Cypriot Journal of Educational Sciences

Volume 19, Issue 1, (2024) 121-141

www.cjes.eu

Sustainable remote learning model: Challenges and opportunities in remote learning assessment during and post-pandemic

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Suggested Citation:
Ignacio, H., Alinsunod, J., Masangya, R., Barosa, E., Oliva, O., Soriano, J. & Oliveros, J. (2024). Sustainable remote learning model: Challenges and opportunities in remote learning assessment during and post-pandemic. *Cypriot Journal of Educational Science*. *19*(1), 121-141. https://doi.org/10.18844/cjes.v19i1.9346

Received from May 10, 2023; revised from August 11, 2023; accepted from January 18, 2024.
Selection and peer review under the responsibility of Prof. Dr. Hafize Keser, Ankara University, Turkey (retired)

iThenticate Similarity Rate: %5

Abstract

This paper document investigates the impact of remote learning on education systems during and after the COVID-19 pandemic, focusing primarily on the experiences of educators and learners. The study employs a mixed-methods approach, incorporating qualitative and quantitative analyses to evaluate remote learning's effectiveness and challenges comprehensively. Findings highlight significant challenges such as technology access, adaptation to online teaching methods, and maintaining student engagement. Despite these challenges, the implementation of remote learning facilitated educational continuity during the pandemic, demonstrating the potential for permanent integration into educational frameworks. The study concludes that while remote learning can enhance flexibility and accessibility, it requires substantial improvements in technology infrastructure and teacher training. Recommendations for future research include exploring strategies to enhance digital literacy, developing robust support systems for educators, and investigating long-term outcomes of remote learning on educational quality.

Keywords: Blended learning; digital literacy; remote learning; sustainable remote learning model; teacher training.

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1. Introduction

The COVID-19 pandemic brought about unprecedented challenges in education systems worldwide, resulting in the closure of schools and an urgent need to look into alternative learning modalities. As a response to the crisis, e-learning emerged as an essential lifeline, enabling educational institutions to continue delivering instruction remotely while mitigating the risk of COVID-19 transmission (Alshamrani et al., 2023; Salleh et al., 2023). However, this swift shift to online learning was not without challenges, notably in countries such as the Philippines, where stable online connectivity and digital literacy posed serious challenges. The fact that few students had access to the necessary technology raised concerns about the effectiveness of the new learning approach.

In times of crisis, the flexibility and readiness of educational institutions determine their ability to provide quality education. In these unprecedented times, the success of remote learning is highly dependent on the capacity for change of learning systems, the accessibility of the relevant infrastructure, and the support of educators. Remote learning, which utilizes both synchronous and asynchronous approaches, has emerged as a promising way to keep learners and educators connected while they work from home (Kennedy et al., 2022). Blended learning, which combines interactive synchronous sessions with self-paced asynchronous study, has shown promising results in simulating the classroom environment in a remote setting (Torrington et al., 2023). This study aims to explore the online learning experiences of both educators and learners, the challenges experienced during remote learning, the support systems readily accessible to educators, and the overall effectiveness of the remote learning approach. Understanding these factors will give schools valuable insights as they face the new normal and remove present barriers to an inclusive and effective learning environment.

As the world ventures into a future where the pandemic may still exist, evaluating education through the lens of our everyday experiences presents a unique opportunity for growth and development. The education sector can shape a more peaceful and resilient future by embracing the lessons learned during this global crisis. This study focuses on teachers' experiences, their challenges, and the best practices that can be adopted to enhance education in the post-pandemic era.

1.1. Literature review

1.1.1. Paradigm shift from face-to-face to remote distance learning: addressing challenges and exploring pedagogical approaches

The education system has undergone a significant paradigm shift from traditional face-to-face learning to remote distance learning, particularly due to the impact of the COVID-19 pandemic. This shift has necessitated a move towards digital solutions, including online learning management systems, and has presented both challenges and opportunities for educational institutions worldwide (Maqsood et al., 2021).

Remote learning has brought about multiple challenges for parents, students, and educators in the Philippines and worldwide. Many feel drained and displeased that virtual learning lacks essential tools and resources (Westerman, 2022). Remote learning's high cost has also hampered students' education. Due to extended isolation and disrupted study habits, students' mental health has suffered (Distance Study in the Philippines: A Year of Hits and Misses, 2021). In response to the shift in perspective toward remote distance learning, educators have explored numerous methods of instruction to enhance online education. Blended flexible learning is prevalent. Blended learning enables a more holistic and engaging education (Paposa & Paposa, 2023).

Blended learning additionally utilizes device, laboratory, individual, and flipped models to cater to various types of learning (Singh et al., 2021). This approach lets teachers use technology while still

incorporating valuable in-person interactions, enhancing student engagement and understanding (Edumadze & Govender, 2024). Another promising approach is the modular approach, which has proven beneficial in terms of reducing costs and increasing teacher availability. By breaking down the curriculum into smaller, self-contained modules, students can progress at their own pace, making learning more personalized and flexible. The educational system has shifted from face-to-face to distance learning. Researchers and educators have studied innovative methods of instruction to address these issues. Blended flexible learning using multiple instructional models and modular techniques could make post-pandemic education more flexible and sustainable (Müller et al., 2023).

1.1.2. Challenges and opportunities of remote distance learning

In a public secondary school in the Division of San Pablo, City, Laguna, the Online distance learning modality (ODLM) is used to address an emergency remote education in which students face difficulties like low motivation, unstable connectivity to the internet, and overwhelming workloads. Moreover, the vast majority saw possibilities in areas like self-directed learning, learning outcomes, portability, and ease of use. As a result, they learn to take initiative in their education, become more proficient in technology, and better manage their time (Manalo et al., 2022). Also, in a university in the United Arab Emirates (UAE), the sudden implementation of eLearning during the COVID-19 pandemic had discouraging implications for users' mental health and socialization. Fifty-five and six-tenths percent (55.6%) of the sample agreed that the change had negatively affected them. Instead of relying solely on one method or the other, 75% of users would rather have access to a flexible model that combines traditional classroom instruction with online instruction. Because the courses are of a hybrid and flexible nature, it is recommended that the university utilize a hybrid-flexible (HyFlex) format (Mushtaha et al., 2022).

