

# Emergency Remote Teaching Scenarios, Struggles and Soundboxes: A Case Study on Malaysian Teachers

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**Abstract.** The shift to emergency remote teaching has created a ripple effect in education across the globe. Although efforts to mitigate the impacts of COVID-19 pandemic can be lauded, much remains unknown in terms of the challenges that teachers have gone through in fulfilling their roles during emergency remote teaching. The study is a necessary step to identify and determine how teachers articulate their perspectives as an educator during emergency remote teaching. A case study on a group of trained graduate teachers in Malaysia was conducted to investigate strategies and struggles they faced in the emergency remote teaching period through a survey and a thematic analysis of narratives they provided. Findings show that though respondents were equipped with pedagogical knowledge in integrating technology, they were unable to fully utilise what they have learned in their teacher training programme during emergency remote teaching due to lack of administrative support from school and poor infrastructure accessibility. Their narratives also suggested a pertinent need for future study to investigate the synergy between parents, schools and teachers in working cohesively to ensure learning is supported effectively at home and in school especially during emergency remote teaching.

**Keywords:** emergency remote teaching, teacher voices, teaching strategies, COVID-19 pandemic

## 1 Introduction

The sudden onslaught of the COVID-19 pandemic has not only disrupted the education ecosystem but ironically, it has also created countless opportunities for administrators, teachers, and students to explore unconventional strategies and methods to overcome issues which came about with the emergence of the outbreak globally. As reported by UNESCO [1], 1.5 billion learners are affected globally, due to school and university closures or partial closures. While agencies and governments have put effort to mitigate the pandemic's impact on education, the widening gap in access to proper education is alarming and many schools are hoping learning could happen by chance [2]. Such a situation is due to the fact that teachers are expected to instantly respond to the call for emergency remote teaching and the transition is shadowed by the perception that

technological tools could solve all problems. Hodges et al. [3] who introduced the term “Emergency Remote Teaching” postulated that emergency remote teaching should not be regarded as of the same value as online learning, distance learning or e-learning. To them, it is a temporary shift of instructional delivery to an alternate delivery mode due to crisis circumstances.

Numerous studies on emergency remote teaching focused on teachers’ readiness to cope with demands and challenges of the seemingly new mode of learning [4, 5, 6] particularly in the regions where online learning is vastly available only in predominantly urban areas. Trust and Whalen [4] in their survey on 325 K-12 teachers in the United States showed that many of the teachers (more than 60%) felt that they should have been trained to properly plan and implement necessary actions during emergency remote teaching. It was reported that teachers were unfamiliar with the instructional tools and methods being introduced during the pandemic period. Nae [7] in her review of school and university preparedness in Japan showed a similar pattern. Teachers were reported to have a low competency in conducting classes online as Japanese teachers were known to prefer face-to-face and hands-on teaching. She also pointed out that students in some parts of the country faced challenges to learn online due to limited access to the Internet and sufficient devices. It is worthy to note that these studies were focusing on teachers’ readiness in coping with emergency remote teaching and limited information was revealed about the instructional issues faced during the implementation of emergency remote teaching.

A more recent study by Giovannella, Passarelli and Donatella Persico [19], however, revealed insightful findings on how teachers in Italy coped with the closure of schools during lockdown. Their survey on 336 teachers showed that 92% of them were able to adapt to online education in less than two weeks. This transition time can be considered as fast as compared to the current scenarios in Southeast Asia. Giovannella et al.’s investigation also showed the importance of teacher education in digital pedagogy, which is one of the challenges faced by Malaysian teachers as they were predominantly trained to teach face-to-face due to the connectivity issue in many parts of Malaysia. Aliyyah et al. [20] who conducted a qualitative study on 67 primary school teachers in Indonesia revealed that teachers needed more time to adapt to the online learning adoption due to the lack of support and insufficient pedagogical knowledge on how to conduct classes remotely. They reported a heavy reliance on third-party resources such as videos on YouTube and photos of printed materials and sending them via WhatsApp chat app. They used these materials mainly for question and answer (Q&A) instead of teaching the students systematically. The prevalent problem of Internet accessibility is a key factor in stopping many teachers from being more enthusiastic about online or remote teaching.

