# BSIT Students Readiness: An Assessment of Students' Engagement in Online Learning At Nueva Ecija University of Science And Technology, San Isidro Campus during COVID-19 Pandemic

**Ellen Jane G. Reyes[1], Jessie T. Gonzales[2]**
[1, 2] Faculty Member of College and Communications Technology
[1, 2] NEUST, San Isidro Campus, Philippines

***Abstract-*** *This study aimed to assess the readiness in online learning engagement of Bachelor of Science in Information Technology (BSIT) students during the COVID-19 pandemic. Through a modified questionnaire by Akasland and Law (2010), which has five parts, namely the availability of technology, perception on the use of technology, self-confidence, acceptance, and home setup, researchers evaluated students' online learning readiness. Research data gathered from 473 BSIT students for the first semester A.Y. 2020-2021 of the Nueva Ecija University of Science and Technology San Isidro Campus revealed that the students, in general, are not ready for online learning; the majority or 463 of the respondents owned smartphones as their primary and available device for online learning activities. It was evident that I.T. students used mobile data packages and experienced having weak to average internet connectivity. These are contributing factors to why students struggle during online classes. Availability of a laptop computer is needed to cope with online learning fully. Albeit the findings showed that students exhibited familiarity with different online learning platforms and confidence to operate learning devices, mastery was still lacking. Moreover, students' learning space at home is not conducive, and they discerned that the traditional face-to-face classroom setting is more effective than online learning. The results provided valuable implications for ways to increase BSIT students' readiness for online learning.*

***Keywords***- Bachelor of Science in Information Technology,COVID-19, online learning engagement, readiness

## I. INTRODUCTION

The Covid-19 has brought a lot of challenges and changes we could never imagine. It has deeply affected the global economy. This occurrence, particularly, has shivered the education system, and this situation is likely to continue across the education sector globally. All schools, colleges, and universities are closed to flatten the infection curve through social distancing. As the latter is preeminent at this stage, large-scale, national efforts to utilize technology supporting remote learning, distance education, and online learning during the COVID-19 pandemic emerged and evolved quickly. However, the literature highlights certain deficiencies such as the weakness of online teaching infrastructure, teachers' inexperience, the information gap, the complex environment at home, and so forth (Murgatrotd, 2020). In connection to this, the Nueva Ecija University of Science and Technology, as a model higher educational institution, considered the situation as an urgent need for the academic institution and took efforts and measures to respond to the new teaching trend and learning process. The administrators tasked the teachers to revise and adapt course syllabi and requirements as they shifted to alternative or remote teaching modalities, both synchronous and asynchronous. Moreover, online learning has become a feasible alternative to normalize education, preventing academic calendar backlog and minimize huge knowledge loss.

The term online distance learning is also used interchangeably with terms like e-learning (Keis et al., 2017), blended learning (Deschacht & Goeman, 2015), online learning (Wallace, 2010), and virtual learning with the main idea stated that learning activities in an informal form, utilize any internet tools and little or no physical, social interaction with the lecturer (Kuo et al., 2014). This methodology is used to deliver course content through video teleconferencing, online forum, and recorded video and audio. As BSIT students engage themselves in online learning as the most recent means of distance learning, it requires a high online learning readiness level. For the past few years, researchers focused on developing a readiness scale for online learning. For example, Smith et. al (2003) conducted a study with college-age students and found two primary factors that predicted student success: self-management of learning and comfort with e-learning. However, a review of this study reveals that these

scales and measures of assessing learners' readiness do not comprehensively cover other dimensions critical to online learning and include technical skills and learner control.

Online learning has become highly popular and in demand in educational institutions throughout this transition from the traditional face-to-face classroom setting to remote learning. There will always be a need to examine students' readiness and develop a more comprehensive measure of students' willingness to guide them toward successful and fruitful online learning experiences. It is indeed one of the main factors included in the learning principles, and it affects learning. Keenness is proven to be useful in face-to-face education, also plays a crucial role in online learning. High-level knowledge is imperative for students to adjust to the new normal and eventually complete their studies.

In today's age of corporate governance and customer-centered approaches, it can be presumptuous and absurd for Higher Educational Institutions to bring about online learning on students without first addressing their needs and concerns. Many students still do not have access to the forms of technology needed for online learning. Undoubtedly, access issues appearmost robust among students from remote or distant areas. It has been evident that internet connectivity in these areas is often unstable. Therefore, for these students, moves to online learning often pose more impediments than opportunities. Success in an e-learning world demands new forms of literacy and the expertise of students.

