Emerging Challenges from Flexible Learning Modalities during the COVID-19 Pandemic: A Perspective from Philippine State University Students

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Abstract – *This study was conducted to identify emerging challenges confronted by the college students from a state university as they enfold the flexible learning modalities amid the COVID-19 pandemic. It generated 151 responses from a 40-item survey distributed online through google forms. Data reduction was then applied using exploratory factor analysis. The rotated component matrix revealed that the college students encountered challenges as they were introduced into the online and modular classes which include ambiguity of teaching and learning direction, unfamiliarity to online and virtual learning platforms, undependability of internet connections, inadequate financial and mobilization resources, technological gap, and the dearth of socio-academic support. If not addressed, the learning outcomes of the students may be compromised. Hence, it is recommended to strengthen the strategies of the state university to further adapt to the demands of the new normal.*

Keywords*: emerging challenges, flexible learning modalities, online and modular classes, state university, COVID-19 pandemic*

INTRODUCTION

The pandemic caused by COVID-19 has revolutionized the landscape of the educational system worldwide. According to the World Health Organization [1], the disease has affected 235 countries or territories, with an increasing number of 31,132,906 confirmed cases and 962,008 confirmed deaths as of September 22, 2020. Because of its serious threat to public health and national security, several health protocols and quarantine measures have been put in place by local governments to make sure that the spread of the virus is controlled. As such, mandatory quarantines, social distancing, and even community lockdowns were ordered everywhere in the world as they seemed indispensable [2]. These measures have eventually affected the modalities of teaching-learning among educational institutions worldwide. In the Philippines, face-to-face classes are never allowed as long as quarantine orders are not lifted. Further, the government has restricted young people below 21 years old to freely stroll outside of their dwellings. Hence, the educational system is greatly challenged especially that most educational institutions are not prepared for this episode.

A pandemic like this is not new. According to Lazzari and Stohr [3], the Greek physician and philosopher Hippocrates of the fifth century B.C. had described a pandemic-like incident in one of his famous discourses. Many centuries later, the term pandemic was used in 1580 after the influenza outbreaks occurred. In 1918-1919, the Spanish flu pandemic killed almost 20-40 million people, while the succeeding Asian flu and Hong Kong flu pandemics in 1957 and 1968 respectively each caused around 1 to 4 million casualties. This time, the world is shuttered by COVID-19 and the expanse of its aftermath on a global scale still appears to be uncertain.

Governments in the world, however, have taken their steps to combat the pandemic. Wide testing using innovative approaches like mass drive-thru testing had been proven to have flattened the curve in some countries while investing seriously in coming up with viable test kits and suppression techniques [4]. The Philippine government is also catching up. With the declaration of the national state of emergency by the executive branch, the entire country was placed under strict regulation through community quarantines and lockdowns. Metro Manila, the country's capital, was even put into the quarantine implementation. Several travellers including tourists and returning overseas

Filipino workers were denied entry into the country and lockdowns necessitated a very strict discipline enforced by the military and the police in almost all major cities [5]. Although this resulted in major social and economic disruptions, the initiative was to restrain the possible proliferation of the novel coronavirus.

Nevertheless, classes were not suspended and modalities of instruction other than face-to-face classes were considered. Some educational institutions commenced classes last June 2020 while other institutions such as the state-run basic education and higher education institutions delayed the first semester by two-three months. The goal of this initiative was to prepare these institutions in the new normal of teaching and learning. Eventually, distance learning became the most feasible alternative for most educational institutions. It allows the students to access the instructional delivery outside the domain of the physical classroom. This has mainstreamed distance education as against the traditional face-to-face classes with the aid of information technology. Li and Wong [6] described it to have a resemblance to e-learning being the essence of learning outside the domain of the physical structure.

But the present pandemic walloped the conventional application of distance learning. With the various issues on internet connectivity, the COVID-19 pandemic challenged the possibility of instituting virtual training [7]. It cannot be denied that the educational institutions in the Philippines are in an unprecedented situation that the available resources were not geared towards the possible overturn from the traditional face-to-face classes to a complete distance learning modality. Hence, with the limitation of resource mobilization, educational institutions had to adopt a flexible learning modality where distance learning is no longer a purely online class but a mix of both online and modular classes. In this way, students who are delimited by poor internet connectivity can still participate through independent and self-paced compliance of the module while coping with the possibility of joining the online classes.

It is with this new trend of instructional delivery that the students are faced with multifarious challenges. While educational institutions are struggling to deliver the desired outcomes of the students, the students on the other hand are placed in an uncertain situation where flexible learning modality is the only option.

