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LIVED EXPERIENCES OF STUDENTS IN E-LEARNING MATHEMATICS AMIDST PANDEMIC

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Abstract:
The education system is a globally affected aspect of the COVID-19 pandemic. Consequently, face-to-face instructions were suspended, and education abruptly shifted to distance learning modalities. This study was conducted to describe the lived experiences of Mathematics students at Cebu Normal University, Philippines, in e-Learning Mathematics amidst the pandemic. This study is anchored on phenomenology and utilized a semi-structured interview guide in a series of virtual interviews with each of the research participants selected through a purposive sampling for the data gathering process. The gathered data were then analyzed using Moustakas' (1994) Transcendental Phenomenological Analysis Process. The findings revealed that the following challenges are encountered by the participants in e-Learning Mathematics amidst the pandemic: (1) difficulty in understanding the topic, (2) contextual distractions, and (3) challenges for online connectivity. Additionally, by taking a break and having a positive mindset, the participants gained motivation to deal with these challenges and foster learning in mathematics. Moreover, this study exposed the opportunities obtained by the participants in e-Learning Mathematics amidst the pandemic into three (3) themes: (1) convenience for learning, (2) independent learning, and (3) time management.

Keywords: lived experiences, e-Learning Mathematics, challenges, opportunities, pandemic

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1. Introduction

In December 2019, a new virus known as the Coronavirus disease (COVID-19), which originated in Wuhan, China, began to spread across nations, including the Philippines. Based on the World Health Organization (WHO, 2020), this is an infectious disease that can usually be transmitted via droplets of saliva from contact with an infected person. As a result, vaccines are discovered in order to control, if not eradicate, the vastly increased number of people being affected on a daily basis. With this outbreak comes significant changes in the day-to-day lives of the majority of people around the world.

According to WHO Director-General Dr. Tedros (2020), as much as people want to go on with their lives despite the pandemic, society should still conform to the new normal, which includes social distancing measures and health protocols implemented to achieve a better, healthier, and safer community in general. One of the greatly affected aspects of this pandemic is the education system at all levels, which brought great impacts on the lives of practically more than a billion learners in over 190 countries worldwide (United Nations, 2020). Considering this as an international concern, government officials and education leaders from the affected countries, with their initiative to help contain the spread of the virus, suspended face-to-face instruction, and education abruptly shifted to distance learning modalities. One of the widely used platforms for continuing schooling is e-Learning. Unlike the traditional way of teaching and learning inside a classroom, e-learning makes use of electronic technologies, where learning is conveyed online (Smith, 2020). In this way, students are encouraged to stay at their respective homes while adjusting to this digitally new learning environment. Moreover, just like any area of discipline, Mathematics is an essential part of an individual's life. The significance of this course in its application to the everyday lives of people is uncountable since almost everything in this world can be related to and connected to mathematics. As supported by Bennett, *et al.* (2015), Mathematics plays a vital role in any inventions and formations of the world, and without it, which the world would remain stagnant and out of progress. Thus, the transfer of learning in Mathematics in the face of the current pandemic should still carry on even with the usage of an online platform. However, the unexpected change to a different way of learning Mathematics imposes both opportunities and challenges among learners globally.

Furthermore, many countries have adapted to an online learning mode to support the continuation of learning amidst this pandemic (World Bank Group, 2020). Some ways altered by these nations to cope with the demands in education was to develop websites which served as their educational portal that also contained Math-related resources, as well as created YouTube channels for their citizens to study during these trying times. In line with this, Gewin (2020) explained how some experts resorted to other online platforms, such as video conferencing tools like Zoom, to connect with their students and deliver Mathematics lessons in spite of the pandemic. He added that one strategy shared by a mathematician who taught at a University in Shanghai, China, is using a program called Voice-Thread to produce videos of himself discussing math concepts.