Months of preparations have been devoted by teachers to adjust to this new normal. However, while the educators are preparing for a massive shift in education, the question now lies in the readiness of the students to engage in such a platform (Mina, et. al 2020).

The COVID-19 pandemic has resulted in Nueva Ecija University of Science & Technology and other HEIs faced the challenge of developing appropriate ways to continue to open doors of knowledge. Subsequently, the shift to online learning as an alternative method amid a world pandemic would be viable if school administrators consider learners' readiness.

## II. OBJECTIVES OF THE STUDY

This study aims to assess the level of readiness of BSIT students during the new normal in the education system for A.Y. 2020-2021. Specifically, this study aims to answer the following questions:

1. What is the personal profile of the respondents in terms of:
    - 1.1 Gender;
    - 1.2 Civil Status; and
    - 1.3 Family Composition
2. What is the technology profile of the respondents in terms of:
    - 2.1 Devices available at home;
    - 2.2 Internet access; and
    - 2.3 Internet connectivity
3. What is the level of readiness of the respondents in terms of:

3.1 Availability of Technology;
3.2 Use of Technology;
3.3 Self Confidence;
3.4 Acceptance; and
3.5 Home Setup

## III. METHODOLOGY

The research design utilized in this study was descriptive. Descriptive research aims to accurately and systematically describe a population, situation or phenomenon (McCombes, 2019).

The researchers used a modified Akasland and Law (2010) questionnaire which assesses the three phases of readiness namely, readiness, acceptance, and training as shown in Fig. 1.

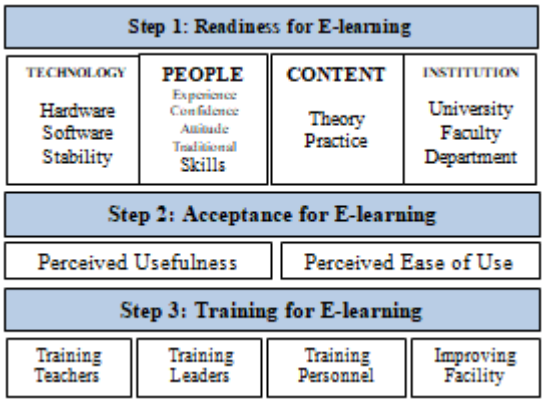



**Figure 1 The Akasland and Law Paradigm**

The researchers extracted the data of BSIT enrollees with personal information from the MIS department of the university. Before the opening of classes for the first semester A.Y. 2020-2021, the link http://rb.gy/oozye0 was disseminated to CICT Academic Year 2020-2021 Facebook group, group chat, and messenger to gather data. Upon completion of the data gathering procedure, responses were tabulated to facilitate the analysis during the interpretation of

data. The data gathered were tallied, analyzed, and interpreted. Descriptive statistics such as frequency counts, percentages, and ranking were used in this study.

Each response to every item was evaluated based on the following scale and verbal interpretation based on the past studies by Akasland and Law and Soydal, Alır and Ünal.

| Scale of values | Likert scale | Scale | Verbal interpretation |
|---|---|---|---|
| 5 | Strongly agree | 4.3 – 5.0 | Ready go-ahead |
| 4 | Agree | 3.5 – 4.2 | Ready but needs a few improvements |
| 3 | Undecided | 2.6 – 3.4 | Not ready needs some work |
| 2 | Disagree | 1.9 – 2.5 | Not ready needs a lot of work |
| 1 | Strongly disagree | 1.0 - 1.8 | Not ready needs a lot of work |

The researchers reached out to the six hundred thirty-seven (637) BSIT students, but only four hundred seventy-seven (477) responded to the survey, making a 74.88% response rate. This rating is enough to represent the BSIT populace.

## IV. RESULTS AND DISCUSSIONS

This section provides the presentation of the results of the study. Corresponding analysis and interpretation regarding some presented data were discussed.

**Table 1. Personal Profile of the Respondents**

| Profile Variables | | Frequency | Percentage |
|---|---|---|---|
| **Gender** | Male | 348 | 72.95% |
| | Female | 129 | 27.04% |
| **Civil Status** | Single | 477 | 100.00% |
| | Married | 0 | 00.00% |
| **Family Composition** | With my immediate family | 372 | 77.98% |
| | With my extended family | 95 | 19.91% |
| | Alone | 10 | 2.09% |

Table 1 shows the personal profile of the respondents. It can be seen that the majority or 72.95% of the respondents are male; it indicated that the BSIT course is a "male career program". The civil status of the respondents was all single.

