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Meta-Teaching for Engaging Parents during Remote Learning Crises: A Mixed Methods Study

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Abstract. The global pandemic compelled educational institutions worldwide to transition to emergency remote teaching as an immediate response to unprecedented challenges. More recently, climate-induced disruptions, such as extreme heat indices experienced in some Asian countries, have prompted a shift back to emergency remote teaching, highlighting the need for innovative pedagogical approaches. These situations called for extensive pedagogical expertise from teachers through meta-teaching practices that integrate instructional interventions with parental involvement. To bridge the gap, this study sought to investigate the strategies used by teachers to involve parents during the COVID-19 pandemic and establish the nuances of the quantitative findings through interviews. Using an explanatory sequential mixed methods design, the research first gathered quantitative data from 793 in-service teachers, followed by interviews with selected participants to

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collect qualitative data. The quantitative data were analysed through descriptive and inferential statistics. First and second cycle coding were done to refine the qualitative data. Findings revealed that teachers most frequently involved parents as facilitators of learning, followed by involving them as collaborators and sources of information. No significant differences in strategy use were observed across teacher profiles such as age, sex, educational background, and school affiliation. Insights from the qualitative data further revealed the barriers teachers face—including parents limited educational background and competing household responsibilities—as well as the innovative strategies teachers employed to navigate these challenges. The study underscores meta-teaching as a critical framework for equipping teachers with adaptive and reflective strategies to sustain home-school collaboration during crises.

Keywords: emergency remote teaching; parental involvement; meta-teaching; pedagogical resilience; sequential explanatory

1. Introduction

The widespread closure of educational institutions, beginning in March 2020 in response to the COVID-19 pandemic, posed a critical challenge to the academic sector (Adedoyin & Soykan, 2020; Waseem et al., 2020). By April 2020, this unprecedented disruption had affected over one billion students across all levels of education, prompting an immediate shift to online learning platforms regardless of demographic factors such as age, socio-economic status, cultural background, or geographical location (UNESCO, 2020). This sudden transition placed immense pressure on school leaders, parents, guardians, the broader community, and—most importantly—the teachers (Misirli & Ergulec, 2021). Teachers were required to navigate mechanisms that ensured learning continuity amid widescale lockdowns, including developing new forms of home and school partnerships.

The call for increased parental involvement became critical, as young children grew more reliant on their parents and other at-home caregivers to engage in online learning environment during the pandemic (Lau, Li & Lee, 2021). Research conducted during the COVID-19 lockdown revealed heightened stress among parents, who faced novel challenges in supporting their children's education compared to pre-pandemic times (Spinelli et al., 2020). For example, many parents believed that their routines were altered (Pew Research Center, 2020b), jobs were compromised (Pew Research Center 2020a), and burnout was felt (Griffith, 2020).

Despite these obstacles, parental involvement in education has consistently been shown to positively affect student outcomes (Epstein, 2018b). The shift to remote teaching necessitated by the pandemic has further underscored the importance of parents' role in facilitating successful learning experiences (Raguindin et al., 2021). Therefore, parents must receive adequate support from teachers during this transition to enhance success in a post-pandemic educational landscape.

The rapid shift to remote learning introduced significant challenges to fostering parental involvement—an element overlooked in traditional pedagogical frameworks (Whittle et al., 2020; Haisraeli & Fogiel-Bijaoui, 2021; Raguindin et al., 2021b). In this context, the necessity to explore more robust approaches for fostering parental involvement during remote instruction has taken on greater significance. Educators were compelled to proactively engage parents, guiding them in supporting their children's learning and ensuring the achievement of academic objectives amidst the obstacles posed by virtual classrooms, especially during emergencies (Raguindin, et al., 2021).

The extended school closures during the pandemic highlighted the importance of flexible and resilient educational models and exposed critical gaps in home-school collaborations, particularly in terms of parental involvement. As families took on instructional roles, the success of remote teaching became increasingly dependent on how well teachers could guide and engage parents in their child's education. Experience shows that sustainable education during periods of disruption depends not only on strong infrastructure but also on pedagogical models that place parental involvement at its core. In the process of recovery and rebuilding, education systems must reframe parental involvement as central—rather than supplementary—to crisis-resilient teaching. This need becomes even more crucial in light of new disruptions—such as climate-related school closures—that will continue to challenge educational continuity worldwide.

Although lockdowns due to COVID-19 have loosened up, education systems worldwide continue to face disruptions. The World Bank (World Bank Group, 2024) reported that since 2022, approximately 400 million students have been affected by school closures, not due to a pandemic, but because of extreme heat waves exacerbated by climate change. This time, schools were forced to close due to extremely high heat indices. The need to implement Emergency Remote Teaching (ERT) as a response to yet another health risk is once again necessitated, highlighting the urgency of resilient and adaptable pedagogical models that can sustain learning during crises.

