delivery of instruction due to extreme community quarantine caused by COVID-19 Pandemic. It also aims to determine how fast the student response in an online form after the announcement is posted.

Scope and Delimitation

The study is limited to the BS Business Administration and BS Public Administration students of Pangasinan State University, Lingayen Campus.

The Significance of the Study

This study aims to aid the faculty members on what intervention should be used in instructional delivery.

METHODOLOGIES

This study utilizes a quantitative and qualitative approach (mixed method) with a machine learning application as adopted by several authors [11]–[13]. A Social media group was created informing all the students in the college to join through the help of class leaders. An open-ended question was created using Google Forms, and class group chats through messenger were used to float the link of the open-ended question.

The respondents are the students of Pangasinan State University with the Business Administration and Public Administration program. Convenience sampling was used in determining the respondents where it is a non-probability sampling technique where subjects are selected not only because of their convenient accessibility and proximity to the researcher.

The link of the open-ended question was converted and shortened using Bit.ly, and the answers were tabulated using Google Sheet and applied sentiment analysis using machine learning from a provider [14]. Sentiment analysis is the interpretation and classification of emotions within text data using text analysis techniques [15].

RESULTS AND DISCUSSION

The result shows that more than half of the students contributed to the result of this study. It shows that there are 58.71% of the total population has provided information. The result implies that the result of the study is reliable and accurate, given the number of respondents who participated in the study thought purposive sampling [16].

Table 1 Shows the distribution of Response

Year Level	Actual Response		Actual Population		Percentage of Responses		Total Actual Response	Total College Population	Total Percentage of Responses
	BPA	BSBA	BPA	BSBA	BPA	BSBA			
1st Year	63	126	128	178	49.22%	70.79%	189	306	61.76%
2nd Year	32	165	81	257	39.51%	64.20%	197	338	58.28%
3rd Year	0	96	0	99	NA	96.97%	96	99	96.97%
4th Year	3	101	34	255	8.82%	39.61%	104	289	35.99%

Table 2 shows the response rate of the respondents in the college, where there is 73.21 percent of the total respondents contributed within the first 24 hours after the announcement. While on the second day, there is 20.99 percent of the total respondents who contributed after the announcement. This implies that most of the respondents have access to the internet within 24 hours.

The percentage of the total was also computed based on the total number of students in the college, and it shows that 42.90 percent of the total number of students has responded within 24 hours. This implies that most of the respondents in the college have access to the internet.

Internet connectivity in Northern Luzon such as Pangasinan may not provide what is needed for synchronous distance education [17]. Most of the students are also utilizing messenger with free-data or non-paid internet subscriptions to stay connected [18]. This may contribute to the

response of the students since not all students have access to the internet. Another factor is the student's location, and some students are located in a place where internet connectivity is still an issue. The report of the Speedtest Global Index in February 2020, where ranking mobile and fixed broadband speeds, shows the Philippines is ranked at 111th under mobile speed and 86th under fixed broadband [19]. This shows that the internet connectivity is not as fast compared to other contries.

The trend also shows that all responses stop on the 4th day. While there is a sole response on the 6th day, it is shown in the figure that there is no response on the 5th day. Despite the problems in the internet connection, most of the students may find ways to contribute to the study. Accessing Google forms needs a paid subscription, where students may be able to find a possible way to respond.

Table 2 shows the response time

Duration	F	Percent	Percent on total
Within 24 Hours	429	73.21%	42.90%
2nd Day	123	20.99%	12.32%
3rd Day	26	4.44%	2.60%
4th Day	7	1.19%	0.70%
5th Day	0	0.00%	0.00%
6th Day	1	0.17%	0.10%
Total	**586**	**100%**	**53.51%**

The total number of students was gathered from the office of the registrar with the with a total of 998 students.
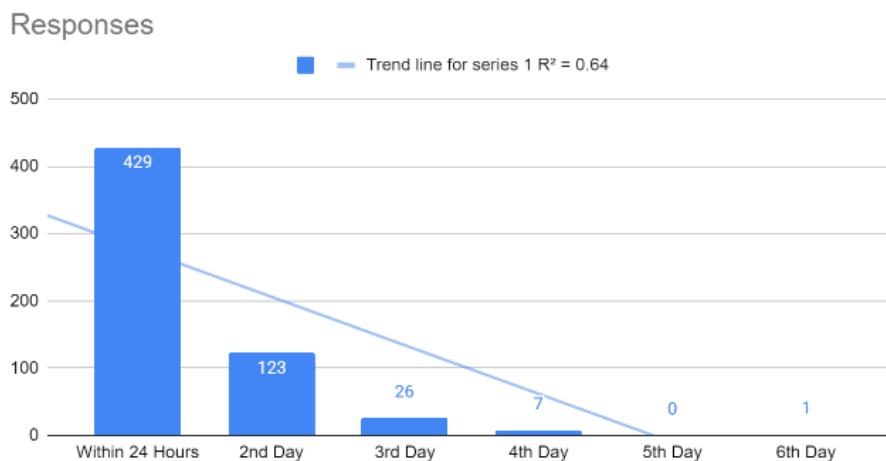

Figure 1 shows the trendline and graph of Responses

Based on the sentiment analysis of the students on how they view synchronous instructional delivery. The majority of the respondents, which is 66.55% has a negative sentiment. This implies that they might encounter several problems during the delivery of instruction synchronously.