In this connection, the Philippines' effort to sustain quality education for its learners regardless of the drastic modifications enforced, especially in the field of learning Mathematics. Just like any other country adjusting to this situation, the Philippines' Commission on Higher Education (CHED), in the pursuit of continuity of learning for students during this pandemic, encouraged all Higher Education Institutions (HEIs) to employ alternative learning or flexible learning systems (Montemayor, 2020). With this, colleges and universities in the Philippines conform to the so-called blended learning, which, according to Malindog-Uy (2020) from the standpoint of the Department of Education, is a blending or fusion of online distance learning and in-person delivery of printed learning materials to the residence of those learners who lack internet access and/or any interactive facilities that would virtually connect them to their classes. Hence, at the start of the first semester of the Academic Year 2020-2021, in accordance with the Philippines' CHED's Memorandum Order No. 4 Series of 2020, which focuses on the implementation of flexible learning during this pandemic, Cebu Normal University (CNU), a state university in Cebu City, Philippines, has been flexible in conforming to blended learning by allowing their students to make a personal choice of either opting for a modular mode of learning or an online mode of learning-acclimatizing to a synchronous and asynchronous method, integrating the usage of technology for their students. The university's resumption of classes for this academic year, lectures, discussions, and other presentations done by the instructors were made possible through these online applications available, such as Google Classrooms and Meetings, Zoom, Discord, etc.

Meanwhile, printed modules were distributed to the vicinity of those students who opted for the modular mode of learning. In the context of Mathematics, the Mathematics instructors of Cebu Normal University conformed to both the asynchronous – teachers provided videos and/or electronic copies of reading materials containing the discussion on the Math topics for students to watch and learn upon respectively, and the synchronous method of learning – the teacher conducts an actual video conferencing with the students in order to hear students' concern and queries for clarification and better assurance of learning. Afterwards, any educational assessment for learning was done, including the use of Google Classrooms, where teachers posted assessment tests in Google Forms for students to answer online, and other methods where learning outcomes assessment can be done offline. Nevertheless, this sudden change in learning mode reshaped how learners are educated. With this new platform, several possibilities and factors can affect students' perception of learning a complex subject like Mathematics. A study by Umoh *et al.* (2014) revealed that through the blended e-learning environment, students are allowed to explore the online context independently, and far from the limitations present in direct discussions within the conventional classrooms, their learning and knowledge in Mathematics get wider. This suggests that an e-Learning environment during this pandemic is an opportunity for a new exploratory lived experience for students.

Limited literature has explored the lived experiences of the students who engaged in distance learning in the Philippine context. Hence, the researchers were encouraged to

conduct this research to delve into the lived experiences the students have been going through in e-Learning Mathematics in the new normal. This study focused on the lived experiences of Mathematics Major Students at Cebu Normal University-Main Campus in e-Learning Mathematics amidst the pandemic. This study then proposed a guide in e-Learning Mathematics that would be solely based on the findings of this study and provide a broader point of view in the context of e-Learning Mathematics in the new normal.

2. Literature Review

The effectiveness of the e-Learning method in the teaching of Mathematics in adult high school was identified by Moreno-Guerrero *et al.* (2020). He emphasized that the implementation of an e-Learning method would be effective for adults who studied mathematics in high school, as improvements in their performance can be observed compared to those of an expository method. With this emphasis, it is clearly exposed how e-learning is way more effective compared to the traditional chalk-and-talk method of learning, as in this aspect students can be able to explore beyond what was taught during classroom convention.

Moreover, Alvarez (2020) exemplified four themes as the primary challenges encountered by learners in learning at a distance through emergency remote teaching amidst the pandemic crisis. These four themes revolve around the unstable internet connection of learners for online classes and even no internet access, which is a great challenge for a learner on how to connect to his/her classes; next is the unavailability of access to technological devices that serve as the channel for learning, which resulted to learners being defied for successful learning; then the absence of affective or emotional support which learners primarily need as the driving force to get motivated in their classes; and the challenge of financial sustainability that chiefly hinders learners to sustain their academic needs. Generally, these findings imply that the distance learning modalities, including the online mode of learning during this pandemic, are not at all convenient for learners, especially those who cannot sustain their educational, personal, and family needs.

