

Impact of distance learning on the university students' academic performance and experiences

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ABSTRACT

The COVID-19 pandemic has impacted the Asian educational sector, prompting countries to shift educational delivery to distance learning. With this, the researchers determined the impact of distance learning during the pandemic on students' academic performance. Utilizing a mixed-methods design employing data mining and focus group discussions, pertinent student data (n=1,305) and qualitative responses (students, n=10; teachers, n=5) from a teacher education college in a state university in Central Visayas, Philippines, were obtained and analyzed through descriptive, correlational, and thematic analyses. The students had very good academic performances in general education, professional education, and specialization courses, and most of them had online capabilities, including gadgets and internet access. No significant relationships were observed between the student's academic performance and their profiles and distance learning capacity. The distance learning experiences of students and teachers were themed as challenges in adoption, the reality of the digital divide, the journey of the self, the role of the community, and the learning process. In conclusion, students' profiles and distance learning capacity are not determinants of academic performance, and their experiences reflect the sad reality of distance learning in the first stage of the pandemic.

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1. INTRODUCTION

The full impact of the COVID-19 pandemic on education is yet to be seen, but institutions of learning have to provide necessary intervention at present [1]. In Asia and the Pacific, the educational divide widened as colleges and universities adopted flexible learning modalities [2]. These modalities continue to carry risks that could, later on, lead to poor academic achievement.

The COVID-19 pandemic has affected higher education institutions in the Philippines. Schools were closed, and classes were suspended at the onset of quarantine. Higher education institutions switched to remote and flexible learning modes as teachers and students are restricted to staying home [3], [4]. Since these drastic changes occurred within a few months, the way teachers teach and students learn has changed.

Academic performance is an essential determinant of students' performance and teachers' teaching competency during the pandemic. There are existing studies on academic performance but with varying results. Studies in Egypt [5], Afghanistan [6], and Indonesia [7] have been affected by the lockdown, and students had difficulty fulfilling competencies with remote learning only. However, other studies from United Arab Emirates [8] and Malaysia [9] noted positive academic achievements and learning experiences. Some

researchers, such as from Egypt [10], compared the students' performance before and after the pandemic and found no significant difference. Due to this inconsistency, there is a need to continue investigating the impact of COVID-19 on the academic performance of students in higher education in the Philippines.

The present study aimed to determine the impact of distance learning as implemented during COVID-19 on the student's academic performance and experiences. It looked into the association of demographic profiles and distance learning capacities to such performance. The results of this study can provide baseline data for teaching interventions in the college and evidence-based policy-making in the university. This investigation considered the experiences of students and teachers at the very start of the school year when the pandemic hit and the student's performance during the said period, which captures insights on adaptation and resilience at a sensitive point in the timeframe of response for educational institutions.

2. RESEARCH METHOD

This study was a mixed-methods study employing an explanatory sequential design to determine the impact of COVID-19 on the academic performance of students in higher education. Mixed-methods study is a design that uses design and collection of data from both quantitative and qualitative sources, making the design parsimonious and practical [11]. In the quantitative aspect, data mining was used to obtain the students' demographic profile, distance learning capacity, and grades, as these data are available in the university. In the qualitative aspect, focus group discussions were conducted to unveil the experiences of both students and teachers during the pandemic.

The study was conducted in a higher education institution in Cebu City, Central Visayas, Philippines. The institution has a strategic framework for flexible learning and caters to many college students in the locale, particularly in its College of Teacher Education. Pertinent data of students ($n=2,864$) under the said college were included in data mining, and purposively selected students ($n=10$) and teachers ($n=5$) participated in focus group discussions. The following were the inclusion criteria for the participants of this study. The students were divided into online and modular learning groups. They were enrolled in the first semester of the academic year 2020-2021 with general education, professional education, and specialization courses under a modality. The teachers have taught the lessons with students under both modalities in the said college.

The pertinent data from the university were analyzed using descriptive statistics and presented as frequency and percentage (for categorical data). Mean and standard deviation (for continuous data) were also used to describe the data. Relationships among the said data were analyzed through correlational analysis (Chi-square and Pearson r tests) and conditional logistic regression analysis. All tests were subjected to a confidence level of 95%, and all p -values less than .05 were considered significant. The results of the focus group discussions were analyzed using thematic analysis prescribed by Braun and Clarke [12]. The analysis started with the researchers becoming familiar with the data. Then, they generated initial codes and searched for themes. Afterward, themes were reviewed and eventually identified. The analysis ended with writing the discussion.