1.1.3. Teacher professional training for remote distance learning and its future directions

Medium- and long-term plans such as boosting investments in remote learning, adopting blended models when schools partially reopen, or producing remedial e-courses are needed to enable educational systems to recover from the crisis and rebuild more equitably. Recognizing the importance of establishing technical and digital pedagogies for a broader segment of instructors is a critical component of this process. Thus, professional training to address this new normal setup is very important (Wilichowski & Cobo, 2020).

In this context, current and future educators' technological pedagogical content knowledge (TPACK) was tested using various online and offline venues. Using the "CloudClassRoom" (CCR) and the DEmo-CO-design/teach-feedback-DEbriefing (DECODE) model, Cheng et al., (2022) found that they could increase pre-service teachers' TPACK in an online setting, which is crucial for designing courses with technological components and facilitating the integration of teacher-student experiences, teaching-learning processes, and technology-embedded systems to foster collaborative and active learning, information, and resource sharing.

The future of distance education is blended learning, which combines online and face-to-face instruction, and the readiness of various sectors, beginning with the individual learner's own family, to adapt to this new method of education. The academic sector follows, prioritizing the well-being of students, faculty, and staff by fostering a flexible setting for blended learning, providing up-to-date professional development opportunities, and putting into action learning recovery strategies. Last but not least, the provision of barangay-based learning hubs, gadget financial loans, sponsorship, and rentals (Manlapaz, 2020), among other measures, is relatively important for the success of the execution of the recovery learning plans and facing the new normal learning setup.

2. Method and materials

2.1. Research design

The study employed a mixed-methods research design to comprehensively explore the impact and effectiveness of remote learning. This approach included both quantitative surveys to gather numerical data and qualitative interviews to capture in-depth personal experiences. The study is exploratory research that is descriptive evaluative and uses a mixed method design to gather both qualitative and quantitative data.

2.2. Participants

The study's instrument was administered in selected public and private schools, which were participated in by administrators, teachers, and school staff using a convenience sampling method. Table (1) shows the relative distribution of sample characteristics. The sample contained 168 male and female teachers.

Table 1
Distribution of the study sample according to the levels of its variables

Variable	Level	Number	Percentage	Total
Sex	Female	93	55.4%	168
	Male	75	44.6%	
Position	State Universities and Colleges (SUCs) Faculty	96	57.1%	168
	Private School College Faculty	15	31.5%	
	Public School Basic Education Teachers	53	8.9%	
	Private School Basic Education Teachers	4	2.4%	

2.3. Data collection tools

This paper mainly aimed to gather feedback from school educators as possible input for educational planning and policy formulation using an online survey. The survey also determines educators' experience during the shifting of modality and their teaching during pandemics. The instrument was modified and obtained from the Survey on Online and Distance Learning – Results (2020). The modified survey instrument was validated by three experts in the field of educational technology and remote learning. These experts reviewed the questionnaire for content validity, ensuring that the questions were relevant, clear, and comprehensive in covering the key aspects of remote learning experiences. The questionnaire has two parts: Part 1 contains the demographic variables on sex orientation, designation or position, and type of school. The second part has 21 questions for remote learning experiences. This survey instrument was administered to gather data from 2023. The data obtained through the online survey were analyzed using frequency, mean, standard deviation, and thematic groupings for qualitative data.

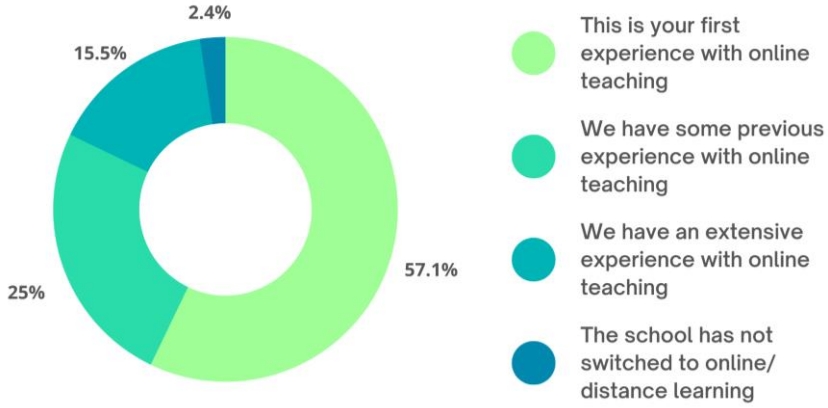
3. Results

3.1. Quantitative study results

Figure 1 shows a significant shift in education due to the pandemic, in which most educators (57.14%) have transitioned to distance learning for the first time. However, it is essential to note that an essential minority of educators, that is 25%, possess previous experience in online teaching. This observation indicates the existence of a setup inclination towards technology for educational purposes.

Figure 1

Teachers' experience with online teaching



The data shown in Figure 2 indicates that educators have a consensus on the advantages of distance learning. The findings in Figure 2 indicate that a significant number of educators see online teaching as enabling considerable flexibility, creativity, and accessibility. Furthermore, these instructors report using diverse instructional approaches inside their virtual classrooms.

Figure 2

Description of teacher's experience with online teaching

The data in Table 2 provides valuable insights into the complicated challenges faced by educators throughout the shift to remote learning. One of the major obstacles, which represents around 15% of the issues, relates to the accessibility of learners to technologies. Listed as the second major challenge, making up about 14% of the total is the problem of teachers' access to technology.

