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Insights into Undergraduate Students' Experiences of Emergency Remote Learning during COVID-19 Pandemic: A Phenomenology Study

Vina Marie Esquierdo-Pitogo*
Mindanao State University – Iligan Institute of Technology
Iligan, Philippines

Kier L. Ecle
Surigao State College of Technology
Surigao, Philippines
*Corresponding author's email: vinamarie.esquierdo@g.msuiit.edu.ph

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Abstract. One of the most affected sectors when the COVID-19 pandemic hit the world is education. The abrupt transition in the educational paradigm has prompted educational institutions to adopt the Emergency Remote Learning (ERL). Because of the sudden and unexpected changes, issues on remote class engagement surfaced. This phenomenological study investigated the benefits of remote learning, determined the remote learning activities that made students engaged and unengaged, and it also described the barriers they experienced in remote learning. In this study, data were gathered from sixteen participants through an in-depth focus group discussion (FGD). FGDs were transcribed and thematically examined after they were recorded online and the data gathered were analyzed using inductive thematic analysis. The collected data revealed that there were still students who prefer remote learning for they can review pre-recorded discussions after their synchronous classes; however majority of the responses did not favor remote learning because they felt discouraged, unmotivated, and disconnected. Further, synchoronous and asynchronous online activities that are characterized with student-centered or active learning approaches are some of the remote learning activities that made students to actively engage in online class. Moreover, respondents also identified three major barriers in remote learning, which were infrastructure factors, poor learning environment, and nature of content/academic barriers. Several implications to this study have been formulated for both students and instructors/professors so that remote learning will be carried out systematically if this dilemma we are facing continues.

Keywords: undergraduate/general; emergency remote learning; distance learning; e-learning;

1. Introduction

COVID-19 has altered people's way of life all across the world; individuals are encouraged to maintain a safe distance and limit their education (Fatoni et al., 2020; Holme, 2020; Bao, 2020; Moorhouse, 2020). This global outbreak forced educational institutions around the world to cancel face-to-face classes, requiring schools that were still in session to quickly adapt to online delivery (Tan et al., 2020; Petillion & Mcneil, 2020). This sudden shift in the educational paradigm urged schools from basic education to higher education to come with a new approach of teaching and learning such as flexible learning modality that includes synchronous and asynchronous activities, modules, and the like.

Furthermore, following the declaration of a state of emergency in various nations due to the outbreak of COVID-19, Emergency Remote Learning (ERL) emerged, which was the unplanned and abrupt change from traditional to remote education (Khlaif, 2021). Because teachers and other instructional faculty lack the ability to meaningfully plan for the delivery of a rich and impactful online learning experience, and because most faculty and students are likely unfamiliar with exclusively online instruction, this transition has been viewed as one of emergency remote teaching rather than genuine online learning (Hodges et al., 2020). With the full phase implementation of ERL, teachers and learners need to utilize novel technological tools in order to carry out teaching and learning effectively and efficiently.

In Mindanao, Higher Education Institutions (HEIs) such as State Colleges and Universities offer remote learning amidst this global crisis. Hence, several repercussions have been experienced by the students in Mindanao and the rest of the Philippine islands since they have to rely on printed and/or downloadable learning modules provided by the institution, thus students' ways of learning have been changed drastically. Not only that, but underprivileged students are also struggling for online classes since their families are coping with the current situation, prioritizing their family's daily consumption. Students who are situated in far-flung areas have also experienced difficulties in attending synchronous and asynchronous classes/activities because of scheduled or unexpected power interruptions and internet connectivity problems, which are very common in Mindanao. For that reason, this phenomenological study aimed to examine students' engagement in remote learning. The phenomenological method is mainly designed to study lived experiences of phenomena from the perspective of those who experience them (Moustakas, 1994; van Manen, 1990; Patton, 2015). In this current study, the phenomenon is the compulsory moving from face-to-face learning to emergency remote learning (ERL) without much preparation of all the stakeholders of the educational system due to the global crisis of the COVID-19 pandemic. Thus, the following research problems were sought:

1. Investigate the benefits of remote learning.
2. Determine the remote learning activities that made students engaged and unengaged.
3. Describe the barriers in remote learning.

Wang et al. (2019) defined student engagement as student's level of involvement in and effort in studying, which can help them improve their academic achievement (Alrashidi et al., 2016). Furthermore, Dixson (2015) described it as the learner's effort to acquire knowledge and develop critical thinking abilities through remaining engaged in the learning process. Wong and Chong (2018) characterized online engagement as a unique combination of active and collaborative learning, participation in enriched learning activities, communication with teachers and among learners, participation in educational experiences, and feeling encouraged. Banna et al. (2015) stressed that if the content material was once the primary focus, then engagement now plays a critical role in promoting online learning. Student-content, student-instructor, and student-student

engagement are three core online learning engagement approaches that have been identified to improve student engagement (Bernard et al., 2009). Because online learners appear to have less opportunities to engage with the institution, student engagement in online learning is extremely significant. As a result, it's critical to provide a variety of online engagement possibilities for students (Martin and Bolliger, 2018).