3. RESULTS AND DISCUSSION

The impact of distance learning on students' academic performance was studied in this investigation through an analysis of identified factors together with the inputs of selected participants. This section reveals the findings of the study.

3.1. University students' academic performance, profiles, and distance learning capacity

Students' academic performance in the College of Teacher Education during the first semester of the academic year 2020-2021 is very good, with the highest mean observed in the specialization courses and the lowest mean in the general education courses as presented in Table 1. The findings imply that the students could comply with what is expected of them to be accomplished in their respective programs. One factor to be considered here could be the design of the assessments of the students that considered the challenges of the pandemic and the struggles of distance learning [13], [14]. There is also a need to consider that the grades reported in this study come from students who could comply with the requirements within the period of investigation and those who could not meet the assigned deadlines. The results imply that in instances where students can participate successfully in the distance learning modality, they perform well across courses [15], [16].

The researchers also looked into the profile of the students in the college, which could help explain their performance. Most of the students are female, living in Cebu province, with income, and are 20 years old as displayed in Table 2. Considering that very few students live outside Cebu province, where the university's main campus is located, there is indeed potential for the successful implementation of modular distance learning amidst students' incapability to access online learning [17]. Although the majority have sources of

income, the lack of income can significantly impact the student's ability to cope with academic demands since there are requirements that entail cost [18]. Lastly, age is a consideration for mobility, especially amid the pandemic, and it is noted that since the implementation of the K to 12 programs in the Philippines, all the students are of legal age. Due to this age, they are less susceptible, allowing them to move outside their residences in most quarantine measures [19].

Table 1. Academic performance of the students in the College of Teacher Education

Subjects	Mean	SD	EQ	Description
General education	1.742	0.418	87.42	Very good
Professional education	1.535	0.268	89.35	Very good
Specialization	1.505	0.331	89.05	Very good
Overall grade	1.533	0.344	89.33	Very good

Table 2. Profile of the students in the College of Teacher Education (N=2,864)

Profile	Category	Frequency	Percentage
Gender	Male	214	16.40%
	Female	1,091	83.60%
Place of residence	Within Cebu	1,271	97.40%
	Outside Cebu	34	2.61%
Socio-economic status	With income	745	57.09%
	Without income	560	42.91%
Age	19 years old	127	9.73%
	20 years old	718	55.02%
	21 years old	394	30.19%
	Above 21 years old	66	5.06%

Table 3 reveals that most students availed of online distance learning, with only about one-fifth of the population opting for printed modules. Most students also have mobile phones, more than those who opted for the online modality. This finding implies that some students have mobile phones but do not opt for online learning. This scenario could be attributed to the lack of access to an internet connection or that their mobile phones are not smartphones and are incapable of access to online materials and classes [20]. In addition, the survey reveals that very few still need access to the Internet, and yet more have opted out of online courses. More than just the possession of gadgets and access to the internet, other factors are at play that hinders students from participating in online distance learning. It is also good to consider that access to the internet may not be stable or may come at additional costs that students and their families cannot sustain. It is also possible that students opted for modular learning despite the availability of gadgets and access to an internet connection because they have to work while in school to support themselves and their families. Students do this to cope with the economic loss that the pandemic has brought, shutting down some businesses and limiting labor opportunities for many [21]–[23].

Table 3. Distance learning capacity of the students in the College of Teacher Education

Profile	Category	Frequency	Percentage
Choice of modality	Modular learning	241	18.47%
	Online learning	1,064	81.53%
Availability of gadgets	Mobile phone	1,226	93.95%
	Computer/laptop	337	25.82%
Access to internet	Have access	1,236	94.71%
	Does not have access	69	5.29%

Understanding the distance learning capacity of students is vital for the university's design of a learning continuity plan to help ensure that students are kept in school. The factors at play in terms of student retention, especially in times of pandemic and sudden shifts of modalities, can be multifaceted; thus, interventions implemented from one institution to the other may vary. Context is vital in fostering academic continuity and the design of interventions [3], [24], [25].