Table 2

Challenges of teachers in switching to remote learning

Challenges of Teachers in Switching to Remote Learning	Percentage
Student access to technology	15.09%
Teachers' access to technology (computers, software, stable internet, etc)	13.57%
Converting activities and content into online/ distance learning	10.53%
Communication with students	10.06%
Assessing students' progress	8.77%
Increased workload and stress working from home	6.90%
Involving students from socially disadvantaged homes	6.67%
Preparing content for online and distance learning	5.85%
Communication with parents or guardians	5.50%
Low level of students' digital competence	4.68%
Time management and organization	3.27%
Supporting students with special needs or disabilities	3.04%
Involving disaffected students	2.57%
Little direction or support was given by the school	2.57%
The school has not switched to online teaching/ distance learning	0.70%
There have been no challenges	0.23%

Remote teaching is also an opportunity for teachers' professional development to cope with online learning since it is flexible and accessible to short courses. The result was shown in their response in Table 3, suggesting that teachers need help to cope with online modality. Most respondents agreed that teachers could improve online learning by providing professional development for teachers and more free resources and tools from educational technology companies, which have a percentage of 31% and 30%, respectively.

Table 3

Online support learning during the school closure

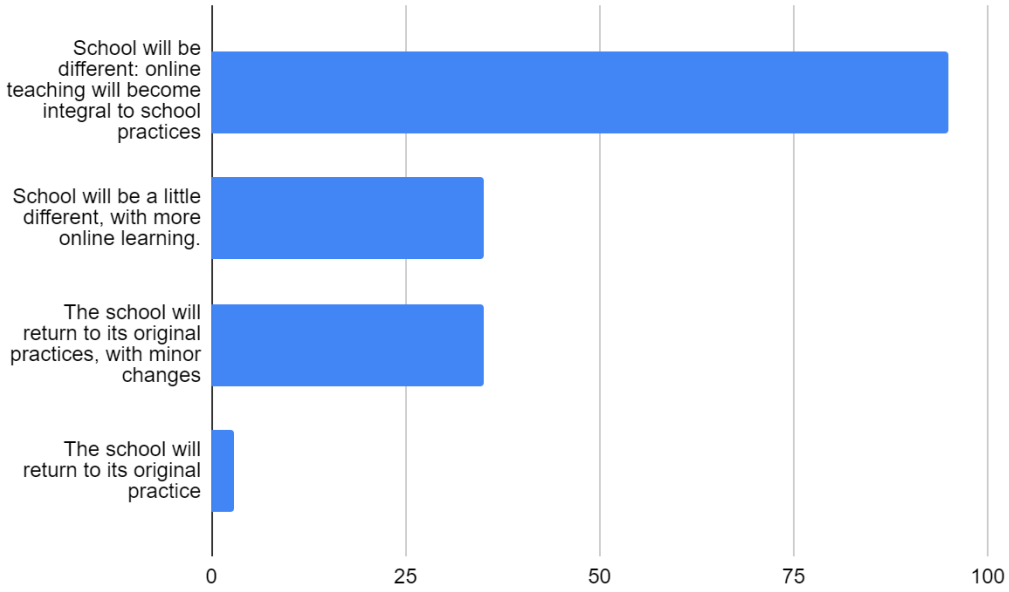
ONLINE SUPPORT LEARNING DURING THE SCHOOL CLOSURE	Percentage
Professional development: quick courses on online teaching	30.95%
More free resources and tools from education Technology companies	29.76%
Clear guidelines from DepEd or CHED	10.12%
Webinars and focus group discussions for teachers to share ideas and challenges	8.33%
Website list of useful resources	7.14%
Easy contact with IT experts and experienced online teachers	5.36%
Video clips of an online class and lesson on good practices	5.36%

More educational TV programs	2.98%

The researchers also asked the respondents if online learning would become an integral part of the school system, and most of the respondents answered that online teaching would become part of school practices. Some 56% of the respondents believed that hybrid learning would be implemented in the Philippines' educational system, as presented in Figure 3.

Figure 3

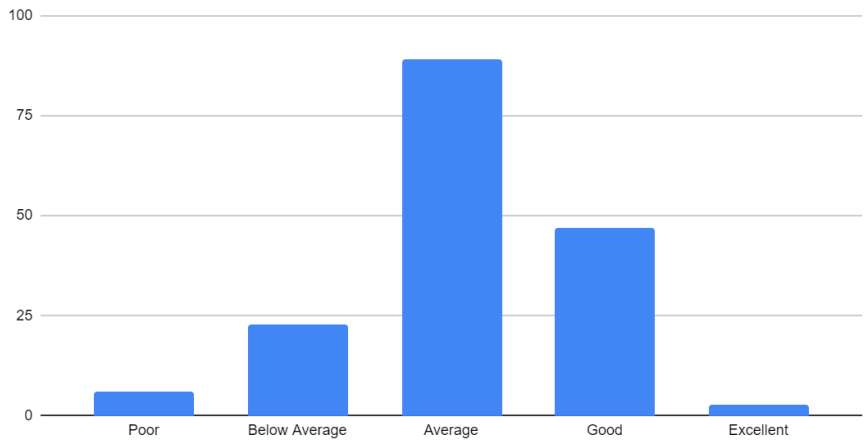
Response of teachers to the question on hybrid education



Meanwhile, figure 4 shows that the overall perceptions of the respondents about distance education are between average (53%) and good (28%) ratings.

Figure 4

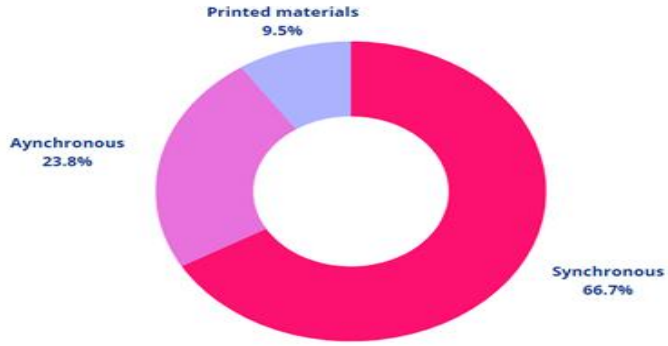
Response of teachers to the question: "How do you feel overall about distance education?"