In the study conducted by Oraif and Elyas (2021) on students' engagement during the COVID-19 pandemic, findings imply that both the interactive design of online courses and the facilitation of online courses can improve students' engagement. Instructor facilitation is critical, thus teachers must have time management and discussion tactics. Student engagement, according to Fraysier et al. (2020), is a significant determinant in reducing school dropout and enhancing student accomplishment. Furthermore, Tualaulelei et al. (2021) suggested that students' engagement is a motivator for maximizing students' learning possibilities.

There is really big difference when it comes to students' experience in remote learning in this time of pandemic unlike in the face-to-face teaching and learning. Remote learning as a sole approach in the new normal educational system brings both positive and negative effects especially in students' engagement level, thus considering it as a novel learning experience. Ullah et al. (2021) pointed out the challenges encountered by students in remote learning such as inadequate access to internet facilities, adequate engagement and communication with students and teachers, and ineffective technology. Students who have positive experiences are more likely to reenroll in online courses in the future, so an institution that seeks to increase online enrollment would benefit from such information (Blackmon and Major, 2012). Other benefits also of remote learning include reduction of transportation and other miscellaneous expenses, convenience for teachers and students as well as access to learning resources (Mukhtar et al., 2020). Gillis and Krull (2020) posited that students prefer synchronous over asynchronous course elements and find them more successful, according to a study of student preferences following a switch to remote learning during the COVID-19 epidemic.

In addition, Nguyen et al. (2021) sought to understand students' experiences with and perspectives on those methods of remote instruction in order to inform pedagogical decisions during the current pandemic and in the future development of online courses and virtual learning experiences. However, because of technology limits and delays, most students indicated that online classes could be more difficult than regular classrooms (Muthuprasad et al., 2021).

Moreover, in order for the students to be more engaged and have a meaningful experience in remote learning like in face-to-face, several online activities shall be given by the teachers that would enhance creativity, critical thinking analysis, and virtual collaboration among remote learners. Muthuprasad et al. (2021) underscored that students who are having remote learning must be kept focused by engaging them in frequent, related activities as such interactive sessions at the end of each lesson with quizzes and assignments to improve the learning experience.

In conducting the remote learning, several problems have met both by the instructional faculty and the students, and most of these barriers are inevitable. Such barriers include technology constraints, distractions, teacher incompetence, learner inefficacy, and health difficulties were all obstacles to their online learning experience (Muthuprasad et al. 2021). Further, Baticulon et al. (2021) added that difficulty changing learning styles, needing to fulfill tasks at home, and poor communication between educators and learners were the most commonly encountered issues. In developing nations, studies on online learning have frequently focused on students' limited access to gadgets and internet connectivity (Abuhammad, 2020). In spite of these challenges

encountered, lecture's recording is one advantage of online learning along with the accessibility of online education, saving time, money, and efforts (Mahyoob, 2020).

In this context, the researchers were innately driven to conduct this qualitative study for the reasons that students' engagement has drastically changed during the implementation of full remote learning in response to continuous education at the height of COVID-19 contagion. This study is imperative so that the teachers and the educational institutions would distinguish the learning status of their clientele and what would be the possible solutions that can be imposed so that learning will still be relevant and meaningful despite the screen barrier that separates the teacher and students. In connection to this, several intervention programs will be implemented to supplement the gaps that arise in this study.

2. Methodology

To explore the experiences of college students with the ERL at a state university and state college located in the southern part of the Philippines, Mindanao, a qualitative, phenomenological research framework was applied. An in-depth focus group discussion (FGD) was used in this study to collect data from sixteen (16) participants. A focus group is a method where the organizer assembles a representative group of respondents and facilitates a discussion in response to preset prompts (Harrell and Bradley, 2009). FGDs were recorded online, transcribed, and thematically analyzed.

Participants

Two focus groups (FGs), each comprising 8 students, were assembled for this study. There were a total of 16 participants from 2 separate HEIs. Each focus group had equal representation from 8 males and 8 females. The participants were purposely selected by the researchers based on the following: (1) enrolled in full remote learning (online class), (2) with at least 12 units during the time of the study, and (3) ability to participate in class. The student's ability to participate in class was a personal assessment of the researchers since the participants were either previous or current students of the researchers. Students were invited online to participate in the study with ethical considerations. The researchers obtained permission and consent from the students if they were willing to participate. Participation in the FGD was completely voluntary and students were aware that they can withdraw their participation from the study anytime. The privacy and confidentiality of their responses were also emphasized. The participants were from two separate higher learning institutions, which are implementing distance learning, in Iligan City and Surigao City, Philippines. Table A1 provides an overview of the participants.