The table also indicated that the majority or 77.98% of the respondents lived with their immediate family. There are researches that focused on students' social environment and have examined the impact of family and peers on academic outcomes. A supportive relationship with parents has been shown to be important for the maintenance of psychological wellbeing for college students. It plays a vital role in their academic performance. (Dennis,2005).

According to (Hurtado, Carter, & Spuler, 1996; Solberg, Valdez, & Villarreal, 1994; Solberg & Villarreal, 1997), there is some evidence that social support, including support from parents, is related specifically to adjustment in college. It can be implied that college students who live with their immediate family are more inspired and driven to finish their studies since they get moral and social support.

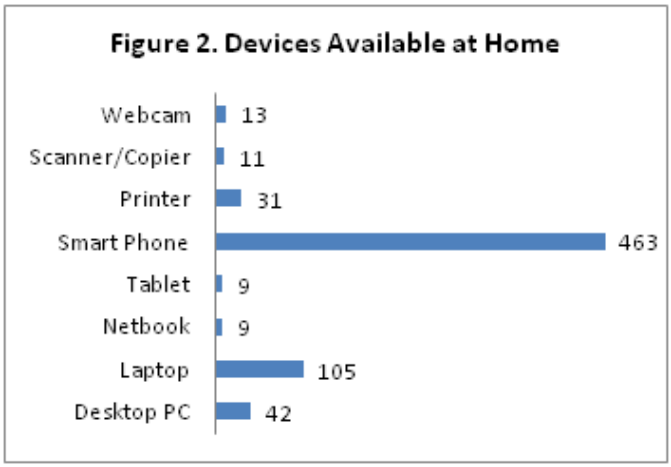
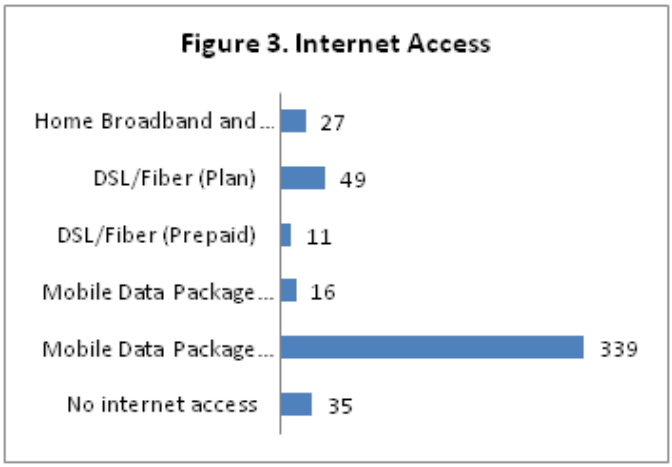



Fig. 2 shows the detailed devices available at the home of the respondents. It indicated that the majority or four hundred sixty-three (463) of the respondents own smartphone followed by one hundred five (105) respondents who own laptop.

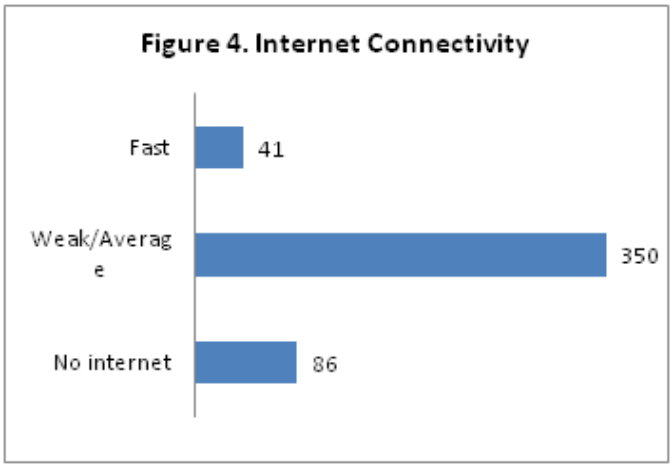
The findings are similar to the study of Callo& Yazon(2020), where students of Laguna State Polytechnic University rely heavily on personally owned smartphones and internet connection via mobile data.