Relatively, Tamm (2019) enumerates some disadvantages of e-Learning, including social isolation. According to him, with the e-Learning method, the participating students tend to experience a lack of interaction, thus resulting in social isolation. He further added that a lack of communication and/or interaction may often lead to psychological and mental health issues that may put students' situations at risk. Hence, an e-Learning environment can bring some issues in society that are primarily faced by learners across the globe. To mention some in the Philippines, there were numerous reported cases of students committing suicide due to online learning. Sibucao (2020) exposed the reasons for the three separate cases of students committing suicide, which include stress and personal struggles in conforming to the online mode of learning.

Comparatively, Yanuschik *et al.* (2015) emphasized that e-Learning in the context of the educational process advances the quality of students' training ground for life and

provides a better comprehension on the topic talked about. This study, therefore, emphasizes how e-Learning is benefitting the learners when the quality of education and a better understanding of courses are concerned.

In contrast, Juan *et al.* (2012) elucidated how e-Learning Mathematics can be affected by the demographic characteristics of the learners concerned. These demographic characteristics may include family status, occupation income, educational level, race, and the like. Other than the demographic characteristics, the author added the intrinsic nature of Mathematics as a discipline, in which Mathematics, as one of the complicated subjects, requires innovative approaches when taught and effective strategies to be learned. Identically, Albano (2012) highlights the context of Mathematical competencies as one of the primary challenges in teaching and learning Mathematics in an online environment. The author further elaborates that mathematical competencies are complex and require not just the skills and knowledge of the students but also some measurable ability, which leads to the development of an e-learning model in mathematics. This implies that e-Learning Mathematics requires some approaches that are strategically developed for effective learning in Mathematics within an online environment.

A study by Mailizar *et al.* (2020) explored the hurdles of E-Learning as their alternative response to the continuity of schooling during this COVID-19 crisis from the perspective of teachers teaching Mathematics. It was found that among the four barrier factors− student level barrier, curriculum level barrier, teacher level barrier, and school level barrier findings disclosed that the leading obstruction to effective implementation of E-Learning was at the student level. Participants believed that numerous of the students they handled had insufficient knowledge and skills in using these online applications. Also, students tend to have inadequate devices and poor internet connection for E-Learning purposes, which impedes their understanding of the lessons.

Alipio (2020) conducted a study on the less economically developed country's descriptive evaluation of e-Learning readiness of higher education students during this COVID-19 pandemic, in which 880 Filipino students were taken as samples. The study revealed that most of the participants were not ready for e-Learning, and those who said "No" were younger and female respondents. However, it was emphasized that due to some emotional and psychological factors, the respondents' responses were potentially biased which is held as the limitations of the said study. Similarly, a research study on Pakistani Higher Education students' attitudes towards distance learning modalities in the pursuit of continuity of learning amidst the pandemic which is conducted by Adnan and Anwar (2020) revealed that with online learning, the tendency to achieve the desired learning outcomes is less likely to happen in underdeveloped countries like Pakistan. Additionally, the lack of access to an internet connection is exposed by this study as one of the challenges in e-Learning, together with some issues emphasized, which include the unavailability of personal/physical interaction with the courses' instructors and the socialization that usually happens in classroom conventions.

In contrast to the claims of the aforementioned studies, a research study by Wijaya (2020) revealed that there is a positive impact towards learning attitudes from their

learners while making use of watching learning videos on an online platform. The author further exposed that during this time of the pandemic, students in China independently learned on their own with guidance from their parents provided with learning videos that interactively stimulate their learners' problem-solving skills. In addition to this, a study conducted by Elfaki *et al.* (2019) revealed that an e-Learning method significantly improved academic performance and the learning process. Moreover, this study showed a significant positive attitude towards e-Learning. Hence, e-Learning, at some point, could contribute to the students' learning process as a positive attitude is significantly influenced by this method of learning.

Moreover, Salamat *et al.* (2018) conducted a study that focuses on the effects of e-Learning on the academic learning of the 205 sample students at the University of Lahore, Pakpattan Campus. Based on the data collected from the 205 students at the university level, the study found that through e-Learning, students can find flexible time to do their school work, allowing them to be motivated to work on their own without asking for others' help. Besides, the study also revealed that students feel comfortable with e-Learning because it gives them the freedom to browse and surf the internet. This e-learning environment, therefore, can make students responsible for their tasks and can enhance students' time management so students can rely on themselves comfortably in this online mode of learning.