The majority of the respondent's perception of distance education (DE) is average, maybe because most of them use a synchronous type of DE, as presented in Figure 5.

Figure 5

Response of teachers to the question: "What type of distance education did you use?



In this study, most teachers use synchronous modality in their classes most of the time. However, based on the result in Figure 6, the majority of them were experiencing internet connection problems, though in Figure 7, they have access to a device for learning online (78%) using their laptop (79.8%) and desktop (16.7%), presented in figure 8. Internet connectivity remains challenging in many areas of the Philippines, non-online modalities have emerged as the dominant mode of education delivery in the new normal. She highlighted that because most respondents are from rural areas, the most frequent internet connection utilized is mobile data - 71 % on average, which is more prevalent than the steadier fiber connection. The results show that even if they have access to the device, the main hindrance and challenge is their internet connection problem when online learning.

Figure 6

Response of teachers to the question: "Do you have high-speed internet at home?"

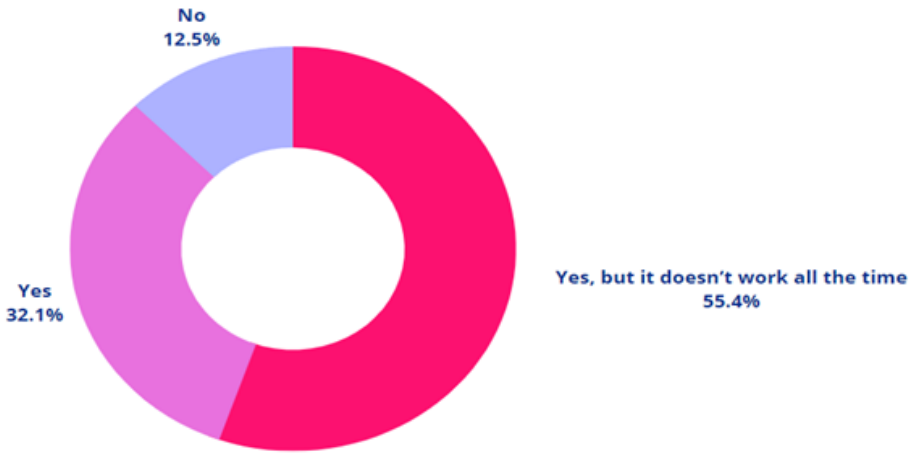


Figure 7

Response of teachers to the question: "Do you have access to a device for learning online?"

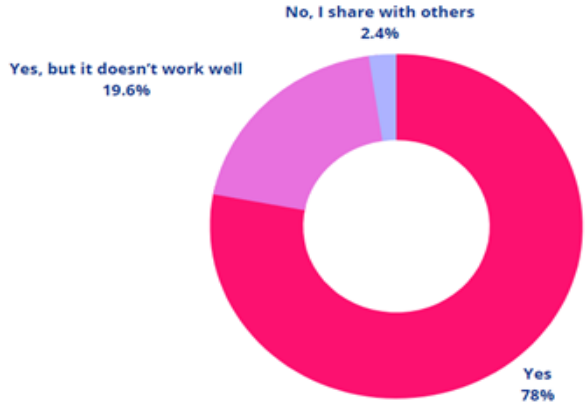
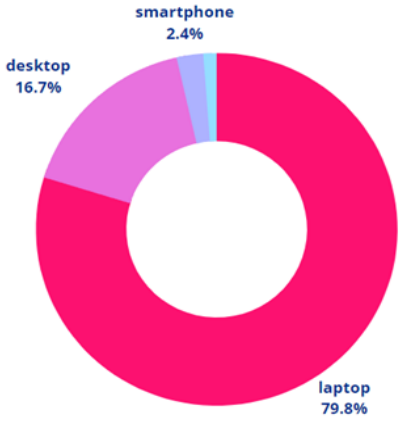


Figure 8

Response of teachers to the question: "What device do you use for distance learning?"



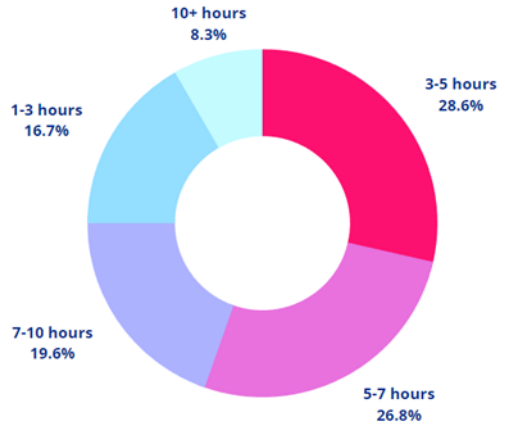
Though there are challenges faced during remote teaching-learning, there is a good side, as shown in Figure 9. Most of the respondents spent 3 to 5 hours (28.6%) on average in distance education compared to the traditional way of teaching.

Moreover, the findings in Figure 10 show that most respondents are moderately satisfied with the technology they are using, which is 56% of the total respondents.

Likewise, the majority of the respondents are positive about the effectiveness of remote learning, as presented in Figure 11, and moderately effective (67.9%).

Figure 11

Response of teachers to the question: "How effective has remote learning been for you?"



In terms of the support from the school or university administration, it appears that teachers' perceptions of supportive leadership practices and cultural conditions in the workplace are more critical influencers on teachers' ability to engage in self-directed learning than teachers' assessments of the classroom environment itself. On the other hand, figure 15 shows that most respondents rate their co-workers as moderately helpful in online learning.

Figures 12 and 13 show that most respondents are moderately stressed in teaching remotely during the COVID-19 pandemic.