Several studies have looked at technological intervention and how several types of tools would complement teaching and learning activities affected by the learning disruption [8, 9]. The concept of “just putting everything online” seems prevalent, to the extent that teachers reportedly became overwhelmed with the series of webinars, online demonstrations and product placements which feature multiple educational tools. This situation is expected since the need to shift the learning environment online may not be as straightforward as converting all resources to digital format. Nevertheless, as mentioned by Huang [10], online learning experiences are isolating and require high-level of intrinsic motivation and self-efficacy. Such a situation has

called for a more humanistic approach in identifying the hidden problems faced by the teachers when dealing with emergency remote teaching.

From an empathetic perspective, as reiterated by Bizkurt and Sharma [9], it would be crucial to listen to teachers' voices (or "soundboxes" of opinions) not mainly in terms of how they deliver educational contents successfully. A comparative study done by Reich et al. [11] compiled voices from 40 teachers who were interviewed on their coping strategies during the pandemic period. Their in-depth interviews identified three emerging themes. Firstly, the teachers struggled to motivate their students remotely. Secondly, the teachers mentioned professional loss and burnout as they no longer had the sense of their own efficacy and professional identity. Thirdly, the teachers observed a dramatic increase of societal inequities of students' lives, particularly the marginalised groups. These themes contribute to a scenario of how challenges faced by the teachers are not solely about their readiness to use technology for the purpose of emergency remote teaching. Teacher voices are a necessary tool to identify on-the-ground challenges and coping strategies which transpired because of the lockdown due to the pandemic. By understanding their struggles, it would provide significant insights on the necessary assistance, support and solutions that could be given to teachers. Research on emergency remote teaching has been mostly restricted to the heavy shift of reliance on technology during the remote teaching period. It is still unclear how teachers coped with limitations they faced in coping with the changes of instructional delivery, quality of instructional input, and the nature of interactivity with students when teaching remotely.

For context, the current study was designed to investigate in greater detail the causes of why teachers in the Sarawak state of Malaysia were not utilising technology during emergency remote teaching. Findings from an earlier unpublished research by the State Education Department in April 2020 gave indications about issues with poor administrative support, poor teacher-parental support and lack of computing and internet access being the key factors why teachers did not embrace technology-based instruction during emergency remote teaching. Both authors have access to the respondents in the current study, as they were once students in a Masters of Learning Sciences programme at a local university where both authors are currently teaching. Knowing the scope of training that all the respondents have gone through in the Masters programme, it was decided that investigating the issues and struggles of teachers who have had training to use technology-based instruction would provide a useful insight into reasons behind the poor use of technology among Sarawak teachers. It would also provide a snapshot of how teachers are coping since Sarawak is the largest state in Malaysia with more than forty ethnic groups and a dispersed population.

## 2 Method

At the point of writing, Malaysia, as a country, has undergone three waves of the Covid-19 outbreak. As schools were closed, reopened, and closed again, teachers throughout the country have had to cope with the resources they have at hand to provide school tasks for their home-bound students. The first lockdown (known as Movement Control Order) in Malaysia began from March 18, 2020 until March 31, 2020 but was subsequently extended until June 9, 2020 due to the increase of COVID-19 cases in the

country. The lockdown was partially lifted in certain economic areas after that and schools were allowed to resume operation gradually starting from June 24, 2020. During the lockdown period of about three months, all classes were conducted online but there was a lack of standardised procedures among the schools (particularly government schools) in implementing online learning. We are aware that there was also a disparity in terms of instructions given to schools at the district level. Thus, the method of this study was designed to gauge what the group of teachers, whom we knew, have experienced during this uncertain period.

An online survey was designed to capture experiences of fifty graduate trained teachers, all who have completed a master's degree in Learning Sciences in the past 10 years, and are currently teaching in urban, rural, and remote schools in Malaysia. The survey contained two parts: background information, and strategies and struggles. The second part included ten 4-point Likert scale items (1-Strongly Disagree, 2-Disagree, 3-Agree, 4-Strong Agree), three multiple-choice items and six open-ended questions for teachers to share their narratives about their experience in emergency remote teaching. In designing the constructs of the survey, we used:

- a. Technological Pedagogical Content Knowledge (TPACK) framework [12]
- b. Community of Inquiry (CoI) framework [13]

Both frameworks provided guidance to construct items to understand actual experiences that respondents went through, as they utilised technology as the primary means to teach remotely. TPACK serves as the reference point for items related to teacher's technological, pedagogical, and content knowledge while the CoI framework offers input for the items related to the teachers' efforts to create meaningful learning experience through social, cognitive, and teaching presence. Table 1 shows the mapping between the survey items and TPACK and CoI constructs.