In contrast, the implementation of e-Learning, according to Ahn *et al.* (2018) is not equally attained by all countries across the globe. This is primarily because of the financial demand that comes along with the implementation of e-Learning. The author further exemplified that appropriate software is necessary for effective mathematical e-Learning accompanied by the necessary learning principles and theories for suitable mathematics content to sustain the needs of the learners as well as the teachers' by and large intentions. With this, it is implied that developed countries can comfortably embrace e-Learning in contrast to the struggles of the developing countries to fully manage with potential, the e-Learning environment that requires the high initial cost of its design and platform settings, including the low internet connectivity.

Moreover, Harandi (2015) highlighted that there is a significant relationship between e-Learning and students' motivation. Hence, with the implementation of an e-Learning method, students would more likely be motivated to learn, and when motivation is at hand, engagement and active participation will follow. Finally, through all these, the learning objectives are on a higher probability of being achieved.

Furthermore, Saleem *et al.* (2014) depicted that e-Learning is strongly influenced by time, workload and technology. It is further exemplified that e-Learning is time-saving, which is very favorable to the respondents. The decrease in workload, in addition, is ensured in e-learning, together with the utilization of the emerging technologies that are commonly used in this generation. Thus, this study obviously implies that e-Learning offers a comfortable accommodation for learning, which is highly in favor of the perspective of the learners.

Lastly, a dissertation by Alrehaili (2013), examined the viewpoints of some learners in Saudi Arabia towards mathematics education delivered online. Students who

took part in the survey manifested varying attitudes when Mathematics is taught on an online platform. About 42% of the students had a positive outlook of E-Learning as this is way more convenient for them than the traditional way of learning because they are provided with flexible options for accomplishing a given task, as well as a manageable schedule and location. On the other hand, among those who possessed a negative attitude towards online mathematics education were caused by a deficiency in the interaction they have with their peers and teachers, making it hard for them to receive immediate feedback, which is vital in learning an intricate subject like Mathematics.

3. Materials and Methods

This phenomenological research aimed at describing the lived experiences of Mathematics students at Cebu Normal University-Main Campus in e-Learning Mathematics amidst the pandemic. The conduct of this study is anchored on Edmund Husserl's Transcendental Phenomenology – one among the types of Phenomenological Epistemology which, as a method, verbalizes reflective analysis of man's (in this case, the research participants') lived experiences (Serandon, 2016). Moreover, a purposive sampling technique was utilized in selecting six (6) undergraduate students of Cebu Normal University-Main Campus who are currently adapting to the E-Learning system for their Mathematics courses. Three of them came from Bachelor of Secondary Education majoring in Mathematics and another three students taking up Bachelor of Science in Mathematics−one for each year level, respectively.

In the pursuit of gathering the data needed for the study, a semi-structured interview guide was used to conduct a series of virtual interviews with the research participants. Audio recordings were also secured to ensure a valid and reliable source of data. The data gathered were then analyzed following Clark Moustakas's (1994) Transcendental Phenomenological Analysis Process (cited in Adu, 2016), which includes preparing the bias-free data (through epoche) for analysis, phenomenologically reducing the data gathered through horizontalization, formulating meanings and clusters of themes and finally synthesizing exhaustive description of the phenomenon.

4. Results and Discussion

Through the series of virtual interviews conducted with each of the participants of this study, the results of the study are discussed, analyzed and interpreted in this section.