Developments of the mobile phones popularly called smartphones allow users to perform activities such as sending text messages, calling, chatting, opening documents, checking e-mails, browsing internet and downloading files in a very convenient way. Smartphone technology provides immense benefits for users as they access and disseminate information rapidly (Alson & Misagal, 2016).




This figure shows the internet access of the respondents. It indicated that the majority or three hundred thirty-nine (339) of the respondents are using mobile data package (prepaid) at home.

According to Sanchez, 2020 "For accessing the internet, consumers in the Philippines utilize several devices. However, mobile devices especially mobile phones leading device for consumers to access the internet. The importance of this device to the Filipinos is to provide not just communication but also the access to information. In fact, a quarter of the population used their mobile phone in 2018 to access the internet, and it is forecasted to grow and penetrate almost half of the population by 2023".




The data on Fig. 4shows the internet connectivity of the respondents. The majority or 350 of the respondents have weak/average internet connectivity which ranges from 1 to 10 Mbps.

A separate 2017 report of Akamai, internet service and security provider firm, showed that the Philippines had the slowest average connection speed of just 4.5 Mbps (megabits per second), followed by India with 5.6 Mbps

**Table 2. Availability of Technology**

| Items | Ave | Descriptive Rating | Verbal Interpretation |
|---|---|---|---|
| 1. My hardware facilities are enough to cope with online learning (e.g. laptop, desktop, smartphone, printer, headset) | 3.09 | Undecided | Ready but needs few improvements |
| 2. My software facilities are enough (e.g. operating system, office productivity tools, Google classroom, Google meet) | 3.4 | Undecided | Ready but needs few improvements |
| 3. The speed of internet access is fast (20 Mbps and above) | 2.41 | Disagree | Not ready needs a lot of work |
| 4. I have access to stable internet connectivity | 2.57 | Undecided | Ready but needs few improvements |
| **Overall Weighted Mean** | **2.87** | **Undecided** | **Ready but needs few improvements** |

The table above shows the level of readiness of the availability of technology at home of respondents.

The respondents' hardware facilities with weighted mean of 3.09, software facilities with weighted mean of 3.4 and stability of internet connectivity with weighted mean of 2.57 are ready but needs few improvements. It means that the respondents enrolled in BSIT program need to have a laptop, desktop, smartphone, printer, and headset to cope up with online learning together with software facilities like operating system, office productivity tools, Google classroom, Google meet.

The lowest mean score of 2.41 indicated that internet access in the Philippines is not ready and needs a lot of work. The Philippines consistently lagged behind in internet connection and speed in several studies on interconnectivity (de Villa, 2020).

The overall weighted mean of 2.87 indicated that the BSIT students are ready but the availability of technology needs few improvements. According to CMO 53 s 2006, BSIT is the study of utilization of computers, and computer software to plan, install, customize, operate, manage, administer and maintain information technology infrastructure. A computer is a vital tool for learning, thus BSIT students should invest in hardware and software facilities to make learning meaningful.

**Table 3. Use of Technology**

| Items | Ave | Descriptive Rating | Verbal Interpretation |
|---|---|---|---|
| 1. I use the internet as the main source of information. | 3.72 | Agree | Ready but needs a few improvements |
| 2. I use online forums/platforms such as email and instant messaging (e.g. Gmail, Yahoo mail, Fb messenger, Skype) as a main communication tool with my teachers and classmate) | 3.92 | Agree | Ready but needs a few improvements |
| 3. I use office productivity software (e.g. Ms Word, Ms PowerPoint, Ms Excel) to comply with the course requirements | 3.57 | Agree | Ready but needs a few improvements |
| 4. I use file hosting services (e.g. Google Drive, Dropbox) as portfolio | 3.28 | Disagree | Not ready needs a lot of work |
| **Overall Weighted Mean** | **3.62** | **Agree** | **Ready but needs a few improvements** |

Table 3 shows the level of readiness of use of technology of the respondents. The highest mean score of 3.92 indicated that respondents are ready but need a few improvements on the use of email and instant messaging. It indicated that the respondents are confident in using Gmail, Yahoo mail, Fb messenger and Skype since these applications are simple and easy to use.

The internet as the main source of information with mean score of 3.72 and use office productivity software with mean score of 3.57 is ready but needs a few improvements. It means that BSIT students are familiar with different platforms and software but lack mastery.

The lowest mean score 3.28 indicated that respondents are not ready need a lot of work in using file hosting services like Google Drive and Dropbox as a portfolio. It seems that they are not confident in using these services.