29.39% of the respondents are neutral, and this implies that the students are not sure if they might encounter a problem during the delivery of instruction. Lastly, there are only 12 students, or a total of 4.05% percent has viewed positively and may not encounter any problems in synchronous instructional delivery.

Table 3 shows the sentiments of the students

Sentiments	Response	Percentage
Negative	197	66.55%
Neutral	87	29.39%
Positive	12	4.05%
Total Sentiments	**296**	**100.00%**
Total Response across total students		**29.65%**

The negative result shows that most of the students in the college may not be able to adapt to the new trends of education.
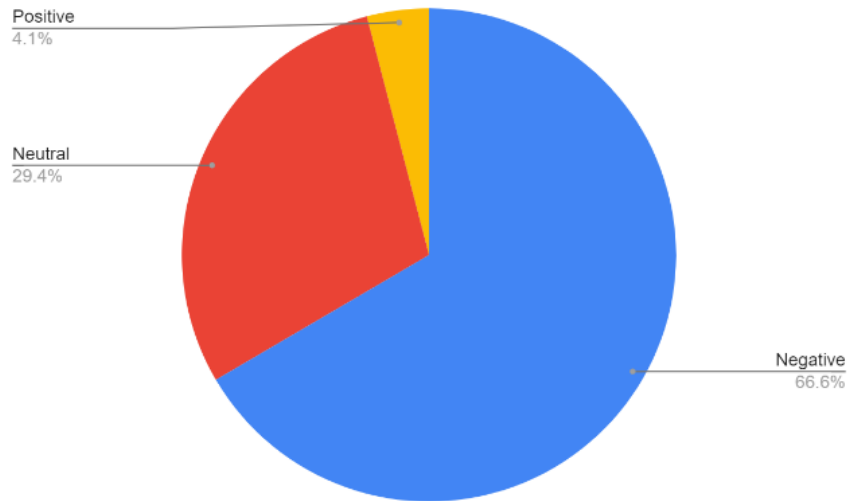

Figure 2 shows the pie graph of sentiments

The total number of sentiments represent 29.65% of the total number of students in the college. The researcher also extracted common comments from the students. Where most of the students have a problem with an internet connection.

Table 4 Responses of Students with regards to Synchronous Delivery

Poor internet connection   *poor communication of teacher and the student*   *noise/channel*
A possible of power interruption
Background sounds, noises
Baka po biglang walang internet connection sa amin dahil mahina po ang signal at dahil dun baka hindi po ako makasama o matuto ng maayos lalo kapag biglang walang signal o mahina ang signal.
Cheating, fair connection, not attentive in the class
Don't have (load) mobile data/surfing data everyday. And I may not be the one who encounter/experience "poor internet connection", but I know some of my classmates do.
Don't have load everyday. And I may not be the one who encounter/experience "poor internet connection", but I know some of my classmates do.
Expensive specially for us who don't have internet access at home.
Firstly, I live in an area that has low connection of data . Second, the interent here is really really slow, I can't

even open files, pictures, and such. In addition my mobile device can't automatically pick up the connection and I don't have the necessary device that will help me through online class.
Internet connection interrupted because in our area has no strong signal
It so hard to get an information if as a student we can't provide load at home it was expensive and it is faster to get out of signals and we don't have internet at home.
Kakulang ng pera,para pambili ng load..
Mabagal na internet connection laging nadidisconnect
Maybe if there is a time limit in some activities, we are not able to respond quickly on the exact time because we didn't know well the use of the online education.
Often times, signal is weak. It makes our sources became slow and buffering. And because of no classes, students don't have a money to afford load that they can access to the said Online classes.
There were barriers like poor connection and not all the students can access fast internet connection. The availability of the resources are there, but the process is not that easy.
Yung signal. Medyo mahina kasi ang signal dito sa brgy namin.

Aside from internet connectivity, some of the problems that may be encountered by the students based on their statement is background noises, fairness in grading, expensive mobile loads, limited connectivity in the area and financial problem.

The correlation matrix shows that there is a strong positive correlation between technology skills and equipment capability for the students. There is also a very weak positive correlation between the age and year level, together with technological skills and equipment capabilities. This means that the student may be able to improve its skills and capabilities as the year level and age increase.

Table 5 Correlation Matrix

Attributes	Day	Year	Age	Sex	Technol...	Equipm...
Day	1	-0.011	-0.064	-0.083	-0.135	-0.151
Year	-0.011	1	0.580	-0.073	0.093	0.145
Age	-0.064	0.580	1	-0.157	0.093	0.150
Sex	-0.083	-0.073	-0.157	1	-0.021	-0.040
Technology Skills	-0.135	0.093	0.093	-0.021	1	0.749
Equipment Capabilities	-0.151	0.145	0.150	-0.040	0.749	1

The negative result of the study shows that the students of the College of Business and Public Administration are not yet ready for synchronous instructional delivery. The majority of the text responses from the students are regarding internet connectivity [20] where it is a network infrastructure problem in the Philippines.

CONCLUSIONS & RECOMMENDATION

It is concluded that the majority of the students from the College of Business and Public Administration are not yet ready for synchronous online delivery. It is recommended that asynchronous learning should be implemented during the extreme community quarantine.

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