OBJECTIVE OF THE STUDY

This study aimed to determine the various challenges encountered by college students as they engage in flexible learning modalities during the COVID-19 pandemic.

MATERIALS AND METHODS

This quantitative study made use of a data reduction technique through Exploratory Factor Analysis or EFA. The tool was able to identify the principal constructs of emerging challenges encountered by the college students of a state university in the Philippines as they engaged in flexible learning through online and modular modalities. The Keiser Meyer Olkin or KMO Measure of Sampling Adequacy tested the magnitude of partial correlation among identified constructs while the Bartlett's Test of Sphericity determined the presence or absence of identity matrix of the correlation. The respondents of the study include college students enrolled in a state university. Using convenience sampling, given the limitation of the pandemic, the data was gathered from 151 respondents who answered the 40-item survey questionnaire using a 5-point Likert-like scaling of agreement. Since the face-to-face survey was impossible due to the restrictions of health protocols amid the pandemic, online data collection was used via a google form. This is a free and conventional online platform that allows the researcher to collect data from the respondents by sending a link of the google form that contains the survey instrument template to the social media accounts and emails of students [8]. The accomplished questionnaires were retrieved through the google sheet and processed through SPSS.

RESULTS AND DISCUSSION

Factor Analysis

This section shows the outcomes of the KMO and Bartlett's Test and the Principal Component Analysis. The derivation of the number of factor structure and the rotated matrix of the model is also presented using Varimax with Kaiser Normalization.

KMO and Bartlett's Test. As presented in Table 1, the outcomes of the Kaiser Meyer-Olkin Measure (KMO) of Sampling Adequacy revealed that the KMO value is .891 which is above the recommended value of .5. This indicates that the sample is meritorious and adequate fro factor analysis. Almalak et al. [9] recommend that the values greater than .5 are acceptable. Meanwhile, the results of Bartlett's test revealed that the p-value is significant ($p<.05$) indicating that the data have patterned relationship and factorability is assumed. Factor analysis therefore was proceeded after having found out that the Bartlett's Test of Sphericity was significant [10]. It can be generalized that the items in the instruments are suitable and adequate for the extraction of dimensions.

Table 1. KMO and Bartlett's Test

KMO Measure of Sampling Adequacy		.891
Bartlett's Test of Sphericity	Approx. Chi-Square	3539.709
	Df	780
	Sig.	.000

Table 2. Total Variance Explained

Component	Initial Eigenvalues			Extraction Sums of Squared Loadings			Rotation Sums of Squared Loadings		
	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %	Total	% of Variance	Cumulative %
1	13.504	33.761	33.761	13.504	33.761	33.761	6.917	17.292	17.292
2	3.089	7.721	41.482	3.089	7.721	41.482	3.531	8.828	26.121
3	2.080	5.201	46.683	2.080	5.201	46.683	3.354	8.386	34.506
4	1.875	4.688	51.371	1.875	4.688	51.371	3.031	7.578	42.084
5	1.609	4.022	55.394	1.609	4.022	55.394	2.965	7.413	49.497
6	1.425	3.564	58.957	1.425	3.564	58.957	2.365	5.913	55.410
7	1.196	2.990	61.947	1.196	2.990	61.947	1.910	4.775	60.185
8	1.083	2.708	64.655	1.083	2.708	64.655	1.547	3.868	64.053
9	1.032	2.581	67.236	1.032	2.581	67.236	1.273	3.184	67.236

Extraction Method: Principal Component Analysis.

Derivation of the Number of Factor Structure and Total Variance Explained. The derivation of factor structure was determined through the Eigenvalues of the components. As a rule of thumb, components are selected whose Eigenvalue is at least 1. Table 2 presents the number of constructs extracted, initial Eigenvalues associated with the specified constructs, the percentage of the total variance, and the cumulative percentage of each construct. After utilizing the criterion for Eigenvalue, the 40 items of the scale measured nine which have Eigenvalues of at least 1.

Rotated Component Matrix. After identifying the number of factor structure, the 40-item construct was then subjected for rotation using Varimax with Kaiser Normalization. Based on the standard rule of factor analysis, items with a loading value of less than .60 should be excluded [10]. The results revealed that 12 items have a loading coefficient below .60 and have face validity issues and low communalities while another two items were lone items and were unable to produce constructs. These items were removed from the model. Hair et al. [11] posited that items having no sense and not reflective with the factor can be removed in the model. Moreover, Field [10] stated that the suppression of communalities less than .60 and ordering variables by loading size will make the interpretation simpler because there is no need to scan the matrix to identify the substantive loadings.

Rotated Component Matrix with Grouped Items. Based on the criterion, a total of 26 items were categorized into six constructs. These constructs represent the emerging challenges experienced by the college students in a Philippine state university as they engaged themselves in the flexible modality of learning amid the COVID-19 pandemic.