Figure 12

Response of teachers to how helpful their institutions have been in offering the resources to teach from home

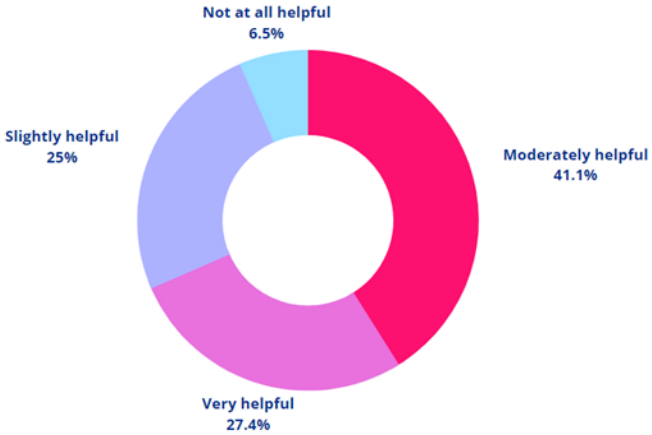
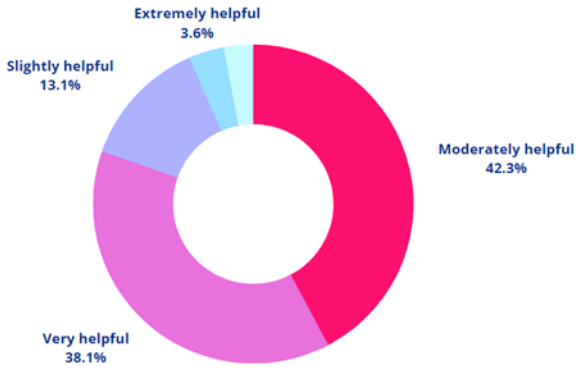


Figure 13

Response of teachers to How stressful they find teaching remotely during the COVID-19 pandemic



In terms of teachers' experience in remote teaching, based on Figure 14, most respondents experienced somewhat worse teaching from home compared to teaching at school. Figure 15 shows that most of the respondents rate their environment moderately well. Based on this response, their environment is poorly adapted to online learning.

However, despite some difficulties encountered, such as internet connectivity interruption and stress during remote teaching, most responded that online learning is moderately effective, as presented in Figure 16.

Figure 14

Response of teachers to how their experience was, teaching students from home as compared to teaching at school

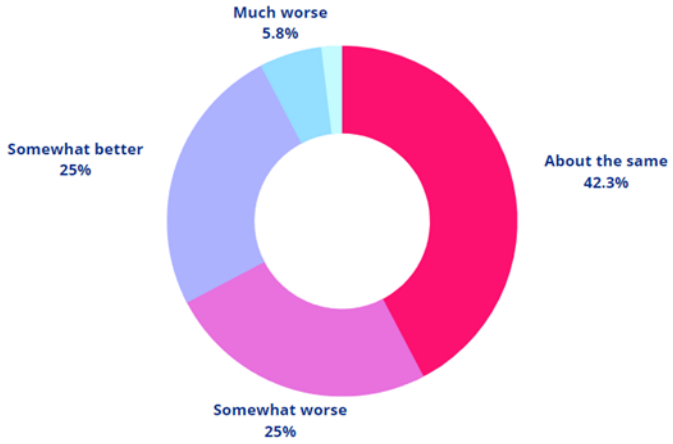


Figure 15

Response of teachers to the question: "How peaceful is the environment at home while teaching?"

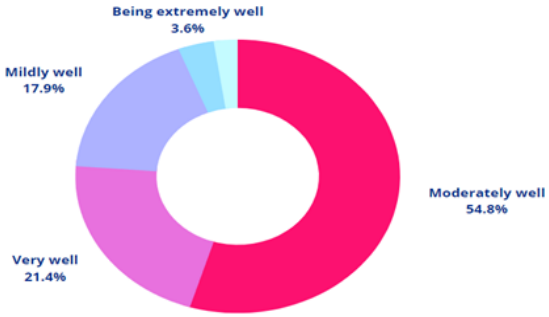
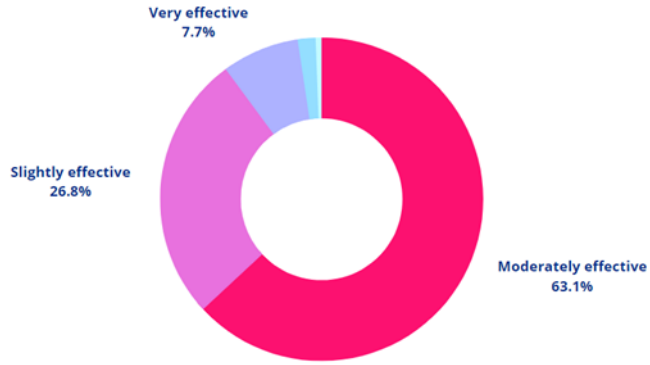


Figure 16

Response of teachers to the question: "How effective has remote learning been for you?"



3.2. Qualitative results

The researchers analyzed the qualitative part of this paper to determine the perception of teachers' responses during the sudden shift of teaching to online modality. From one hundred sixty-eight educators who currently handle or have experience in remote learning, teachers' experiences were identified as improving their teaching modality. The first open-ended question that arises from this study is, "How important is face-to-face communication for you while teaching remotely?". Most of the respondents state that communication is essential in terms of remote learning. The significant themes emerged because of all learners' needs and the easy accessibility of distant learning. One of the answers of the

respondents agrees that face-to-face communication is important while teaching remotely, and this teacher (Respondent No. 46) states:

> *"It is very important because it closes the gap in communication between students and teachers, which will be our means of doing follow-up lectures during synchronous classes. It becomes the soul of distance learning as we shift into different modalities. It is helpful for us, but we must never forget that it must not be a substitute for teachers."*

This is consistent with the response of another teacher (Respondent No. 18) that communication is vital in delivering remote learning. He/She states that:

> *"Communication is important between teacher and students so that feedback can be provided well to students who may be needing it."*

According to Fabriz et al., (2021), students who spent most of their time studying in synchronous environments reported engaging in more peer-centered activities, such as feedback, than those who spent most of their time studying asynchronous environments. On the other hand, the teachers perceived fewer differences between the teaching methods used in synchronous and asynchronous settings, particularly regarding the activities that involved feedback. In addition, compared to students who participated in mostly asynchronous settings, those who participated in mostly synchronous settings reported a higher level of overall satisfaction with the online term and greater support for their basic psychological needs for competence support and relatedness.