4.1. Challenges Encountered by the Participants

4.1.1. Difficulty in Understanding the Topic

According to Huss and Eastep (2013), one of the struggles of students in online learning is their confusion about their courses, which is sometimes caused by the inability of their professors to provide clear instructions and timely feedback. The difficulty in understanding the topic is encountered by most of the participants in e-Learning Mathematics amidst the pandemic, as supported by these responses: "*It's really hard*,

because even though we have discussions, but if we alone are going to do the solving, seems like we do not completely grasp the lesson,"(P1)*"The explanation was not enough and I am embarrassed to chat my professor"* (P2) which implies that the module in Mathematics is not easy at all for self-study and teachers' facilitation is necessary for better understanding. Thus, based on the data gathered, the participants were having a hard time comprehending the topics in Mathematics online presented through an electronic copy of the (Math–related courses) modules and some through posted lecture videos. Similarly, the findings of the study conducted by Gafoor *et al.* (2015) found out that learners considered Mathematics as of a complex subject because of its subject content that is relatively hard to understand, as supported by one of the responses *"I could no longer understand the topic, because it is online. I could hardly absorb everything."* (P4) Hence, difficulty in understanding the mathematical topic is undeniably a challenge in e-Learning Mathematics amidst pandemic.

4.1.2. Contextual Distractions

Contextual distraction is part of the core themes formed from the exposed challenges encountered by the participants in e-Learning Mathematics amidst the pandemic. These contextual distractions, as explained by the participants, include the surrounding noise, such as verbal interaction from neighbors and even karaoke music and songs, and the environmental sounds from running vehicles and even from animals. *"Our neighbors whenever they have videoke, it is very loud, and sometimes there are some people who are arguing outside with very loud voices…"* (P2). Moreover, the learning context itself is also considered one of the contextual distractions experienced by the participants in e-Learning Mathematics, because, unlike the typical, formal classroom setting, the participants are situated in a setting where the zest for learning is not primarily directed. *"I am staying in my room, and I am distracted with my bed. Instead of studying, I feel like going to bed."* In relation to this, a study conducted by Robison and Unsworth (2015) revealed that external noises while studying serve as distractions that affect the focus of attention, which impacts task performance for some participants. Thus, contextual distractions are inevitable challenges encountered by the participants in learning Mathematics online.

4.1.3. Challenges for Online Connectivity

The final core theme for the challenges encountered in e-Learning Mathematics is the challenges of online connectivity. This theme comprised the unstable network signal, slow to limited internet connection, digital hassles upon connecting devices online, and even the need for finance for data connectivity. *"Of course, the signal is one of the challenges because the signal here in the Philippines is not that stable"* This response from one of the research participants (P1) emphasized that slow internet connection negatively affects online learning experiences. Moreover, another participant added that *"internet connection's signal and the limited internet consumption gives me a hard time accessing my lecture videos"* (P5), which revealed that a slow internet connection causes students to have difficulty in accessing lecture videos and compromises learning. Generally, unstable network signals and slow to limited internet connections are inevitably experienced by

online learners in the Philippines. As reported by Marcelo (2018), among the 77 countries ranked for internet speed and availability, the Philippines ranked 74th among the lowest-ranked countries. These challenges particularly deter the learners' focus on e-Learning Mathematics during this pandemic. This was supported by Andersson (2008) in a case study he conducted on the seven major challenges encountered by developing countries. From the said case study, it was exposed that the quality of the connectivity, particularly the slow connection speed, affects the overall experience of students when accessing the contents needed for their study.

4.2. Respondents' Coping Strategies in Dealing with Challenges Encountered

4.2.1. Positive Mindset and Recognizing Break Time

In the pursuit of learning continuity in Mathematics amidst the pandemic, the participants specified to create a positive mindset by adapting to the phenomenon and looking forward to great outcomes for their struggles in e-Learning Mathematics. Below are the significant statements from the participants that validate the prior statement:

> "*What I do is I always think that after this struggle, the outcome would be great in the end*." (P2)

> *"So, what we have to do is accept the reality and adapt to the current situation."* (P3)

> "*Make use of your self-control, and adapt oneself to the situation, because every one of us experiences the same thing."* (P4)

From the above statements, one of the participants elaborated that the struggles encountered in e-Learning Mathematics amidst this pandemic will pay off with great and desirable outcomes in the end. The two statements from the other participants similarly explained that people around the globe face the current pandemic equally and that the situation is personally uncontrollable; hence, according to the participants, accepting reality and adapting to the current situation is the best thing to do. Additionally, two of the participants exemplified the following:

> *"If I'm not motivated to do something like there are times that I'm just forced to study because it's needed for a quiz later or for the next day, and what I usually do is…I'll take a break"* (P1)

> *"at the end of the day, although you don't feel like doing anything, or you don't have the focus, there is that set of a deadline for submission… So, I think it serves as the motivation to do the tasks because there is a deadline."* (P6)

One among the participants considered taking a break from all the school work and studies when unmotivated to do something. And another participant explained how the imposed deadlines for every activity functioned as motivation to accomplish the

activities given. According to Durham (2020), the mental attitude, specifically, positive thinking, plays a vital role in succeeding from any adversities. Hence, it relatively depicts that by taking a break and having a positive mindset, the participants are motivated to deal with the challenges encountered in e-Learning Mathematics amidst the pandemic. Furthermore, it was also revealed that the due dates designated for every school activity influenced students' inner drive to comply with the tasks on or before the set deadlines. According to Jarrett (2020), imposed deadlines patently give a positive psychological function to students to finish provided tasks. Consequently, it is supported that the deadlines set for every activity given online from any of the Math-related courses of the participants serve as the driving force for them to accomplish the activities given by their instructors in Mathematics.

4.2.2. Situated and Scheduled Learning Practices

In the quest to deal with the challenges encountered, the following significant statements from the verbatim transcripts of the participants' responses are presented.

> *"So, what I did, I first finished all the activities we have for the minor subjects so that for the next week I will only be focusing on my major subjects."* (P1)

> *"I did plan a schedule for every activity, like for this day I will do this and that, then the next is this."* (P2)

> *"Really, I will stop first, and if I really need to continue my studies, I will just go to my room and go to a corner so that there will be no unnecessary noise…"* (P3)

Based on the above statements, it was exposed that several strategies employed by the participants in dealing with the challenges encountered in e-Learning Mathematics amidst the pandemic include planning a schedule for each of the school tasks and setting priorities from a personal perspective as to what tasks are to be done first and what is to follow. A study by Dotson (2016) highlighted the significance of setting dates or schedules for the specified things to be done. Scheduling learning practices, therefore, is considered a necessary act to foster learning in Mathematics amidst the pandemic. Finally, it was exposed that to deal with contextual distractions such as noise, one among the participants typified that if there is a need to continue with the schoolwork, situating oneself in a way that those distractions are minimized can be done. This practice is supported by one of the key tenets of Situated Learning Theory, which is authentic context, in which Besar (2018) specified that learning that is embedded in a favorable social and physical context is significantly more effective than learning that is non-situated.

4.3. Opportunities Encountered by the Participants in e-Learning Mathematics Amidst Pandemic

4.3.1. Convenience for Learning

The respondents claimed that learning Mathematics online provided them with convenience in learning Mathematics. The participants correspondingly exemplified that the online learning context, in general, gives them a comfortable situation for learning as it was revealed that the need for transportation or the act of commuting from home to the university is no longer necessary, as supported by the statements:

> *"I am more comfortable with online learning because I can still manage my time and I am only at home and there is no need for transportation*" (P4)

> *"I can rest more because… commuting is very hard here in our place."* (P3)

With this, the participants' online learning experiences, in general, subtracted the effort and energy consumed in commuting. Hence, it gives them convenient time and experience for e-learning mathematics amidst the pandemic. This was supported by a qualitative study on students' perceptions towards the quality of online education by Yang and Cornelius (2004), which revealed that one advantage of online learning is the convenience that the participants have experienced, which the authors referred to as flexibility, for they are not required to drive to their campuses and they can study at their own pace, depending on the availability of their time. Thus, e-Learning Mathematics amidst the pandemic gives off an opportunity for convenient learning when compared to the struggle of commuting experienced in the physical mode of learning delivery.