Data Collection

Two separate focus group discussions (FGD 1 and FGD 2) were conducted that aimed to identify the students' experiences and perception of full remote learning in this time of pandemic. The FGDs were guided by three researcher-constructed open-ended questions based on related studies: (1) describe your experiences in remote learning when you felt involved and when you felt uninvolved; (2) describe specific activities and practices you have experienced in remote learning that you believe contributed to your involvement and learning; and (3) describe the barriers you have faced in remote learning. The FGDs took place in April 2021, eight (8) months after the start of full remote learning in the Philippines due to the COVID-19 pandemic. Focus group discussions lasted around 30 to 60 minutes using Google Meet, recorded online, transcribed, and thematically analyzed. Participants were assigned with codes S1 to S16 for student 1 to student 16. There were no identifying information recorded that linked

FGDs with the participants. Before the FGD, the authors obtained consent to record the session.

Data Analysis

The data were analysed using inductive thematic analysis (Braun & Clarke, 2006; Nowell et al., 2017). The data analysis process started by assigning researcher 1 (VEP) and researcher 2 (KLE) to manually transcribe the recorded FGD 1 and FGD 2, respectively. Researcher 1 (VEP) was not present during the conduct of FGD 1 and researcher 2 (KLE) was not present during the conduct of FGD 2. Careful assignment of the researcher to the FG where he/she was not part of was conducted to eliminate the possibility of bias and to establish the validity of data collected. The researchers familiarized themselves with the transcribed data and conducted the first round of coding their assigned FG's transcript independently. Codes were generated systematically based on how they addressed the research questions, but without ignoring interesting aspects in the data items. The authors reviewed each generated transcript and codes for comments and refinements. Any missed coding or disagreement was discussed. The second round of coding was done wherein researcher 1 (VEP) coded the FGD 2 transcript data made by researcher 2 (KLE) and vice versa. The researchers then reviewed and addressed any missed coding or disagreement before combining the two focus groups' codes to form relevant themes that reveal students' experience of the current full remote learning. An external research mentor was always consulted to review the transcripts and codes every step of the data analysis. Finally, related codes were grouped into a theme and labeled based on the researchers' understanding of the codes' ideas or the findings of previous related studies. After constructing the themes that emerged in the data analysis, the researchers referred again to the external research mentor to review and validate the generated themes. The last part was refining the generated themes.

3. Results and Discussion

The gathered data uncovered the perceptions of the participants based on their described lived experiences of the full remote learning in this time of COVID-19 pandemic. The thematic analysis of the focus group discussions data is presented and discussed following the core questions examined in the current study: (1) students' experience of remote learning (i.e. online learning) when they felt involved and uninvolved, (2) the experienced activities and practices in remote learning; and (3) the encountered barriers in remote learning (Appendix 1).

Benefits of remote learning

From the data analysis of FGDs, the benefits of remote learning emerged as one of the themes based on the students' experiences in remote learning (Table 1). One of these identified benefits is the flexible schedule and convenience (Muthuprasad et al., 2021) the remote learning offers. This is supported with the opportunity to record and review class discussions that were mentioned repeatedly by the students such as quotes from S15 and s16, "... I can listen on the recording if I want to and especially if there are upcoming exams and "... I also find recording of classes very advantageous. For example, problem solving, if you miss something you can listen back to the recordings unlike when it is face to face class.", respectively. This finding is similar to the results of the study of Muthuprasad et al. (2021) that ranked "flexible schedule and convenience" as the major benefits of online learning. This is due to the opportunity to study at the student's own pace and time of convenience offered by remote learning.

Another benefit that surfaced from the focus group is self-discipline and responsibility. With remote learning, the students explained that cheating is minimized and prevented due to the structure of their class, which involved documentation and

camera recording during exams and other activities. The idea behind this implied that the students practice or improve their self-discipline and responsibility taking.

Table 1 Themes and supporting students' quotes on benefits of remote learning

Themes	Codes	Student Quotes
Benefits of remote learning	Flexible schedule and convenience	S10: "... for those things that I missed, I open the recorded discussion to check and learn things. I like those activities since I felt being involved."
		S14: "... Also in doing online classes, I can just record it if I don't have the drive to listen. Unlike in the face to face class where you really need to be motivated every class."
		S15: "... I can listen on the recording if I want to and specially if there are upcoming exams"
		S16: "... I also find recording of classes very advantageous. For example, problem solving, if you miss something you can listen back to the recordings unlike when it is face to face class."
	Self-discipline and responsibility	S5: "... And we have to document them one by one, so you cannot really cheat on your activities."
		S13: "... during online exam where the camera is focused on our hands. With these, cheating is stopped and I am obliged to study."