The next open-ended question from this study is, "Are your students learning as much now as they were before switching to remote learning?". Most respondents are unsure if the students are learning in remote education. One of the respondents' answers is that remote learning is effective. This teacher (Respondent No. 165) states:

> *"Yes, students are learning, and I have to adjust what happens today in education and have my strategy to fight this circumstance that I encounter."*

This statement is consistent with Taja-on et al., (2021), who indicate that online learning is equally as effective as traditional classroom instruction, and students report feeling neither overly satisfied nor underwhelmed by the quality of their educational opportunities. However, some teachers do not agree that remote learning is effective. According to Respondents No. 88 and 93:

> *"No. Most of them are facing varied challenges in coping with the learning modality." 83.*

> *"No, most of my students have no access to technology and internet connection, and also have difficulty in self-regulated learning."93.*

These statements are consistent with the result of Mukhtar et al., (2020), The benefits included learning from a distance, being able to study in comfort, and having easy access, whereas the drawbacks included inefficiency and the challenge of preserving academic integrity. The recommendations included providing faculty training on online modalities and developing lesson plans with less cognitive load and more interactive components.

The last open-ended question from this study is, "How can your [School or University] support you further?". The major themes that emerged in this section are financial support, professional development, and moral support for teachers to succeed in remote learning. Table 3 shows the results of this open-ended question's selected codes and categories. This result is consistent with the findings of Cardullo et al., (2021), wherein qualitative findings and some hurdles included problems connecting to the internet,

a shortage of interaction and communication, and difficulties motivating and engaging students. The teachers' degree of self-efficacy in using technology to educate was one of the disadvantages, as was the absence of assistance and tools to teach online, as well as the difficulty in motivating and engaging pupils. The ability to differentiate training, abundant materials, and a flexible means of supporting students is essential when in-person instruction is not feasible.

Table 3

Suggested answers of respondents for support of institutions for remote learning

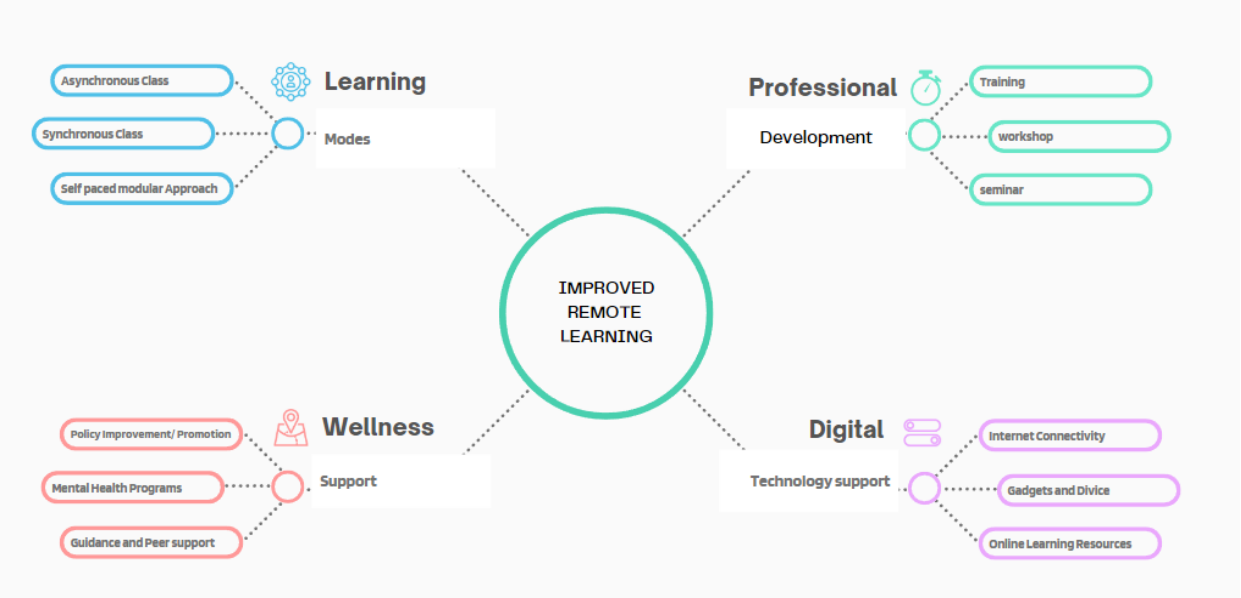
Selected Codes	Category
· *Support the internet maintenance of every teacher so they can have consistent communication with their students at home* · Providing *allowance for online resources required in teaching* · Provide *financial assistance for devices and internet connection.*	Financial Support and Compensation
· They have conducted training for the new setup of learning and provided free subscriptions to LMS and apps that are useful for teaching. · They gave us training and a webinar before the opening of classes · Provide the teachers with the technology and seminars they need, assigned proficient, major-based, or specialization-based in science or any subj. in doing modules or learning materials to avoid misconceptions.	Professional Development
· Through the guidance from our school · The University support, the Dean, and the Head of the Department are doing their best in this academic situation. · Give enough time for teachers to prepare their teaching materials	Moral Support

3.3. The LWDP Framework

The implementation of remote learning in the Philippines may improve the proposed framework in this study. The researchers introduced the LWDP framework, which can help administrators, faculty, and policymakers to have high-quality remote learning. The first component of this framework is the **L**earning modes of conducting remote learning. This consists of three modalities: synchronous class, asynchronous class, and self-paced modular approach. The students have the freedom to choose the type of modalities they need to learn the lesson at their own pace. The delivery of the lesson is important not only for the wellness of the students and teachers. This is the reason why Wellness support is included in this framework. Having moral support, encouragement, and development in each institution member is very important. This will be achieved if policy improvement is achieved and the faculty of the school is fairly evaluated. Mental health programs, guidance, and peer support are also included so that the members of the institution can have sound judgment and decision-making.