**Table 1.** Mapping of survey items and constructs from TPACK and CoI frameworks

Section	Items	Constructs
Background Information	<ul style="list-style-type: none"> <li>● Name</li> <li>● Cohort they enrolled into in the Masters in Learning Sciences programme</li> <li>● Current place of teaching</li> <li>● Years of academic qualification</li> <li>● Highest academic qualification</li> </ul>	
Strategies and Struggles	<p>4-point Likert scale items: During this period, I am able to</p> <ul style="list-style-type: none"> <li>● design online activities for my students</li> <li>● reach out to my students</li> <li>● use online tools to reach out to my students</li> <li>● apply what I have learned during studies/training</li> <li>● redesign face-to-face teaching materials to fit the needs of the</li> </ul>	<p>Pedagogical Knowledge</p> <p>TPACK and CoI (Teaching Presence)</p> <p>TPK</p> <p>TPACK</p>

situation.	
<ul style="list-style-type: none"> <li>● find solutions to technical problems that I faced during online teaching.</li> </ul>	TPK
<ul style="list-style-type: none"> <li>● offer assistance to my peers when they face problems in online teaching</li> </ul>	PK and CoI (Social Presence)
<ul style="list-style-type: none"> <li>● provide advice to my school administrators in dealing with remote teaching</li> </ul>	
<ul style="list-style-type: none"> <li>● practise suitable strategies to increase student engagement</li> </ul>	TPK and CoI (Cognitive Presence)
<ul style="list-style-type: none"> <li>● participate in webinars that enhances my knowledge and skills on remote teaching</li> </ul>	
	TPACK
<b>Multiple-Choice Items</b>	
<ul style="list-style-type: none"> <li>● Which collaboration tools do you use the most? (You may choose more than 1)</li> </ul>	PK and CoI (Social Presence)
<ul style="list-style-type: none"> <li>● Which communication tools do you use the most? (You may choose more than 1)</li> </ul>	TK
<ul style="list-style-type: none"> <li>● How long does it take to plan for a remote lesson?</li> </ul>	PCK
<b>Open-Ended Questions</b>	
1. Please share the main strategies that you have used to teach during this period.	TPACK
2. How do you plan interaction with your students? (E.g., doing regular meet-up, setting interesting discussion topics, conducting real-time activities like quizzes, games, etc)	TPACK and CoI (Teaching Presence)
3. How do you assess learning success? (As in students participation, engagement, task completion, attendance, etc, which one do you assess as "learning success").	PCK
4. What are the challenges that you face during this period of emergency remote teaching?	PCK and CoI (Teaching Presence)
5. Do you collaborate with subject specialists? In the same school, other schools in same district, or other schools outside of district?	TPACK and CoI (Social presence)
6. Are there any interesting stories that you would like to share with us during your experience in emergency remote teaching so far?	CoI (Cognitive and Social Presence)

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The selection of respondents in the study was driven by a need to understand if these trained Learning Science graduate teachers were able to cope and adapt with Emergency Remote Teaching. In the Master's programme that they attended, they learned pedagogical knowledge and skills (TPACK) which directly relate to technology advancements. Both authors taught all the respondents in the programme and are responsible for most curriculum design and development decisions for the programme. Choosing to investigate the coping and adaptation strategies used by these former students was a deliberate attempt to understand how the graduate teachers utilised their training into action, in a time where technology becomes a necessary instructional delivery platform.

The survey was disseminated from 25 May 2020 until 12 June 2020 (three weeks), about two months after lockdown was imposed in the country. Out of 140 graduates from the Master's programme, who are currently teaching in public and private schools in the country, a total of 52 responses (37%) were collected but two were excluded from further analysis as more than half of the items were not completed. The final number of respondents stood at 50 (36%). 80% of the respondents (n=40) teach in public schools while twenty percent (n=10) teach in private/independent schools and colleges. Table 2 illustrates the respondents' years of teaching experience.