Activities and practices in remote learning

When students were asked about their experiences on activities and practices in their online classes that they believe contributed to their involvement and learning, two themes emerged for the activities (Table 2): the synchronous and asynchronous online class (e-learning) activities. The first theme is synchronous e-learning activities. Most of the activities described by the participants fall under this theme. Oral recitation, online presentations, and real-time online exams were among these synchronous activities that the students believed have contributed to their engagement and learning. Another theme that was analyzed from the FGs is the asynchronous e-learning activities. Research activities were among the asynchronous e-learning activities extracted from the students' experiences of the activities that accounted for their engagement in class during remote learning. Problem-solving activities, both individual and group, were also described by the students. The emergence of asynchronous e-learning activities from the data is consistent with the findings of Ramachandran and Rodriguez (2020), which showed that 73% (N = 432) of students expressed that working on homework, asynchronous e-learning activity, significantly helped with their learning when asked to rank the level of help that various course activities provided to their learning.

From the data, most of the students described synchronous e-learning activities. However, the participants never mentioned that they prefer synchronous activities over asynchronous ones. More data are needed to conclude the preference of students in synchronous over asynchronous e-learning activities in this study, though it is worth mentioning that some recent studies showed the students' preference for synchronous class sessions over asynchronous (Nguyen et al., 2021; Gillis and Krull, 2020). Synchronous class activities promote interaction but restrain flexibility (Gillis and Krull, 2020; Hsiao 2010; Skylar 2009). Thus, the benefits of asynchronous e-learning, characterized by flexibility and options for self-paced learning, can never be neglected. Gillis and Krull (2020) pointed out that the effectiveness of instructional techniques during this ERL was more on how each technique was implemented than on which

techniques were used. A balanced blend of synchronous and asynchronous e-learning activities is highly recommended focusing on the quality and effective ways of implementation.

Overall, these activities, both synchronous and asynchronous, described by the participants have characteristics of student-centered or active learning approaches. Student-centered or active learning places a greater degree of responsibility on the learner. Active learning approach is an approach to instruction in which students are asked to actively engage in the learning process through problem-solving, case studies, writing, talking, or reflecting among others (Freeman et al., 2014). Extensive evidence from various researches indicates that student-centered or active learning methods result in better learning outcomes than teacher-centered or passive approaches, both in person, online, and blended class (Chen et al., 2018; Davis et al., 2018; Canoy et al., 2016; Freeman et al., 2014; Zull, 2002; Bostock, 1998).

In the recent study of Nguyen et al. (2021), looking at the students' experiences and perceptions of remote learning methods in this time of COVID-19 pandemic, they found out that active-learning methods correlate with more positive student perceptions of affect and engagement. Our results are consistent with Nguyen et al. (2021) and with prior research on the value of active learning (Freeman et al., 2014). This suggests that remote learning (i.e. online learning) must engage students through meaningful, but most especially student-centered and active learning, activities to help them stay engaged and positively impact their learning both in synchronous and asynchronous online classes.

Table 2 Themes and supporting students' quotes on the activities experienced in remote learning

Themes	Codes	Student Quotes
Synchronous Online Class (E-Learning) Activities	Oral Recitation	S2: "... we have on-call oral examinations." S5: "... it happens when I participate in the oral recitation" S11: "... also during oral recitation." S15: "... the teacher is doing online recitation and gives plus points to those who answers."
	Online reporting/presentation	S2: "The activities that I believe that contributed to my learning are video presentations (video reporting)... So of course in video presentation with class reporting" S3: "So when they introduced me this demo teaching, virtual demo teaching, I was motivated… So I believe that the activity, virtual demo teaching has contributed to my involvement and learning." S5: "... I feel involved when I'm the one that's doing the talking which happens during (online) reporting." S16: "Specific activity that contributes into my involvement and learning is when I make pre-recorded reports. This is a good activity... when making the reports, I see to it that it is lively so that my classmates will be attentive and like to listen on my report..."

Table 2 Themes and supporting students' quotes on the activities experienced in remote learning

Themes	Codes	Student Quotes
	Real time online exams	S2: "...when it comes to the examinations and quizzes, it's all different." S13: "One of the activities where I am involved is during online exam where the camera is focused on our hands. With these, cheating is stopped and I am obliged to study." S14: "... when doing exams on major subject. We turned on our camera during exams so that we can't cheat and with that we really need to study hard prior the exam…"
Asynchronous Online Class (E-Learning) Activities	Research activities	S8: "...this time since I am already in third year and has a research to work on..." S12: "... in our laboratory class, we have a task to make a mini thesis. Since my colleagues are far from each other, I step up and finish my task without relying too much on my colleagues."
	Problem solving activities	S9: "Every exam, our professor gives us group activity to solve which should be submitted after an hour..." S10: "Every time when there is discussion and the teacher gives problem set to solve... I like those activities since I felt being involved." S11: "... when the class involves problem solving. Our teacher checks if our solution is correct and we also check our solution if it is correct..."