Figure 17

The framework of the study based on the thematic analysis



Moreover, remote learning will be implemented successfully due to the support of digital technology. Most of the problems the students and teachers encountered were due to the slow internet connection and technical problems. To avoid these problems, the institution must provide gadgets and devices that are compatible with the needs of the teachers and students. There must be a fast internet connection for the teachers and students to attend synchronous classes and do their activities online without interruptions. There must be appropriate online learning resources that can help the teachers to supplement their prepared presentations and modules. To finally complete this study's framework, the researchers also saw in the participants' responses that teachers were willing to improve their technical skills. Professional development is a vital component of this framework, as is their willingness to attend seminars, workshops, and training specifically on how they will conduct remote learning effectively.

The result of the study is an ongoing effort of the researchers to develop an approach based on the findings of the thematic analysis of the qualitative data of the study for us to help improve remote learning in the Philippines. After thoroughly examining the findings, the researcher devised an approach and framework, which is constructed as LWDP (see Figure 17), to produce high-quality remote learning in the institutions. The formulation of the framework was based on the philosophical theories and suggestions of the faculty on the improvement of remote learning in their areas. Furthermore, this framework consists of cognitive, affective, and technical components that will enable the successful implementation of remote learning.

4. Discussion

The results show a significant shift in education due to the pandemic, in which most educators transitioned to distance learning for the first time. The sudden shift toward traditional instructional approaches highlights the pandemic's significant impact on education. The evidence mentioned above is consistent with the findings of Selvaraj et al., (2021), suggesting that the sudden shift was mainly a response to the pandemic rather than a premeditated change. The results emphasize the urgent need for extensive support for educators, particularly those inexperienced in online education. This emphasizes the importance of educators collaborating and exchanging information to effectively address the difficulties posed by the online learning landscape.

The findings indicate that a significant number of educators see online teaching as enabling considerable flexibility, creativity, and accessibility. The results are consistent with the research conducted by Muller and Mildenberger (2021), reinforcing these advantages' significance. The researchers suggested that higher education institutions should enhance their programs by offering more flexibility in terms of time and place. This approach would contribute to the globalization of higher education, making it more accessible to a broader range of individuals. Nevertheless, it is important to recognize the elements of online education that have been given less attention, like student engagement, personalized education, and enhanced student-teacher interactions, which were not adequately recognized in the survey. The observed gaps may provide opportunities for enhancing the online modality to emulate the dynamic and interactive characteristics of traditional educational environments more effectively.

The results provide valuable insights into the complicated challenges faced by educators throughout the shift to remote learning. One of the major obstacles relates to the accessibility of learners to technologies. This problem could be attributed to inadequate facilities, such as poor internet connection or limited availability of necessary devices, which is particularly prevalent among poor households. The findings coincide with other research papers (Morgan, 2022) that suggest that the disadvantages of online education may have a greater impact on this particular group due to rising perceptions of social isolation and challenges with acquiring the necessary technological tools needed to conduct successful distance education.

Listed as the second major challenge, is the problem of teachers' access to technology. The sudden shift to remote learning resulted in a lack of preparedness among educators, who found themselves struggling with limited resources and having to quickly adapt their instructional materials and approaches to fit an online environment. Educators, particularly those living in remote areas or members of bigger families, often struggle to maintain reliable internet connectivity within their residences (Burgos, 2020; Hernando-Malipot, 2020; Jalli, 2020). Moreover, transforming tangible instructional materials into electronic formats suitable for remote learning is challenging. According to the research of Kulal and Nayak (2020), the success of online teaching has been considerably hampered due to technological challenges and inadequate training in the implementation of virtual learning environments. The previous observation underscores the need to establish complete support systems and resources for educators to augment their effectiveness of remote instructional methods.

Remote teaching is also an opportunity for teachers' professional development to cope with online learning since it is flexible and accessible to short courses. The result was shown in their response, suggesting that teachers need help to cope with online modality. Most respondents agreed that teachers could improve online learning by providing professional development for teachers and more free resources and tools from educational technology companies. According to Wang and Yu (2021), professional development is the key strategy to help teachers improve their teaching strategies in conducting online learning. For educators, it provides opportunities to be exposed to new ideas, cultivates teachers' abilities to reflect on previous experiences, think deeply, and collaborate, and educates teachers

to be exposed to new ideas. In addition, it is beneficial to the development of the beliefs and confidence of instructors, as well as the ability of teachers to improve their teaching practices (Philipsen et al., 2019).

The researchers also asked the respondents if online learning would become an integral part of the school system, and most of the respondents answered that online teaching would become part of school practices. Some of the respondents believed that hybrid learning would be implemented in the Philippines' educational system. The result is consistent with the results of Dziuban et al., (2018), who state that online learning will continue in the new normal. The findings presented here suggest that blending either maintains or expands access for the majority of student cohorts, and it also leads to improved success rates for students who are members of minority groups as well as students who are not members of minority groups. In addition, when students are asked to share their opinions regarding the efficiency of their respective learning settings, they consistently rate blended learning at the top of the list in the study of Dziuban et al., (2018).

Furthermore, as Norberg (2011) explains, blended learning has existed for some time. During the medieval era, textbook technology was introduced into the classroom, typically where the teacher read to the students from the sole existent manuscript. This was the beginning of the modality, which dates back at least to that period. Much like modern technologies, books fundamentally changed how education was delivered and received because they changed the paradigm.