3.2. Relationship between students' academic performance, profiles, and distance learning capacity

Looking into students' academic performance in relation to the profile, data shows no significant relationship between them as shown in Table 4. Students' performance is not significantly affected by gender, place of residence, socioeconomic status, and age, as reported by some studies [26]–[28]. Although challenges

relate to each factor, they may not necessarily redound in a significant change in academic performance. Interviews with students revealed that the place of residence could affect the conduciveness of the environment for learning. In contrast, socioeconomic status can affect the student's ability to afford the needed resources and access to an internet connection. In the focus group discussions, there is no mention of gender and age as factors for significant consideration in distance learning implementation. Other studies considered the aforementioned profile to have a significant relationship with academic performance during the pandemic [29]–[32]. In terms of distance learning capacity, there is no significant relationship between the different areas of consideration and academic performance as presented in Table 5.

Table 4. Academic performance of the students in the College of Teacher Education

Aspect	χ^2 -value	p-value
Gender	5.853	.119
Place of residence	3.274	.351
Socio-economic status	1.345	.719
Age	14.543	.104

Table 5. Academic performance of the students in the College of Teacher Education

Aspect	χ^2 -value	p-value
Choice of modality	4.800	.187
Availability of gadgets		
– Mobile phones	0.173	.982
– Computers/laptops	3.351	.341
Access to the internet	3.542	.315

This finding implies that the choice of modality is appropriate for the students since this facilitated their ability to meet the requirements of their different courses. The college meets the students where they are, although there may be difficulties and challenges in each option presented. The findings strengthen the need for student-centered interventions and the importance of providing options for students. Appropriateness of interventions can only be possible if the institution has exerted effort to understand the profile of their students and their varying capacities to avail of possible modalities that the institution can provide [3].

After providing the options, monitoring and evaluating the implementation can also be one factor that led to students' success despite the sudden shift of modality. It is in the performance where the role of the faculty members at the frontlines of instruction is highlighted. The institution must also provide student support services as open communication to address concerns, primarily when the implementation must be facilitated [33]–[35].

3.3. Teachers and students' distance learning experiences

To better understand the impact of distance learning, the researchers conducted three focus group discussions to include students under the online modality, students under the printed modules modality, and the faculty members who had students in both categories. The researchers identified significant statements from the discussions and assigned codes. The analysis generated 353 significant statements across three discussions with a total number of 106 codes.

3.3.1. The challenges of adoption

The first theme captures the collective experience of faculty members and students in navigating the change in learning modality. Under it are three major subthemes that capture the three areas of adoption, from academic struggles to logistical concerns and managing these changes. One teacher said:

“What happened is that when the pandemic started, everyone is adjusting.” (Teacher Gary)

These adjustments included challenges because this was the first time the modalities were implemented, and there were observed process delays where people continued to exert efforts to cope. Academic adjustments covered the planning of teaching-learning activities where the pacing of tasks became a problem. At the start of the implementation, logistical concerns were also a call of many. This concern covered the answering of process queries to the provision of modules.

“In our first experience, we were very loaded, like every week there were around 10-15 tasks overall, and the submission timeline was only 2 to 3 days, and then we needed to submit already on the

deadline, but it had changed, and the teachers realized to give us a leeway or like more time for us to submit our projects most especially that other documents needed to be scanned and researched and not everyone has an internet connection, some only uses mobile data such as my classmates...As for me, the biggest problem that I observed during that time was the sending and delivery of modules from the school, which arrived very late.” (Diana)

These experiences correspond to the findings of modular modalities and capacity for distance learning since logistical concerns correspond to the residences of students and faculty and the availability of gadgets and connections to improve communication. This theme reveals that the adoption challenge is centered on managing change as the entire institution tries to deal with academic challenges and the level of logistical support to implement it successfully [13], [20].

3.3.2. The reality of a digital divide

One of the, if not the biggest, considerations in implementing distance learning is technology. Although a majority of the students reported the availability of mobile phones and access to an internet connection, only a minority have computers and a good number prefer the modular modality. The theme of the reality of a digital divide supports this data not only because of the logistical void referring to the lack of gadgets and access to a strong and stable internet connection but the clear skill gap and the necessity of technology for communication, even if the modality is modular. Listening to the focus ground discussions reveals that students find that even the number of gadgets for use in the class can affect their level of participation.

“From what I have recalled during enrollment, it was very distressing, especially for those who are not media literate; for sure, they were shocked. Many students got confused about what to do. After that, when the classes began, it was an adjusting period for everyone.” (Althea)

“Another thing was the effectiveness of the online classes depends on the number of gadgets you have. Since that school year, I only have one device, my mobile phone, and it cannot access multiple applications simultaneously, like the productivity tools: Microsoft Word and the like. I really cannot see everything. Therefore, I have concluded that, since I already have a laptop, a student is more productive if they have multiple devices.” (Jerome)

Understanding the existing technological divide aids teachers in making adjustments to the delivery of their lessons and the institution in providing interventions when possible [13], [20], [36], [37]. However, listening to the experiences of teachers and students also showed that although support from the environment is vital, the personal dimension of the experience cannot be taken for granted. In the reality of the digital divide, the student navigates their adoption leading to the next theme.