Construct 1: Ambiguity of Teaching and Learning Directions. The exploratory factor analysis revealed the nine items that fall under the first construct showing the following items: modules and course materials sent are hard to understand with a loading coefficient of .788; the school has not prepared students for virtual learning platforms with a loading coefficient of .774; it is hard to reach out the assigned teacher with a loading coefficient of .711; it is hard to contact the teachers with a loading coefficient of .701; the school has not introduced to students any means of accessing virtual library with a loading coefficient of .697; the instructions of the course materials and modules in the online platform are uncertain with a loading coefficient of .686; the requirements of the teachers are very hard to accomplish with a loading coefficient of .685, and the requirements of the teachers are overlapping with a loading coefficient of .636. Thematic analysis of these items would lead to the ambiguity of teaching and learning directions as experienced by the students in a state university when introduced with flexible learning modalities during the COVID-19 pandemic.

Providing the students with a clear direction of their learning journey during this pandemic is critical in making sure that the learning outcomes are still achieved with quality. In the traditional face-to-face instruction, clarity of expectations is reflected by equity and excellence in every system, in every school, and every classroom [12]. But with the health threats posed by COVID-19, students cannot get this same clarity of learning directions, especially that these students are not acquainted with off-campus learning pedagogies. In this kind of setting, the students find it hard to manifest full compliance with the learning outcomes because most instructional materials are vague themselves and are poorly prepared by teachers. According to Abdu-Raheem [13], learning objectives can be hard to

achieve due to the lack of or inadequacy of learning materials to encourage them. Meanwhile, communication with teachers seemed to be one of the major challenges experienced by the students. Without proper instruction and communication, students will be left alone in determining his/her own pace of learning. Ideally, constant communication can accelerate the student-centered teaching [14]. But flexible learning through online and modular classes cannot adequately facilitate constant understanding between the learners and the teachers. Hence, the ambiguity of teaching and learning direction topped in the emerging challenges from flexible learning among students during the COVID-19 pandemic.

Construct 2: Unfamiliarity to Online and Virtual Learning Platforms. The exploratory factor analysis revealed the second construct with the following items: students' knowledge on virtual learning processes is minimal only with a loading coefficient of .795; virtual learning platforms are new to students with a loading coefficient of .698, and students are not properly trained on how to access the virtual learning platforms with a loading coefficient of .686. The thematic analysis of these items conveyed a common notion of unfamiliarity to online and virtual learning platforms as a challenge in the flexible learning modalities.

When the novel corona havoc proliferated in the Philippines, it was a time when every single student and teacher did not have any social and personal preparation including academic readiness to adapt with any strategy to continue the school year. COVID-19 is arguably amongst humanity's worst measure by impact and preparedness [15]. Despite the unpreparedness of the academic institutions, the educational system should be pursued with the aid of online or virtual platforms. Most of the educational institutions shifted to the online modalities to avoid any academic loss [16]. But the students were neither properly oriented nor trained on the use of these innovative learning platforms. At the outset of flexible learning, the students were challenged by the technical knowledge that should have been gained by them before they engaged themselves in the system. This is considered to be a challenge caused by the institution for its failure to effectively orient the students about online platforms and service providers [17]. It may be too late but institutions need to make up with the backlash of necessary knowledge that the students should have vis-à-vis online and virtual learning platforms as instruments in the implementation of flexible learning modalities.

Construct 3: Undependability of Internet Connections. The exploratory factor analysis revealed the third construct composed of the following items: internet service is unstable and fluctuating with a loading coefficient of .832; internet services did not reach the place of residence of students with a loading coefficient of .752; the area has limited access to the internet with a loading coefficient of .693, and the speed of internet is unreliable with a loading coefficient of .631. The thematic analysis of these items generated the undependability of internet connections as a challenge to students in the implementation of flexible learning modalities.

Internet connectivity is critical to the realization of learning outcomes in the flexible learning modality. But online learning may not warrant the realization of the desired outcomes in areas where a number of students encounter technical issues in accessing the internet [18]. Internet connectivity has been found out as one of the factors why students were delayed in the submission of their assessment tasks [19]. In Ghana, poor internet connection is considered as one of the environmental challenges experienced by students who were introduced with online learning [17]. Undeniably, despite the world title as the social media capital, among Southeast Asian nations, the Philippines has the slowest internet speed. Globally, it ranked 158th out of 190 countries in terms of the speed of internet connectivity [20]. Hence, depending so much upon the internet in the delivery of instruction through online learning will compromise the quality of education that the students in the Philippines will generally obtain considering the current status of internet connection in the Philippines.