Meanwhile, the overall perceptions of the respondents about distance education are between average and good ratings. This was supported by the findings of Kulal and Nayak (2020), which indicate that, on average, educators have a favorable opinion of using virtual teaching in the context of COVID-19 to close the achievement gap and influence the future of students during the crisis. Despite this, they found that teaching online presented them with several challenges, including technical challenges, issues with online tests and assessments, and other unprecedented challenges.

The majority of the respondent's perception of distance education (DE) is average, maybe because most of them use a synchronous type of DE. According to Fabriz et al., (2021), because of the quick impact of the COVID-19 epidemic, institutions faced the problem of providing students with online teaching and learning environments that were both immediately applicable and supportive of quality learning. Because of this, a diverse range of online learning and teaching environments emerged, both synchronous and asynchronous. Although some classes included elements of both types, others focused primarily on synchronous or asynchronous modes of instruction and learning.

Though there are challenges faced during remote teaching-learning, there is a good side. Most of the respondents spent 3 to 5 hours on average in distance education compared to the traditional way of teaching. Results show that distance education consumes less time, which could help create a work-life balance. The benefits of distance education were noted in some research papers, such as the fact that the contact hours for distance education are less than the face-to-face classes (Crouch, 2009; Phillips et al., 2016).

Moreover, the findings show that most respondents are moderately satisfied with the technology they are using. According to Akram et al., (2022), educators had generally positive opinions of integrating technology into teaching and learning methods. They feel that incorporating technology into instruction helps them improve the effectiveness of their instructional techniques, which in turn keeps learners engaged, makes the learning process dynamic and participatory, and makes learning more engaging. The primary obstacles in this study and the cited study are the difficulties that prevent teachers from effectively integrating ICT into their teaching practices, the poor internet speed, load shedding, a lack of infrastructure, online teaching experience, and training.

Likewise, the majority of the respondents are positive about the effectiveness of remote learning. According to Almahasees et al., (2021), the effectiveness of remote learning is inferior to that of learning and teaching in face-to-face classes. According to this study, the most challenging aspect of online education for both instructors and students is adjusting to the course format, particularly for students with special needs. Other difficulties include a lack of interaction and motivation, problems with technology and the internet, data privacy and security concerns, and so on.

In terms of the support from the school or university administration, it appears that teachers' perceptions of supportive leadership practices and cultural conditions in the workplace are more critical influencers on teachers' ability to engage in self-directed learning than teachers' assessments of the classroom environment itself. On the other hand, most respondents rate their co-workers as moderately helpful in online learning. According to Masoom (2021), physical amenities were considered the least significant component of organizational encouragement, whereas promoting positive conduct by avoiding conflict and guaranteeing justice was the most important aspect. Most respondents are moderately stressed in teaching remotely during the COVID-19 pandemic. These findings are consistent with Mosleh et al., (2022); under COVID-19, around 60% of participants reported feeling moderate stress while conducting online teaching.

In terms of teachers' experience in remote teaching, most respondents experienced somewhat worse teaching from home compared to teaching at school. According to Priyadarshani and Jesuiya (2021), teachers have difficulty leading online classes because they do not receive sufficient training or opportunities for professional development in this area. The most significant obstacles to online courses are those associated with technology and the network. Another factor that may infer why teachers experience somewhat worse is the environment. Also, most of the respondents rate their environment moderately well. Based on this response, their environment is poorly adapted to online learning.

According to Aschenberger et al., (2022), students reported higher levels of motivation and well-being. They reported lower stress levels in direct proportion to the degree to which they perceived that their physical learning environment catered to their requirements. A conducive environment enhanced their educational experience to a greater degree because they had access to a private and consistent learning environment that did not require them to coordinate their efforts with anyone else or share with others. This study contributes to the existing research on creating favorable learning environments for adult learners to engage in online learning supported by digital technology. This higher level of motivation can also lead to teachers' motivation.

However, despite some difficulties encountered, such as internet connectivity interruption and stress during remote teaching, most responded that online learning is moderately effective. Taja-on et al., (2021) indicate that online learning is equally effective as traditional classroom instruction, and students report feeling neither overly satisfied nor underwhelmed by the quality of their educational opportunities. In addition, students who have chosen to participate in online classes report a higher level of satisfaction with their educational experience than those who have chosen to participate in modular instruction.

5. Conclusion

The study highlights the pivotal role of remote learning in maintaining educational continuity throughout the COVID-19 pandemic, overcoming challenges like technological disparities, adapting teaching methods for online formats, and keeping students engaged. It also highlights the persistent challenge of maintaining student engagement in virtual classrooms. Moreover, it emphasizes that with strategic enhancements, remote learning could be permanently integrated into educational systems, enhancing accessibility and flexibility for learners in the Philippines and beyond.

To enhance the effectiveness and sustainability of remote learning in the Philippines, a multifaceted approach is recommended. This includes adopting a blended learning model that combines online instruction with offline resources and activities, catering to diverse learning styles, and addressing connectivity issues. Strengthening communication channels among teachers, students, and parents is crucial for providing feedback, addressing concerns, and fostering a sense of community. Developing localized and culturally relevant content can enhance engagement and make learning more meaningful for Filipino students. Prioritizing mental health support for both students and teachers is essential to address the challenges of isolation and stress in remote learning environments. Continuous evaluation and adaptation of strategies based on feedback from stakeholders will ensure that remote learning remains responsive to the evolving needs of learners. Leveraging existing educational resources, such as educational television programs and community learning centers, can supplement online instruction and provide additional support for students with limited access to technology. Investing in comprehensive teacher training on online pedagogy, technology integration, and student assessment is crucial for effective remote instruction. Finally, fostering a positive and supportive virtual learning environment that encourages interaction, collaboration, and peer support can mitigate feelings of isolation and enhance student engagement.

Acknowledgments

We would like to acknowledge the schools and organizations that participated in the study, as well as the management of the Technological University of the Philippines, for their help in the completion of the study.

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