**Table 2.** Teaching experience

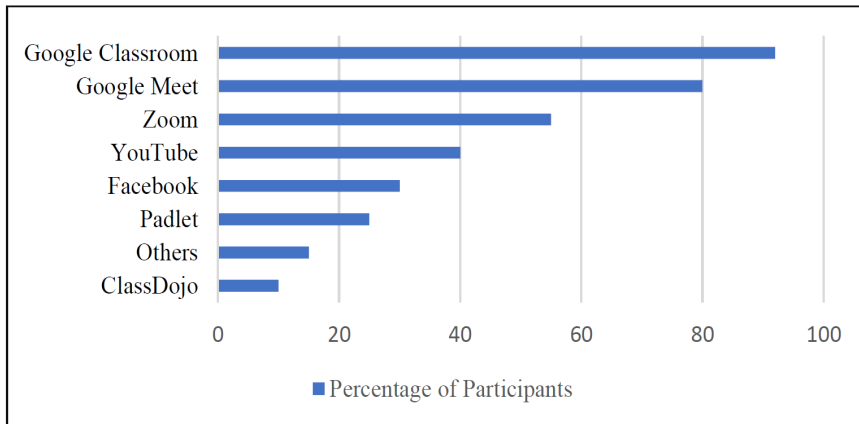
<b>Years of Teaching</b>	<b>Number</b>	<b>Percentage</b>
1 to 3 years	6	12%
4 to 6 years	10	20%
7 to 9 years	17	34%
10 to 12 years	8	16%
12 to 15 years	5	10%
More than 15 years	4	8%

The data from the close-ended items were analysed using descriptive statistics while the open-ended items were qualitatively analysed through thematic analysis [14]. The interpretation of the data was done through member checking [15] to ensure reliability and validity of the themes identified through the analysis. Coding was done by both authors of this paper. Member checking was done by sending back the first draft of thematic analysis back to the respondents. As the respondents knew both authors, feedback was sought immediately through emails, phone calls and text messages. The feedback was incorporated to refine the analysis of data. The methodological approach employed for content analysis was grounded theory, as themes were first derived from the data, and based on personal interactions with the respondents of the study, who were students of both authors.

In terms of limitations, we acknowledge the small sample size as well as the convenient sampling technique used in the study. Although the numbers may not be representative of the whole population (N=140), yet the findings of the study serve as a useful indicator of actual instructional issues faced by trained teachers who have learned about using technology for teaching.

### 3 Results and Discussion

All respondents were deliberately involved in emergency remote teaching from the beginning of April 2020. As countries around the world faced lockdowns, schools in Malaysia were also closed. Teachers in public schools were asked to use Google Classroom, a platform which was prescribed by the Education Ministry, a year before the pandemic happened. The uptake to use Google Classroom was pedantic before the pandemic, and it slowly picked up speed as school administrators began to impose its use. Those who were teaching in private schools, in contrast, were quickly shifting their instructional delivery online. Most respondents reported the push from their school administrators and parents which made them embrace online teaching almost immediately as when the announcement of school closures was made. Fig. 1 shows the tools that the respondents used the most during emergency remote teaching. These tools were introduced to them when they were in the Master's programme; hence it was expected that the respondents would be familiar with their features and functions.



**Fig. 1.** Most used teaching tools during emergency remote teaching

Many of the respondents used Google Classroom (92%, n=46) and Google Meet (80%, n=40%) to conduct their emergency remote teaching. The trend was somehow expected as these two tools were endorsed by the Ministry of Education, Malaysia as the primary platform for Malaysian schools. The respondents have been exposed to Google Classroom and Google Meet beginning late 2019 as a nationwide strategy to adopt flipped learning approach as part of the 21<sup>st</sup> century learning blueprint but not it was not compulsory to use it. Other popular tools used were Zoom (55%, n=28) and YouTube (40%, n=20). The reported usage also shows the respondents' tendency to opt for synchronous teaching such as live class via Google Meet or Zoom. The respondents also listed other tools, where they included the use of Kahoot, Quizziz, Flipgrid and Microsoft Teams. These tools, however, were not as widely used among the respondents.

In terms of time spent to prepare a lesson of about 35 to 45 minutes (including materials), 42% of them (n=22) indicated less than 24 hours, 38% (n=20) indicated 1 to 3 days, 14% (n=7) indicated a week while the remaining 6% (n=3) indicated more than a week. The finding is an eye-opener as despite the widely accepted notion that teachers were not ready for remote teaching, they were mostly spending between one to three days to prepare for a 35-40 minute lesson. From another perspective, the teachers could be rushing to convert their materials online, to comply with what was required by their school administrators, akin to the famous saying “building the plane while flying it”.