Construct 4: Insufficiency of Financial and Mobilization Resources. The exploratory factor analysis uncovered the fourth construct with the following items: the family's financial resources are affected by the pandemic with a loading coefficient of .855; the family's budget is limited with a loading coefficient of .850; fear of being infected by COVID-19 so students would rather stay at home with a loading coefficient of .637; and quarantine protocols prohibit the students to travel with a loading coefficient of .612. Thematic analysis of these items came up with a common challenge among students on the insufficiency of financial and mobilization resources in the practice of flexible learning modalities.

In response to flattening the curve and eventually control the spread of the coronavirus, local governments have ordered border shutdowns, travel restrictions, and strict quarantine measures [21]. This resulted in the reduced mobility of individuals who need to open a business or go to work. When workers cannot go to work, their incomes to support the daily needs of the family are eventually affected. According to Fernandes [22], service-oriented economies are at the rim of risk particularly in the possible loss of more jobs. Hence, students whose parents cannot financially provide for the needs of their children are deprived of the mobilization resources to pursue online classes. In Pakistan, the online learning outcomes of students are poorly achieved due to monetary issues [18].

But not only that, students who are not allowed to travel or who are restricted from going to other places due to COVID-19 are deprived of the opportunity to mobilize available resources such as books and to explore collaboration with classmates in the accomplishment of their learning activities. In the flexible learning platform, the student's inability to access these resources is a big challenge to their achievement of the learning outcomes.

Construct 5: Technological Gap. The exploratory factor analysis unveiled the fifth construct with the composition of the following items: inability to participate on the live discussions because of unavailability of a laptop or computer which obtained a loading coefficient of .710; and the students' mobile phone is not compatible with the online class platforms which obtained a loading coefficient of .674. The thematic analysis of these items disclosed a common challenge on the technological gap as students were introduced into the flexible learning modalities.

In distance learning, internet and mobile devices are prerequisites to enable the user to display, store, and distribute data while interacting with others [23]. Hence, the availability of ICT equipment such as laptops, desktop computers, and even mobile phones are necessary for the implementation of flexible learning modalities. These are the instruments whereby the learning materials are channelled. In conducting live online classes, the students need to be equipped with the right device to access the live lecture. But not all students have the capability to acquire these devices. Moreover, even if they have the device, some of them have problems with compatibility. Bearing this in mind, virtual learning resources should be formatted for optimal viewing, irrespective of the device being used be it a desktop, laptop, tablet, or smartphone [24].

Construct 6: Dearth of Socio-Academic Support. The exploratory factor analysis revealed the sixth construct composed of the following items: the parents can't help the students in the course requirements with a loading coefficient of .710, and the siblings and other relatives of the student can't assist him/her in accomplishing the requirements which obtained a loading coefficient of.674. The thematic analysis of these items led to the common challenge on the dearth of socio-academic support towards collaboration as experienced by the students when flexible learning modalities were adopted by the academic institution.

Sahoo [16] highlighted that government, parental and institutional support are entailed to ensure that online learning becomes more accessible and effective. But at the advent of the pandemic in the early quarter of 2020, these educational actors were not accustomed to the flexible learning modalities. It can be inferred that the students under this modality are left on their own because no one else in the surrounding environment can provide the academic support that they need. In this situation, the students experience difficulty in producing the required learning outcomes because the correctness and acceptability of their outputs remain uncertain. Therefore, there is a need for a support system that can assist the students academically under flexible learning modality.

CONCLUSION AND RECOMMENDATION

The COVID-19 pandemic has eventually staged a new horizon of the educational system. From the traditional face-to-face delivery of instruction, educational institutions need to shift to flexible learning modalities to avoid the risk of the spread of coronavirus among students and the academic community. The flexible learning modalities, being the only option for the continued delivery of education, provides versatility among students to engage in either online or modular classes. But the students encountered challenges in the implementation of this modality. This study, therefore, was able to generate constructs that describe the emerging challenges experienced by the students in a state university when introduced with the flexible learning modality namely: the ambiguity of teaching and learning directions, unfamiliarity to online and virtual platforms, undependability of the internet connections, insufficiency of financial and mobilization resources, technological gap, and the dearth of socio-academic support.

It is hereby recommended that the higher educational institutions, particularly the state universities and colleges, should consider the real situation of the students as they struggle to comply with the demands of flexible learning. The institution must be clear with its mandates to develop resilience against the impact of the pandemic while making sure that everyone is provided with options when internet connectivity cannot warrant dependability. Furthermore, the students must be given the right social support from the family and the institution for them to cope with the challenges of the technological gap and in complying with the academic requirements.

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