4.3.2. Independent Learning

In accordance with the participants' responses, independent learning had been exposed as one of the core themes formulated from the opportunities encountered in e-Learning Mathematics amidst the pandemic. Independent Learning in Mathematics is accompanied by the modules sent through an electronic copy and the lecture videos posted on certain social media platforms. It was explained by one of the participants that some of their instructors in major courses in Mathematics posted lecture videos online:

> *"In our major, some of our professors recorded their lecture videos, and then I have one professor who just posts them on his YouTube channel." And all they have to do is watch the lecture video and understand the virtually presented discussion with which, in the case of not clearly grasping the information explained, they can, at any time, replay the lecture video for the sake of better absorption of the virtual discussion."* (P6)

This independent learning has positively contributed to the participants' experiences in e-Learning Mathematics amidst the pandemic as it encouraged them to be responsible in their studies, and in addition to this is the feeling of self-fulfillment from their personal struggles while doing independent learning. As it has been explicated by

Knowles (1980, cited by Galy *et al.*, 2011) in e-Learning, students become more responsible in how they are going to comprehend a certain topic, and this student's ability to work independently is exemplified by self-directed learning.

4.3.3. Time Management

The research participants elaborated on how the online mode of learning Mathematics had given them enough time to manage all their school tasks, as purported from the participant's responses*:*

> *"I have more time to do my task"* (P2)

> *"It developed my sense of responsibility like I have to manage my time…"* (P3)

> *"…and you can also make use of your time to do more things and time to study."* (P1)

This reveals that time management is fostered in an online learning context where students have more time for schoolwork as they can manage their own time at home. With this, time management is carefully observed by the participants. Since e-Learning provides students with self-paced learning, it also improves their ability to manage their time well in order to comply with their requirements. According to Goodson *et al.* (2015), online courses taught some students the importance of strong time management skills, which can help in the betterment of their grades. Thus, time management is significantly embodied as an opportunity encountered by the participants in e-Learning Mathematics amidst the pandemic.

4.4. Synthesis on the Lived Experiences of Students in e-learning Mathematics amidst Pandemic

The participants came up with homogenous experiences of the phenomenon investigated in this study. The challenges encountered by the participants in e-Learning Mathematics amidst the pandemic were concentrated on:

1) the complexity of the subject matter, that is, Mathematics, requires vast understanding for learning acquisition and application;
2) the environmental e-learning set-up, which is conversely set from a standard and formal classroom setting, in which contextual distractions are inevitable, hence taking away the participants' focus in learning the subject; and
3) the issues that are given off by the network signal and internet connectivity which are basically dependent on the location of the participants while adapting to the online mode of learning the subject.

Nonetheless, these challenges were continuously dealt with by the participants in the quest for learning continuity amidst the pandemic.

Along with these challenges are the experienced opportunities by the participants in e-Learning Mathematics amidst the pandemic. The opportunities experienced are directed on:

1) the perceptible difference in the struggle and effort of commuting and transferring from one building to the other in the physical delivery of instruction in comparison to the convenience of learning in an e-Learning context;
2) the stimulating drive for independent learning in an online learning environment, where the co-researchers are encouraged to be responsible for their own learning acquisition; and
3) Regarding time management for the co-researchers in doing the activities in their math-related courses, this positively influenced the co-researchers' sense of responsibility as students.

5. Recommendation

In light of the described lived experiences of the participants in e-Learning Mathematics amidst the pandemic, it is favorable to enforce a positive mindset and flexible attitude to online learners amidst challenges encountered. In addition, these challenges encountered in E-Learning Mathematics should not be considered as deterrence for learning continuity amidst the pandemic rather, online learners must ponder on the significance of the challenges and opportunities encountered in e-Learning Mathematics so as to foster learning on the subject.

6. Conclusion

Based on the findings of this study, it was concluded that the experienced challenges in e-Learning Mathematics amidst the pandemic are affected by the complexity of the subject content. In addition, e-Learning Mathematics by the participants, amidst the pandemic, is inevitably affected by contextual distractions and online connectivity issues. Moreover, the research participants aspired to deal with the challenges encountered in E-Learning Mathematics amidst the pandemic in order to foster their learning in Mathematics. Finally, the encountered opportunities in e-Learning Mathematics amidst the pandemic are greatly influenced by time flexibility and the participants' convenience for independent learning.

Conflict of Interest Statement

The authors declare no conflicts of interest.

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