On the students' responses to question 2 (Appendix 1), the remote learning practices theme was identified in which time management, resourcefulness, and technology utilization codes belong (Table 3). Students mentioned time management as one of the practices they believe helped them to be successful in remote learning; together with resourcefulness and technology utilization. Simon et al. (2020) also identified a similar theme as one of the major themes identified for student responses to, "What are you (the student) doing to be successful in the course?" Time management was the most frequently cited task that students described.

Table 3 Themes and supporting students' quotes on practices experienced in remote learning

Themes	Codes	Student Quotes
Remote Learning Practices	Time management	S2: "... And also, it helps me provide concrete examples because I have more time to prepare for my report." S6: "... For me, the specific activity or practice that I have experienced during online class is my ability to manage time."

Table 3 (Cont')

Themes	Codes	Student Quotes
	Resourcefulness	S14: "... I learned how to manage my time to do the activities given by the teachers. Since the span of online class is not that long, I need to manage my time so that I can submit the given activities on time." S1: "... So, that activity was able to enhance me in a way that I was able to become more resourceful." S5: "... but I think the practice of being resourceful is something that has been cultivated in me, especially in this time of pandemic." S8: "... And I guess that made me so resourceful; given that I have to craft and modify materials at home so that I can perform the activity."
	Technology utilization	S1: "we have Wi-Fi here (we have two), I have a laptop, I have the cellphone, I have gadgets...I was able to make use of the technology, of the internet, of Google." S2: "... I have a laptop, computer, cell phone, and stable internet access… The answers for the activities are available online and can be easily accessed with the help of "Uncle Google"."

Barriers in remote learning

In Table 4, major themes for student responses to, "What barriers, if any, have you faced in being a successful and involved online student?" were identified. The most frequently cited barrier the students described is infrastructure factors. This was followed by poor learning environment, academic barriers, and personal barriers.

The theme on infrastructure factors was also identified by Khlaif et al. (2021) as one of the factors that students believe influenced their engagement in emergency remote learning during the COVID-19 pandemic. Majority of the respondents also included infrastructure as one of the major determinants for smooth conduct of online classes in the study of Muthuprasad et al. (2021). Further, lack of connectivity was ranked as the major barrier in online learning with situations even worse for those from remote areas. Gillis and Krull (2020) also identify "internet and technology access" as a major barrier to remote learning.

Infrastructure factor, particularly availability of internet, was expected by the researchers since the Philippines ranked 86th and 100th in January 2021 in the global mobile internet and fixed broadband speed rankings, respectively, according to data from an Ookla report. In December 2020, an average download speed of a fixed internet connection in the Philippines was 31.44 Mbps and 22.5 Mbps for a mobile internet connection (Department of Information and Communications Technology, 2021). Additionally, power outage in most areas of Mindanao in the Philippines is also very common. Majority of the participants reiterated these barriers several times. Thus, it is no surprise that twelve out of sixteen students in the current study reported barriers relating to infrastructures such as availability of internet and power interruption were recorded. The infrastructure barriers in remote learning provide us a significant insight that for higher learning institutions in the Philippines and in any other country that wants to continue implementing remote learning, then focus on providing the minimum

required infrastructure shall be prioritized; more importantly, adequate access to internet connectivity. This would ensure the successful implementation of remote learning.

The poor learning environment also appeared to be one of the themes in the barriers in remote learning from the analyzed FGDs data. There were uncontrollable and controllable environmental distractions that contributed to poor learning environment experienced by the students in remote learning. Sample quotes of these environmental distractions are presented in Table 5. Our finding in the poor learning environment is consistent with Muthuprasad et al. (2021) who also identified it as one of the barriers to online learning. Likewise, Nguyen et al. (2021) reported that over two-thirds of more than 4,000 students reported they are often distracted during remote learning. Ramachandran and Rodriguez (2020) also reported that 47% (N = 259) of the students faced the challenge by having distractions in their new learning environment. It is worth noting that a good learning environment greatly contributes to students' learning.

The theme on the nature of content or academic barriers in the current study was also recognized by the majority of the participants as one of the factors that affect the success of online classes in the study by Muthuprasad et al., (2021). From the FG data, students had trouble understanding the content in online learning. Content should be presented in a well-structured manner, concise, and easy to understand to address this barrier in remote learning. The heavy workload was also reported by the students with S4 stated that "... one of the barriers that I have faced in being a successful and involved online student is the workload." Workload was also emphasized by Lederman (2020a, 2020b) and Simon et al. (2020). Modifying exam formats or reducing the number of assignments could help alleviate workload (Lederman, 2020a, 2020b). More importantly, the workload should be checked to ensure that online coursework is equivalent in time to its face-to-face counterparts. Additionally, acknowledging that certain tasks take longer when done in a virtual setting rather than a face-to-face course can help lighten the workload (Simon et al., 2020).