The overall weighted mean of 3.62 indicated that BSIT students are ready to use technology but need a few improvements. It is a good indication that as BSIT enrolled, they are confident in using technology.

**Table 4. Self Confidence**

| Items | Ave | Descriptive Rating | Verbal Interpretation |
|---|---|---|---|
| 1. I have attended webinars/trainings related to online learning. | 3.29 | Undecided | Ready but needs a few improvements |
| 2. I have the skills to operate a computer | 3.50 | Agree | Ready but needs a few improvements |
| 3. I am able to use office productivity software (e.g. Ms Word, Ms PowerPoint, Ms Excel), web browsers (e.g. Google chrome, Internet Explorer) and search engines (e.g. Google, Yahoo, Bing, Yandex)for content delivery and demonstration | 3.56 | Agree | Ready but needs a few improvements |
| 4. I can troubleshoot most problems associated with using a computer. | 3.11 | Undecided | Ready but needs a few improvements |
| 5. I am able to do my homework by using electronic technology facilities. | 3.50 | Agree | Ready but needs a few improvements |
| 6. I believe that online learning is easy to use and I feel that I am ready | 2.67 | Undecided | Ready but needs a few improvements |
| **Overall Weighted Mean** | **3.27** | **Undecided** | **Ready but needs a few improvements** |

Table 4 shows the level of readiness of the self-confidence of the respondents. The respondents were ready in terms of skills to operate a computer with mean score of 3.50), use office productivity software, web browsers, and search engines with mean score 3.56, and able to do homework by using electronic technology facilities with mean score of 3.50. It means that BSIT students are confident in basic computer troubleshooting and use of productivity software and search engines that they can use primarily to do their homework.

The perception that online learning is easy to use and feeling of being ready got the lowest weighted mean of 2.67. It means that BSIT students are undecided to engage in online learning. The findings are similar to the study of Adnan& Anwar(2020), where higher education students of Pakistani have reservations about online/digital learning because of lack of access to internet facilities, lack of proper interaction and contact with students and instructors and ineffective technology. The study of Pastor (2020), showed also a negative result that the students of the College of Business and Public Administration of Pangasinan State University,

Lingayen Campus are not yet ready for synchronous instructional delivery. The majority of the text responses from the students are regarding internet connectivity where it is a network infrastructure problem in the Philippines.

It therefore seems important that there is some assessment of the preparedness of a learner before taking online courses (Alem et. al 2016)

**Table 5. Acceptance**

| Items | Ave | Descriptive Rating | Verbal Interpretation |
|---|---|---|---|
| 1. I am keen to start online learning. | 3.13 | Undecided | Ready but needs a few improvements |
| 2. I believe that online learning can increase my productivity and can enhance the quality of education | 2.86 | Undecided | Ready but needs a few improvements |
| 3. I believe that online learning is more effective than the traditional classroom-based approach. | 2.28 | Disagree | Not ready needs a lot of work |
| 4. I support the implementation of online learning in my department. | 3.05 | Undecided | Ready but needs a few improvements |
| **Overall Weighted Mean** | **2.83** | **Undecided** | **Ready but needs a few improvements** |

Table 5 shows the level of acceptance of online learning of the respondents. The highest mean score of 3.13 indicated that BSIT students are keen to start online learning based on their acceptance. Online learning generally has a lot of opportunities available but this time of crisis will allow online learning to boom as most academic institutions have switched to this model. Online Learning, Remote Working, and e-collaborations exploded during the outbreak of Corona Virus crisis (Favale et al., 2020).

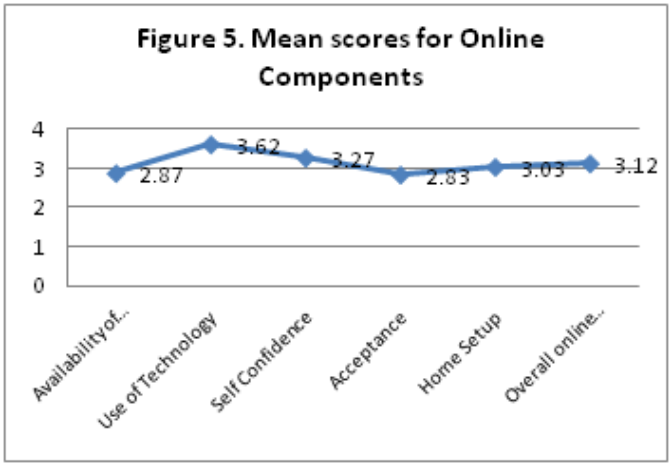
The only low mean score of 2.28 indicated that the respondents believe that online learning is more effective than the traditional classroom-based approach. According to Mutiara (2020) "in e-learning process, students work independently and some students might find it difficult to understand their contents, due to the lack face-to-face contact with lecturers and other students". In this time of pandemic, online class is one of the solutions to deliver education but teachers are seriously irreplaceable.