The survey had also asked about the teaching activities during the lockdown phase in the country, in which teachers were instructed to conduct emergency remote teaching. Table 3 shows their level of agreement to the given list of teaching activities. Mean scores that are higher than 3.00 signify a high level of agreement.

**Table 3.** Level of agreement on listed teaching activities

<b>During this period, I am able to:</b>	<b>Mean Score</b>	<b>Standard Deviation</b>
design online activities for my students	3.42	1.15
reach out to my students	2.76	0.76
use online tools to reach out to my students	3.44	0.58
apply what I have learned during studies/training	3.20	0.87
redesign face-to-face teaching materials to fit the needs of the situation.	3.06	0.62
find solutions to technical problems that I faced during online teaching.	2.86	1.32
offer assistance to my peers when they face problems in online teaching	3.16	1.12
provide advice to my school administrators in dealing with remote teaching	2.20	0.92
practise suitable strategies to increase student engagements	3.28	0.80
participate in webinars that enhances my knowledge and skills on remote teaching	3.60	1.56

The strongest points which were reported were their ability to design online activities (mean = 3.42) and ability to use online tools to reach out to their students (mean = 3.44). These aspects represent their competence and confidence to initiate instructional strategies which require the integration of technology. It represents “technological pedagogical knowledge” in the TPACK model, which classifies the ability to use technology tools to deliver purposeful instructions. These aspects of teaching competence also correlated with narratives collected in the open-ended items in the same survey. As one of the respondents described:

*“[I was able to] look at my f2f activity and use appropriate apps/tools/approaches to convert these activities to the online platform.”- Participant X*



The respondents also scored high in items which focused on ability to use relevant strategies to increase learning engagement (mean = 3.28). The score also represented their TPACK ability, which denote competency in matching content, pedagogical strategies, and technology tools to achieve an instructional goal. Feedback from the respondents also illustrated the same sentiment:

*“[I am able to] provide guideline[s] (questions) to scaffold students’ [comprehension] in the reading.” – Participant Y*

*“ [I teach at an] elementary school, [so I] prepared a project based learning that integrated more than one subject. [for example, I] combined English + Maths [in one project assignment].” – Participant P*

All respondents of the study are graduates from a Master’s programme in Learning Sciences. In the full-time two-year coursework Master’s programme, they have had exposure and training in integrating technology for classroom use. It indirectly reflects the impact of the programme on their competency in using relevant pedagogical and technological intervention in coping with the demands of emergency remote teaching. Flipped Learning, for example, was frequently mentioned in their narratives. It is an approach that was also taught in the Master’s programme they attended. The respondents described how it was timely for them to put their knowledge of Flipped Learning into practice what they have learned (mean=3.20) as mentioned by Participant A:

*“Flipped learning for sure, since we can't meet face-to-face, I did several videos as well as curate some.” – Participant A*

The respondents also reported how they were able to redesign face-to-face teaching materials to fit the needs of emergency remote teaching (mean=3.06) particularly by considering the situation of the learners as pointed by Participant L and Participant O. Having such consideration shows teachers are integrating their pedagogical and technological knowledge to address a learning needs as reflected in the TPACK model.

*“I try to understand the student’s level of Internet connectivity first then I decide what is the best way to reach out to them in terms of content.” – Participant L*

*“I produced self-recorded videos [for teaching] and some [video materials] I get them from online resources. My videos are short so that students can load them faster”. – Participant S*

In terms of the creating cognitive, social, and teaching presence (constructs of Community of Inquiry framework), the respondents’ articulation of their willingness to offer assistance to their peers when they face problems in online teaching (mean=3.16) is a positive indicator of collaboration between peers. Besides, the respondents also reported that they were actively participating in webinars to enhance their knowledge and skills on remote teaching (mean=3.60) while engaging in virtual mentoring and

knowledge sharing. One participant even specifically mentioned the initiative done at the school to create the community of practice among them:

*“Yes, I collaborate with subject specialists at my school. We have a community of practice page on Canvas (learning management system) where we share and discuss about any challenges we have, share course syllabus among each other, and biweekly check-in meeting on Zoom.”. – Participant M*

The awareness to form a healthy sharing of knowledge and expertise among the teachers seem encouraging. However, most of them did not provide advice to school administrators in dealing with remote teaching (mean=2.20). They might think that the administrators have received directives from the Ministry of Education, and they were not in the appropriate position to offer any further advice. One participant mentioned how the teachers would normally follow instructions given from the administrators and try to adapt although sometimes the instructions may be unclear.