In the current study, the theme on personal barriers was identified with codes such as mental/physical health and financial situation that were derived from the students' description of the barriers and challenges they experience in remote learning. These were consistent with the report of Muthuprasad et al. (2021), Gillis and Krull (2020), Petillion & Mcneil (2020), and Ramachandran and Rodriguez (2020) on the challenges the students experience in their online learning. In the study by Ramachandran and Rodriguez (2020), it was found out that 21% (N = 259) for anxiety/mental health and 41% (N = 259) for living/financial situation were reported as significant challenges faced by the students in their remote learning.

Table 4 Themes and supporting students' quotes on the barriers experienced in remote learning

Themes	Codes	Student Quotes
Infrastructure factors	Availability of Internet	S1: "... I can say that it's very challenging because with regards to the technology or internet connection... we don't have a good internet connection… because we can't really control the internet connection." S2: "... But what makes it frustrating is that, it feels like my internet connection has a mind of its own." S5: "... there are moments when the internet connection would go really bad." S6: "... sometimes when the internet provider loses its connection. "

Table 4 *(Cont')*

Themes	Codes	Student Quotes
Infrastructure factors	Availability of Internet	S7: "... I myself have encountered a problem with internet connection that resulted to me being disconnected from a virtual meeting." S8: "... there's a low reception of internet connection and I feel like I don't want to be in class today because I can't access the internet." S9: "… there are times that the internet connection is lost since I am residing in a remote area… Sometimes the internet connection is lost and also the electricity…" S9: "For me, one of the barriers is the kind of internet connection we have. For those with low internet connection, it makes the student hard to participate on online class..." S13: "… when it rains, it makes my internet connection unstable..." S14: "Internet connection is really a barrier. Similar to what happened earlier when I was disconnected. It is advantageous if you have a strong connection and disadvantageous if your connection is lost or the electricity is lost..." S15: "… I also don't like to listen on the class if the internet connection is slow." S15: "The barriers I face are the low internet connection and noisy environment..." S16: "… there are times that the internet connection is not stable or lost during class..." S16: "... Sudden Internet interruptions then it would be difficult to join again the online class."
	Power interruption	S1: "... Also, with regards to electricity, there are times, a lot of times that we lose electricity... There would be days when there is no electricity at all and that affect everything" S2: "... I do agree with her with the internet and electricity." S6: "... So for me, the barriers are either blackouts or brownouts" S9: "… Sometimes the internet connection is lost and also the electricity…" S11: "The number 1 barrier I faced is the power shortage in our area. Here in our area, power shortage is very frequent, and when I am on my online class and the power is out, it makes my drive less and as well as the interest on that class." S13: "… Another is when I experience brownout while my online class is ongoing." S14: "… disadvantageous if your connection is lost or the electricity is lost..."

Table 4 *(Cont')*

Themes	Codes	Student Quotes
Poor learning environment	Uncontrollable environmental distractions	S3: "... I can't control the people in the house, the noise, and conflicts at home." S10: "... My room is also hot, which distracts and irritates me during online class." S12: "On my part, is my environment. Especially when I have exams and my environment is very noisy. I can't concentrate on answering the exams because of the noisy environment." S13: "... there are times where I am distracted while doing online classes due to the noises in my environment…"
Poor learning environment	Uncontrollable environmental distractions	S15: "The barriers I face are the low internet connection and noisy environment. Especially here in my place which is near the road. The noise of the passing vehicle makes me less motivated to listen to the online class." S16: "Noise from the outside such as fish cars, noise from construction, from dogs and chickens…"
	Controllable environmental distractions	S10: "I have a stable internet connection, and this is the cause that I can't focus or get involved during online class. During class, I can surf to other sites, check social media and other things. My room is also hot, which distracts and irritates me during online class." S13: "... many temptations/distractions around. Sometimes while having class, naturally you are set with the camera off, when you feel sleepy you can opt to just watch youtube or shift your focus into something else…" S14: "... in online classes where we can turn off our camera. While it is turned off, our attention is diverted; we can watch youtube or even sleep during the class.
Nature of content/Academic barriers	Difficulty on Understanding the Topic	S2: "... I also have the barrier of understanding the (content) material…" S8: "I also have difficulty in understanding in online meetings..."
	Heavy Workload, Requirements and Assignments	S4: "... one of the barriers that I have faced in being a successful and involved online student is the workload." S5: "... that we have to conduct multiple (activities), actually a lot of them. S6: "... since there are teachers that give a lot of requirements." S8: "... I have to take courses, and I have to do my tasks and my assignments."