**Table 7. Home Setup**

| Items | Ave | Descriptive Rating | Verbal Interpretation |
|---|---|---|---|
| 1. My parents/guardians are willing to support my online learning expenses | 3.39 | Undecided | Ready but needs a few improvements |
| 2. My learning space at home is conducive (noise-free, no destructions, comfortable) | 2.67 | Undecided | Ready but needs a few improvements |
| Overall Weighted Mean | 3.03 | Undecided | Ready but needs a few improvements |

Table 7 shows the readiness of the home setup of the respondents. The majority of the respondents are living with their immediate family; their parents/guardians are willing to support online learning expenses with a mean score of 3.39. Tello (2014) points out that money is an important factor that hinders many students not to take distance courses. He emphasizes that to encourage students to engage in online learning, it is necessary that their financial situation be improved. Therefore, financial support is a significant factor of success to completion or not an online course (Morris & Finnegan, 2005).

The conduciveness of learning space at home with a mean score of 2.67 indicated that the respondents' home is not suitable for learning. Hayashi(2020) affirmed that the interaction between faculty and students was challenging. Higher education institutions do more than provide knowledge and technology in classrooms; they also serve as a space "to develop social interactions, teamwork, personality management and development, know about others, taking part in extracurricular activities". It is undeniable that the classroom is still the best space for learning.



E-learning is one of the hot topics, especially for universities' agendas. For an effective implementation of an e-learning programme some serious planning and analysis need to be done. Assessing teachers' and students' readiness for e-learning is one of the main factors during the planning and implementation of e-learning projects (Unal, et. al 2014).

## IV. CONCLUSIONS

The respondents' overall learning readiness was measured by calculating the weighted mean of the five components of the modified Akasland and Law (2010) questionnaire. These were availability of technology, use of technology, self-confidence, acceptance, and home setup.

The respondents' general online learning readiness is 3.12 (Fig. 5), meaning they are not ready for online classes. The result induces validity or certainty with that of De Vera, CHED Spokesperson's statement that HEIs are not ready and only 20 percent of SUCs have learning management systems that allow a shift to flexible learning, including online learning. In connection to this, the respondents' discernment in terms of acceptance on the abrupt move from face-to-face to online class delineated the lowest weighted mean of 2.83 percent. It merely means that they still prefer the traditional type of studying, which requires being present in a physical classroom. This setup for them is more conducive to thoroughly learn than the space they have at home where distractions are present.

Since the respondents have initial idea and knowledge concerning their course that is mainly about the utilization of computers and computer software, it became evident in the study that the respondents are ready in terms of using technology, which garnered the highest weighted mean of 3.27 percent, followed by self-confidence with a weighted mean of 3.27.

It can be concluded that BSIT students are on the right track and are ready to face the field of IT-related work. The data can help the respondents in their future endeavors since they display familiarity and the ability to operate computers that are highly needed and required in most jobs.

**Table 8 Proposed Measures to be Ready in Online Classes**

| Problem | Reasons | Strategy | Responsible Person/s or Agency |
|---|---|---|---|
| Weak internet connectivity | A disproportionate number of people still relying on 3G | Strengthen the 4G signal | Department of Information and Communications Technology |
| Lack of students' training on different learning platforms | Delayed guidelines on the conduct of online classes | Strategic planning with student leaders | Training department, Members of the Administration, Parents, Faculty and Staff |
| Weak relationships between teachers and students | Teachers still lack awareness on the importance of developing meaningful relationships with and among students. | Consider incorporating tools and techniques that help teachers and students connect. | Instructors/Professors and students |
| Parent-Teacher Communication | Families will want a way to connect with their child's teacher.<br>Parents most of the time are not consulted and informed about students' performance especially during this transition from face-to-face to online learning | Establish a clear way to connect to students' parents. | Instructors/Professors and Parents |

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