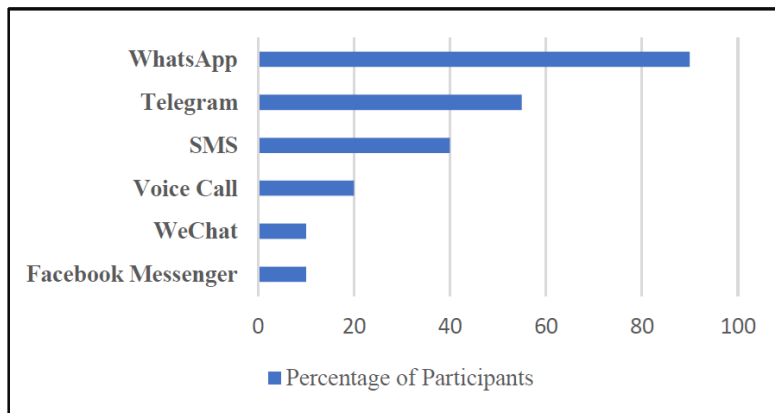
*“[What is challenging during this period is] the issue of support from various parties especially from top (the administrators), even the directive was unclear to a certain extent”. – Participant E*

On the other hand, the narrative analysis illustrated how technology access played a dominantly discouraging role in enabling emergency remote teaching. The respondents described how instructional problems were caused by network accessibility issues faced by both teachers and students, especially those teaching in rural or remote areas where Internet availability is limited. It has disabled effort to reach out to their students effectively (mean=2.76). Some of the feedback from the respondents described:

*“Initially, I tried devising discussions and collaborative activities using Google Classroom but many students had limited data or intermittent internet connection” – Participant C*

*“[The students have] poor Internet connection and accessibility to the communication tools as learning medium” – Participant B*

In relation to the issue of Internet connectivity, the respondents were also asked to list the communication tools that they used the most when reaching out to the students as shown in Fig. 2. 90% (n=45) of them indicated WhatsApp while 55% (n=28) mentioned they used Telegram as the means to communicate with their students. Both applications are simple, secure, and reliable; they run on a minimal data requirement, making them a forerunner choice among Malaysian teachers. 40% (n=20) respondents said they also used Short Message Service (SMS) texts to communicate with their students. 20% (n=10) had also used direct voice calls while WeChat and Facebook Messenger were used by 10% (n=5%) of the respondents respectively. The respondents were clearly relying on WhatsApp and Telegram as the main medium of communication, largely due the low bandwidth requirement to run both applications.



**Fig 2.** Most used communication tool during emergency remote teaching

Responses from Participant D and Participant G echoed this situation.

*“Most of the students are reachable on WhatsApp since it is accessible even in areas with only 2G” – Participant D*

*“Setting discussion in WhatsApp group three times per week because it is easier for the students to respond to me without high-speed Internet” – Participant G*

The main teaching and communication tools mentioned by the teachers were similar to those reported by Aliyyah et al. [20], signalling the same obstacle faced by teachers in Indonesia due to geographical constraints. As opposed to the findings reported by Nae [7] and Giovannella [19], most of teachers in study struggled to make the transition to online teaching and took them longer than expected to adjust to the “new way” of delivering of lessons. On the bright side, peer support seems to be strong in which teachers are co-organising webinars to assist each other in coping with the sudden change. The findings of this study also indicated a high level of agreement on the teachers’ willingness to assist their peers. This seems to encourage those who were reluctant at first to begin learning new tools for teaching. The benefit of such mentoring system is that teachers are more willing to open up their lack of skills and seek help. As reported by Flores and Gago [23] about the situation in Portugal, even novice teachers find it hard to cope with remote teaching and any form of support from peers or mentors would help ease the pressure.

In summary, the remote teaching experience has affected the nature of instructional delivery for teachers. From the survey, we conclude that there are phases within a typical instructional process that have had to be compromised, either by choice, chance, or competence. The narrative analysis sharply suggested the lack of internet access being the “*numero uno*” culprit in the provision of learning throughout the emergency remote teaching experience.