3.3.3. The journey of the self

As faculty members and students deal with change, the participants revealed that the implementation of distance learning led to internal battles that are fought either by their drives or the coping mechanisms they have learned to implement. This situation explains the lack of a significant relationship between the profile and distance learning capabilities to students' academic performance. However, it is essential to note that this study did not consider the insights of those who dropped out, which could also reveal other perspectives on this change in learning modality. Lack of motivation, anxiety, complacency, and going through an existential crisis are some of the internal battles of the participants.

“I would always wonder why even though I am always studying hard, I cannot answer him. My outburst would lead to questioning why I passed here in this university. Maybe I am not really up for it here.” (Joel)

“I became anxious, maybe because of the new setup, and when you see your screen, all you ever see was a PowerPoint presentation, the face of the teacher, and if ever the teacher calls me, I felt nervous, especially when I am not able to see the faces of my classmates like I have no inspiration to answer.” (Jerome)

The students' answers imply that they are not only adjusting to adopting the modality but also considering the expected level of performance. This picture could be an area where faculty members and other academic support staff can help students navigate since quality assurance is also needed in an academic institution, as evidenced by this answer:

“I can say that onward moving and still our standard remains, we submit ourselves to accreditation, ISO, our graduation, I can say that we make sure that instead of a downgrade, we did our best to soar high despite the situation.” (Teacher Vanessa)

As much as students struggle, faculty members also have their reflections on the adjustments required to ensure learning continuity amid a health crisis. Two teachers said:

“When online classes started, that was also one of my struggles when I had to function as four at home. I needed to be a mom/tutor because my son was in this school, and then I also had a daughter in another grade level, and then I needed to be, of course, a teacher and a homemaker. With this, I am already tangled and confused about my function. And then, on Mondays, I had a 7:30 AM class, and I also had my class at 9:00 AM, and I had to make lunch for my kids, so I was struggling with this part. But maybe for a few, I think after two months that I was very busy, eventually, we already had a pattern, so I was able to be okay.” (Teacher Cynthia)

“And then how I was able to manage was more of the patience and understanding because I realize from the very start, I also have lapsed as a teacher.” (Teacher Mike)

During moments of struggle, the students make mention of the need to graduate, among other motivations to keep them moving forward. The students also learned how to manage themselves and determine what works for them when encountering various challenges. Students straightforwardly shared it:

“I was able to cope easily since we put and bear in mind that we need to graduate.” (Joy)

“... if you are so stressed, then you need to pause and rest, even if it's just 30 minutes or 2 hours, so that you can start afresh and your mind will be cleared, and you can focus again.” (Dina)

Looking back on their experiences from struggles to personal motivations to coping mechanisms, there was an overall sense of gratitude for having surpassed those experiences. A teacher stated:

“My experience was not easy, but thank God I went through it.” (Teacher Gary)

As much as there are challenges, the students and faculty members found ways and means to deal with those to promote academic continuity [13], [38], [39].

3.3.4. The role of the community

The fourth theme from the focus group discussions is the value of other people. Support came in three major areas, which are academic, psychological, and economic. There was mutual support among students, among teachers, and even from students and teachers. Teachers responsible for reaching out to students shared that they also received support from their students, many of whom are more digitally literate than them. A participant mentioned:

“I would always inform my students that let us learn together this one. Let's say, for example, jam board. I do not know how to use this one, but let us use this one together. I could maybe be one book ahead of you in our lesson, but I am also not so when it comes to the digital platform. During that time, I learned with my students, and I enjoyed it and explored. That is one of the things that I could truly say that an opportunity for me to teach during the online classes. So that is the latest on what we call opportunity that I acquired in the online classes.” (Teacher Vanessa)

However, the role of the community can also consider the negative effects of the lack of support in these three areas as students make mention of intimidating teachers, loss of jobs from their parents, and unresponsive staff in their sharing. Some in the modular modality shared that there are times when they feel that they are not the priority highlighting psychological needs. This scenario is also true for teachers afraid of making mistakes, as there is always a possibility of public prosecution on social media. One teacher shared:

“Also, I learn too much about my students' attitude because even a little mistake could make you trending...if we become trending, they can do it since we have the same footing for we have an equal platform.” (Teacher Gary)

The value of having a strong support group was highlighted among the students as well. The role of family, even relatives, is also evident. Two students shared:

“Our anxiety level at that time was beyond 100%, maybe because we are now with the setup and kind of system. There's always a tendency that you will cry out of frustration and stress. We are not used to always fronting our laptop and computer, searching and then submitting activities, and then proceeding to other activities/tasks... but I really want to be with my classmates because I also think that I am not the only one who is experiencing the same thing, I am not alone, I am not the only one crying, I am not the only one struggled.” (Dina)

“One thing that keeps me moving, Ma'am, is what my uncle said. He was also a teacher. He said to me, ‘Focus on your core. It would help to remember why you are in the university.’ I made these challenges that I have been through motivation. What we have gone through here in (the university) regarding the way of providing us learnings, the training, and the way they made our student life difficult, is how to become a better teachers in the future. That is all, Miss. So, you need to focus on why you are there.” (Althea)

Under the role of community, another sub-theme is economic support which is an underlying factor in implementing distance learning. There are mentions of the loss of jobs and employment opportunities for those in school, considering they can do both online. Because they are not asked to leave their homes, there are reports of lesser expenses in these aspects. Lastly, being a state university student with free tuition is a great help. In terms of the role of community and the empowerment it gives to an individual, all of the areas of support are captured in the statement by a student when she said:

“The best and nice thing I can say about the university and our experiences is that they extend their patience since not all university students are privileged and most of us have no proper equipment, they extend their patience, and they listen to the wants and suggestions of the (university) students since not every one of us has no proper equipment for the distance learning and have money to support our needs, of course, we are already lucky that we can study here in the university and it's free of tuition fees, plus points, especially that we have experienced the pandemic, and we are struggling financially. Students from other universities have already stopped their studies and are very stressed because they don't know what to do, how to pay their tuition, and control their money since everyone was struggling during that time. But as students in (the university), our only problem is connecting to the Internet and attending online classes. We have no problem financially when it comes to our studies. Still, of course, the load is not necessarily a big problem since we can always find ways to afford it and will do everything if you are decisive. There are so many ways that you can find to connect to the Internet, hotspot, or even peso-Wi-Fi, whatsoever. From what I recall, during enrollment, it was very distressing, especially for those who were not media literate. For sure, they were very shocked. Many students got confused about what to do. After that, when the classes began, it was an adjusting period for everyone.” (Joy)

When discussing challenges and how they were surpassed, all participants could not help but mention others around them [36], [38]–[41].

3.3.5. The learning process

The last theme for this analysis is related to how faculty members and students view the learning process, which flows from quality control to instructional implementation and assessment roadblocks. Everyone is concerned about maintaining the quality of education in the university, especially since teacher education is a discipline with a board examination. Distance learning comes with opportunities for cheating, which are not possible if classes were done face to face, raising concerns in both implementation and assessment. One educator shared her apprehensions when she said:

“And then when I have my online classes, I'm so conscious that my students will learn, I am very conscious if they have learned something, then their camera were off, I would tell them if they think I am a radio and ask them to turn on their camera... I am always conscious if I am delivering the lesson well.” (Teacher Faith)

Some students admitted that for some courses, submissions are only for compliance.

“Also, the workload, it will be just submission for compliance. We don't learn anything from it.” (Althea)

This result is a sad reality and part of the consequence of distance learning which may imply that academic performance may not necessarily equate to learning. Understanding this situation requires institutions to assess possible areas of learning gaps and implement possible remedies. The learning process is also affected by the delay of materials and the aforementioned themes, signifying that all these themes come together to help paint a picture of the impact of distance learning [3], [39], [42]–[46].

4. CONCLUSION

The students performed very well in their teacher education program's general education, professional education, and specialization courses. Most respondents are females residing within the province where the university is located with income and are 20 years old. Most of them enrolled in online modality using their mobile phones with access to the internet. Analysis shows that profile and capacity for distance learning are not determinants of students' academic performance. The impact of distance learning on students is seen in their ability to navigate through the challenge of addition, considering the realities of a digital divide concerning their journey to the self and the role of their community in facilitating the learning process. The study reveals that the onset of the health crisis and the sudden shift of modality brought about concerns and challenges but did not necessarily translate to impaired ability to perform in their academics.

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