Table 4 *(Cont')*

Themes	Codes	Student Quotes
Personal barriers	Mental and Physical Health	S1: "… And next I can cite is with regards to my mental health... I have gone through depression, and actually have gone through it years ago so I can really tell when it is or it is not." S2: "... I have experienced anxiety as a personal barrier." S3: "... Aside from financial problems, internet connection, and depression, it's really hard for me as well to study at home." S4: "... The same goes for live meetings; which I think are pretty taxing and unhealthy because I have to sit straight for hours and face my gadget."
	Financial Situation	S3: "... Aside from financial problems, internet connection, and depression, it's really hard for me as well to study at home." S14: "… We can't always secure that we have extra money to buy load for mobile data in order to reconnect and join again the meet/zoom class. It would be wasteful to just buy load to have internet access."

Student experience of remote learning

The participants described experiences in emergency and full online remote learning reflect that most of them do not prefer the current learning delivery modality as much as the face-to-face lectures before the COVID-19 pandemic. Based on the described experiences in remote learning by the participants, Table 5 shows the theme and supporting quotes from the focus group discussions. The students' description of their experiences in remote learning exhibited their perceptions towards this type of learning. It was found out that majority of the participants are unfavorable of or do not prefer remote learning as this theme surfaced from their experiences of feeling discouraged, unmotivated, and disconnected with remote learning specifically in online classes. This is supported by the quotes from the students: S4: "... It also discourages me to engage in online classes because my classmates are not actively participating during discussions."; S12: "... we felt unmotivated due to the seldom conduct of classes…"; and S13: "... during online class, sometimes I feel disconnected…" Additionally, some students described their experiences in remote learning as difficult and not good for them. S3 and S13 quotes illustrated this claim, "It's (online class) not helping me learn, and it is making me uninvolved in the lesson." and "... online class is very difficult for me especially here in our place…" respectively. This perception of remote learning resonated throughout the description of the participants of their experiences in an online class.

This result matched with the study of Nguyen et al. (2021) that students prefer in-person courses (86.1%; 4,123) over online courses (13.9%; 666) when they collected undergraduate data consisted of 4,789 responses from 95 different countries. They surveyed the students online during the initial phase of emergency remote learning for most countries. The results of Muthuprasad et al. (2021) also suggest a similar negative preference to online learning with around 60% of the respondents perceived an online class to be less effective than a face-to-face class.

It is important to point out that the students' negative preference for remote learning compared to face-to-face learning does not imply that remote learning is not good. Their learning support preference may just because they find face-to-face to be more conducive for their learning in comparison to remote learning. Muthuprasad et al. (2021) posit that the difference in perception among the respondents in their study could be attributed to lack of equity in internet availability, poor teaching skills, or poor learning environment; which are all barriers in remote learning that were also described by the participants. Additionally, the negative preference for remote learning may also be attributed to the less or lack of social presence compared to face-to-face class. Based on literature and previous studies, preference for face-to-face courses is largely due to social-emotional interaction or social presence (Nguyen et al. (2021).

Table 5 Themes and supporting students' quotes on students' experience in remote learning

Themes	Codes	Student Quotes
Unfavorable of remote learning	Discouraged, unmotivated, and disconnected	S3: "... But I feel so uninvolved when it's just normal oral report…"
		S4: "... It also discourages me to engage in online classes because my classmates are not actively participating during discussions."
		S5: "... but there are really times when I feel really bored about the discussion…"
		S6: "... But in online class, everything might seem easy but they are not as rewarding as the face-to-face setup."
		S9: "... I felt discouraged while taking online classes and I felt out of place…"
		S12: "... we felt unmotivated due to the seldom conduct of classes…"
		S13: "... during online class, sometimes I feel disconnected…"
	Difficult and not good	S3: "It's (online class) not helping me learn, and it is making me uninvolved in the lesson."
		S10: "... Online class is not really good for me… online class is not for me..."
		S10: "... I am a lazy person, online class makes me lazier..."
		S13: "... online class is very difficult for me especially here in our place…"

4. Limitations

The limitations of this research are the limited number of participants and the research design using online focus group discussions. Conducting a study with a larger sample size could reveal more information about the topic under investigation. Future studies could include more participants and include instructors to collect their insights on their students' performance and engagement, teaching approach used, and barriers experienced during the emergency remote learning. Additionally, due to the current COVID-19 pandemic, the FGD is limited online with a discussion platform that can only be accessible to participants with access to the internet. Online focus groups are prone to technical problems such as poor or loss of connectivity, which was experienced by one of the researchers during the FGD. Failure to capture non-verbal data is another

limitation in conducting online focus groups. The researchers' limited experience in conducting focus group discussions is also a limiting factor of this study design.