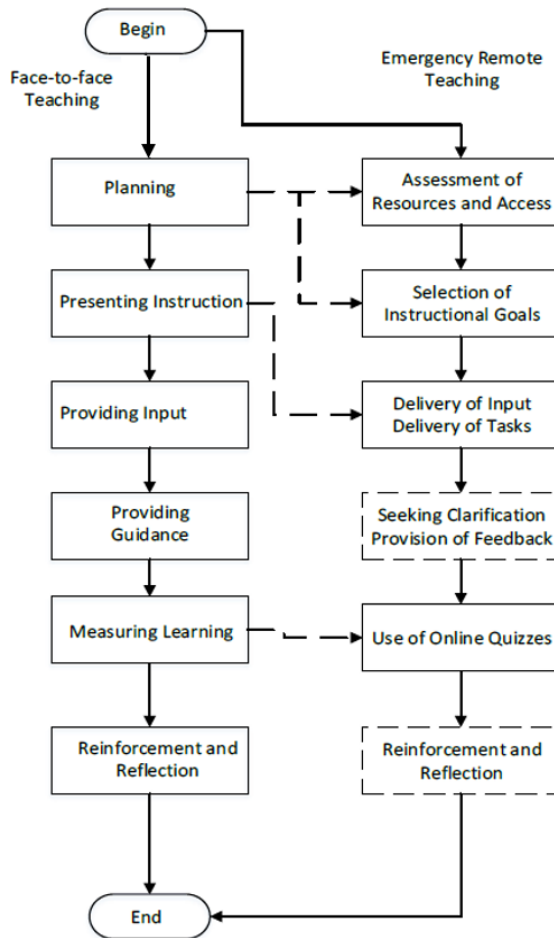
To understand how the respondents’ instructional planning and delivery were affected throughout the lockdown period, we illustrate the instructional gaps in Fig. 3,

to denote the phases which were implemented to their best ability during emergency remote teaching. The constituents within the reference framework (Fig. 3) represent commonly used instructional phases which would take place in a lesson. In the planning stage, a teacher would typically identify the topic and syllabus to use, and to create learning activities which would provide comprehensible input. The findings from the study revealed how the respondents, despite struggling with emergency remote teaching, were still able to implement several solutions based on their pedagogical and technological knowledge that they have. In the emergency remote teaching situation, the teachers were able to articulate evidence of their efforts in assessing resources and access (particularly network access) as well as selection of instructional goals. These two steps correspond to the planning phase in face-to-face teaching but were more challenging in terms of determining access levels as in most cases it could be affected by extraneous factors.

In emergency remote teaching, the planning stage is largely focused on searching for resources which would be plausible to be shared through technology-based platforms available for both students and teachers. While the teachers are familiar with the textbook materials, during emergency remote teaching, they spent time looking for resources on platforms like YouTube and Vimeo that would provide comprehensive input for their students. While planning for a lesson, the teachers would determine the learning goals, to match the resources they could find and disseminate. Unlike when teaching in a physical class, teachers would typically present readily available hardcopy materials, and provide lesson input and guidance. During emergency remote teaching, lesson input is not a priority. Rather, the focus was on providing tasks for students to undertake, so they would be able to physically work on a lesson on their own time. Due to the lack of internet access, a typical lesson material is reduced to the minimum, so students would only have to work on a fraction of a typical lesson. The decision to reduce the amount of content input was led by the lack of computing and network access, as most families were reported to have limited hardware and data access from their homes.

Subsequently, the delivery of input and delivery of tasks during emergency remote teaching go beyond just a difference in mode of delivery. The shift to online platforms also includes the need to consider learners' prior knowledge on technological use, which in turn influences the teachers' ways of delivering the input and tasks. What is visibly missing in the data gathered is the teachers' efforts to seek clarification as well as setting the provision of feedback. The lack of these two steps has resulted in many scenarios where teachers were merely "dumping" contents through various platforms (e.g., Google Classroom, WhatsApp Group, or Telegram Group).

In every learning session, the measurement of learning is designed into the lesson to provide an indication of growth. Fig 3 illustrates how the measurement of learning was done through the use of online quizzes. In a typical physical lesson in a classroom, teachers could use a variety of assessments which would be selected based on students' responses and interaction. With the lack of live interaction in remote classrooms, respondents of the study reported that they have used quizzes they found online, to establish assessment into the learning experience.