5. Implications for Teaching

From the gathered data, below are some of the implications and suggestions for teaching.

1. Students have more time for self-paced and self-guided asynchronous activities as one of the benefits of remote learning. However, adherence to disciplined time-management shall be observed among them in order to accomplish the tasks and remote learning activities in a specified time given by the professors or instructors.
2. College and university instructors and professors shall record the synchronous discussion for the students to review thereafter so that they can have full grasp of the information and concepts they have shared even after they have discussed a certain topic, thus transfer of learning is still meaningful and of the essence in this trying time.
3. College and university instructors and professors should be more lenient in assigning deadlines for both synchronous and asynchronous remote learning activities because majority of the students have encountered almost the same barriers and concerns such as poor internet connectivity and power shortage during the completion of tasks and the conduct of remote classes. Some also of the students cannot afford to buy load for mobile data just to attend the synchronous sessions or online classes.
4. College and university instructors and professors should also check and give feedbacks to students' activities from time to time through their respective Learning Management Systems (LMS) so that students would be more engaged to submit and accomplish the tasks or works assigned to them and to minimize the occurrence of cheating and some sort of plagiarism.
5. College and university instructors and professors should also revisit their course syllabi and conduct check and balance of the learning tasks and activities they gave to the students to minimize the workloads per subject without compromising the course outcomes. Collaboration among instructors and professors belonging in the same program is encouraged to avoid redundancy and overlapping of learning tasks and activities as one of the students' academic barriers.

6. Conclusion

Our study contributes to the understanding of the students' emergency remote learning experiences and highlighted the benefits of remote learning, the activities and practices they experienced that they believe contributed to their involvement and learning, and the barriers they experienced.

The benefits of online remote learning as described by the students included experiencing flexible schedules and convenience as the most cited. This finding is consistent with previous researches in remote learning even before the COVID-19 pandemic, which identified flexibility and convenience as major drivers behind the demand for online education.

Based on the thematic analysis of the data, the participants identified synchronous and asynchronous online class (e-learning) activities that influenced their engagement and learning in full remote learning. A balanced blend of synchronous and asynchronous activities was recommended focusing on the quality and effective ways of implementing these activities. In general, activities that are characterized with student-centered or active learning approaches are beneficial to student learning and encourage student engagement as reported by the participants.

On students' experienced practices in remote learning, most of them described time management as the most applied practice that they believe helped them to be successful in remote learning. This was followed by resourcefulness and technology utilization.

Most importantly, the participants identified three major barriers in remote learning: infrastructure factors, poor learning environment, and nature of content/academic barrier. These findings align with researches in remote learning in this time of the global pandemic. Students are experiencing widespread problems on the availability of the internet or not having a stable connection, power interruption, poor learning environment, and academic barriers (e.g. heavy workload and difficulty understanding the topic). These barriers are crucial factors to overcome to enhance student engagement and learning and for the successful implementation of distance learning. Remote learning definitely needs to meet certain minimum infrastructure requirements to ensure its effective application. Instructors must also consider the personal barriers experienced by the students, which include the mental/physical health and the financial situation of the students.

The findings of this study have shown that majority of students do not have a positive experience and perception of remote learning. However, the negative experiences and perceptions of students toward remote learning as described in this study do not imply that remote learning is not good. Critical barriers, such as infrastructure factors and poor learning environment, need to be addressed for the success of remote learning.

This work contributes to the information that is being collected regarding remote learning in this time of the COVID-19 pandemic. The results of this study can assist faculty on where to focus their teaching efforts to support student engagement and ultimately student learning during this global crisis when full remote learning is continued, which is the case in the Philippines.

Declaration of competing interest

The authors declare that they have no competing interests that could have appeared to influence the work reported in this paper.

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Appendix 1 Focus group discussion questions.

Question 1: Can you describe your experiences in your online classes when you felt deeply involved? When you felt uninvolved?

Question 2: Can you describe specific activities and practices you have experienced in your online classes that you believe contributed to your involvement and learning?

Question 3: What barriers, if any, have you faced in being a successful and involved online student?

Appendix 2 Demographic details of participants

Table A1 presented the demographic variables of the participants, which included year level, course, institution, and sex.

Table A1 Demographic details of the participants

Demographic Variables		Total
Year level	I	1
	II	6
	III	9
Course	BEEd	1
	BPEd	1
	BSEd English	1
	BSEd Filipino	1
	BSEd Math	1
	BSEd Sciences	3
	BS Environmental Engineering	1
	BET-Chemical Engineering Technology	7
Institution	State College	8
	State University	8
Sex	Male	8
	Female	8

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