**Fig 3.** Parallel comparison of instructional phases implemented by respondents

Another notable gap is the absence of reinforcement and reflection which are common in face-to-face teaching. Many respondents reported that they were not able to provide reinforcement and reflection after the quizzes. Such phenomenon is largely caused by the minimal interaction between teachers and their students. Quality of comprehension may have been compromised; however, teachers who opted to use online quizzes relied on the prompts provided through the quizzes as a way to provide immediate feedback.

The final section in the survey required the respondents to share personal stories related to their own experiences during emergency remote teaching. Most of the stories shared were positive, indicating satisfaction they sought in putting their knowledge about online learning to practice.

*“I get to put my knowledge on online learning into practice as my school is still used to face to face teaching.” – Participant D*

*“It makes me feel proud of my past experience as Learning Sciences student.” – Participant F*

*“Happy to see every teacher/academician/instructor use online learning in their teaching & learning process. So no more ‘alasan’ (excuses) the gov didn’t provide sufficient facilities at school. Now everyone berusaha sendiri (has to work hard).” – Participant H*

*“I was happy that during MCO (lockdown) I get to join so many trainings. I could not have joined during other time. Learned so much.” – Participant J*

*“During this MCO, I joined A LOT OF webinar organized by (Digital Classroom, ARUS Academy, SGM and CGC) that helped me to find ideas to make my class interesting and how to engage my students. I satisfied my 7-days’ course/workshop required by KPM.” – Participant M*

One participant also shared about the changes in students’ disposition when transitioning to online learning.

*“Students who are known to be talkative in f2f classes are surprisingly quiet in online classes. And people prefer to type their questions (rather) than simply asking using mic and/or video.” – Participant B*

In sum, the respondents were notably excited to test all possible means to meet the demands of emergency remote teaching despite struggling to cope in the initial stage of emergency remote teaching. The solutions devised by the respondents are reflective of their ability to transform what they have learned into plausible means to solve problems that they faced during this period although there was limited support from the administrators. As expected from the contents of their training in the Masters of Learning Sciences programme, traces of their application of TPACK and CoI constructs in their emergency remote teaching experience are noticeable from their responses, especially in the narratives they had shared.

## **4 Conclusion and Future Work**

Although this study was conducted at a small scale, the findings have unveiled individual efforts and struggles they had faced, to cope with emergency remote teaching. One of the main struggles is how the respondents are going the extra mile to design lessons that are reachable by learners who are now in various learning environments at home, which may not be conducive for learning. In the context of Malaysia (similar to its neighbouring country, Indonesia [20]), most families still depend on schools in providing an appropriate space for learning and with diverse

backgrounds, it is a challenge for teachers to cope. Another notable struggle gathered from this study is getting the support from the parents. There is widespread concern that teachers are not able to function at their best due to the lack of support from the parents. Conversely, there are also parents who are frustrated by the inability of some teachers to deliver online lessons effectively. Therefore, it is worthy to investigate the juxtaposition of values, as parents' readiness to support learning from home could be a contributing factor to teachers' motivation to continue teaching remotely [21, 22].

The responses given by the respondents of this study could initiate a deeper and larger investigation on strategizing relevant interventions to assist the teachers during crises, not only exclusive to the COVID-19 pandemic. Although the key issue quoted by almost all teachers was the limited computing and internet access, other fundamental issues such as teacher readiness, teacher knowledge (TPACK) and competencies to be resilient educators amidst any crises, should be addressed in a more systematic manner. Findings from this study resonates with other studies [16, 17, 18] that have reported on Internet coverage as a hindrance to teachers' ability to fully engage the students. A nationwide survey on the disparity between urban and rural schools in terms of the implementation of remote teaching should be conducted in the near future to assess aspects in which support could be provided for teachers. Future investigations could also include scope of parental support and educational level as key variables in understanding the relationship between home learning environment and overall educational experience in remote learning.

As the world shifts focus on making sure "no child is left behind", it is necessary for relevant authorities to invest time and effort to understand on-the-ground issues faced by teachers, parents, and students. Equity in education would only happen when access is provided. As the global education movements chant the call for nurturing "future-ready students", teachers too, have to be "future-ready" by equipping themselves with necessary skills and knowledge to thrive during emergency remote teaching.

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