The Philippines recently recorded its highest temperature in over a century – a staggering temperature of 38.8 degrees Celsius, recorded on April 27, 2024, forcing schools to shut down and abruptly transition to online learning (Rojas, 2024). Additionally, a news report by Aggarwal (2024) for NBC News highlighted how heat waves affected large numbers of schoolchildren in Bangladesh, Cambodia, and India, as these countries grappled with extremely high temperatures. Abrupt shifts to online classes further widen learning gaps, particularly affecting children in developing countries. Although pandemic-induced school closures have subsided, climate-induced disruptions have emerged as a growing concern, further underscoring the necessity for adaptable and resilient pedagogical frameworks like meta-teaching.

Meta-teaching, referred to as meta-pedagogy, is “teaching about teaching.” It is a comprehensive process of planning and implementing teaching even amid challenging teaching contexts and weak systems. Meta-teaching equips educators with the skills to navigate crises by fostering pedagogical adaptability, reflective

practice, and decision-making strategies (Chen, 2013). Meta-teaching draws on a teacher's capacity for effective decision-making, which involves an approach to pedagogy anchored in theoretical principles and pedagogical reasoning (Wright, 2022). However, a teacher's digital agency is not the only factor to consider during online teaching and learning setups. Meta-teaching also supports teachers in navigating nuanced and diverse teaching and learning scenarios (Chen, 2013; Mifsud, 2022).

Beyond enhancing instructional adaptability, meta-teaching not only enables teachers to refine their instructional practices but also fosters the development of students' metacognitive skills (Richmond, 2014). By examining how their strategies influence learning outcomes, teachers can make informed adjustments to better support student growth (Surat et al., 2016). These adjustments, including strategies to enhance parental involvement, play an important role in bridging learning gaps and fostering student success (LaRoque et al., 2011; Lambert, 2022; Coleman, 2024).

During the pandemic, teachers were compelled to reconsider their methods of involving parents in the learning process. Passive involvement transformed into active partnership, as parents became co-teachers during ERT. This transition was neither seamless nor universally effective. Through meta-teaching, by engaging in deliberate decision-making, reflecting on practices, and adapting to emerging challenges, educators discovered methods to facilitate learning even amidst crises. Enhancing parental involvement became more than essential – it evolved into a strategic component of instruction. According to Chen (2013), educators who engage in reflection and adapt to evolving environments consistently enhance their work.

1.1 Emergency Remote Teaching

The first quarter of 2020 brought COVID-19 to the forefront of global systems and processes. The pandemic in general had an overwhelming impact on the implementation of school curricula and posed enormous challenges to stakeholders (Whittle et al., 2020a), necessitating the implementation of ERT – an improvised solution and a temporary instructional shift designed to sustain learning during crises. Unlike traditional online learning, which is deliberately designed and implemented over time, ERT is a reactive, crisis-driven approach that is implemented under constrained resources and limited planning (Hodges et al., 2020; Whittle et al., 2020a). By description, ERT is implemented with limited resources and minimal planning; in contrast, conventional online instruction is pre-planned and comprehensively executed (Hodges et al., 2020).

ERT was first implemented during the pandemic to address the need for social distancing to mitigate the spread of the corona virus. At present, ERT is implemented when schools are caught in conflict or during extreme earthquakes, floods, and other natural disasters. During ERT, instruction is delivered through various media, including video conferencing, radio broadcasts, and mobile applications. However, these methods are often constrained by technological access and digital literacy. Once crises subside, face-to-face instruction typically resumes (Hodges et al., 2020; Whittle et al., 2020a; Raguindin et al., 2021).

The sudden shift from the traditional classroom to remote instruction took place almost overnight during the pandemic (Kruszewska et al., 2020). The detrimental effects resulting from the shift must be mitigated effectively to achieve academic goals. There is an imperative to revisit pedagogies that support learners' self-directed learning and motivation for learning as modes of implementing school curricula were altered during ERT (Karal & Kokoc, 2013). One promising course of action is to convey to parents and guardians the importance of their involvement in pedagogical issues brought about by unprecedented changes in the way students learn. This could even prove instrumental in reducing students' anxiety levels, which have been heightened by these changes (Adedoyin & Soykan, 2020).

1.2 Parental Involvement

The abrupt implementation of remote instruction during the COVID-19 pandemic thrust educational stakeholders into an unfamiliar terrain. The changes required of schools involved struggles, frustrations, and disappointments. For example, many parents struggled with technological barriers, the challenge of balancing work and home responsibilities, and a lack of prior experience in guiding structured learning at home (Haisraeli & Fogiel-Bijaoui, 2021; Hargreaves & Fullan, 2012; Wolthuis et al., 2020). Despite these obstacles, parental involvement became a critical factor in ensuring that students meet learning outcomes, compelling educators to develop strategies for engaging parents in remote learning.

Decades of research highlight the critical role of parental involvement in student success. The foundational work of Bronfenbrenner (1979) emphasizes how a child's development is shaped by their interactions within their immediate environment, including family-school relationships. The same idea is also evident in the work of Epstein (2018a), who proposed a framework for understanding school-based parental involvement. According to Epstein (1987), parental involvement provides support for the psychological and academic needs of children, and that the overlapping support of families, schools, and communities ensures the achievement of outcomes (Epstein, 2018a). In a crisis-driven learning environment like ERT, these longstanding theories become even more relevant, necessitating a structured home-school partnership to mitigate learning disruptions.

The foundational work of Bronfenbrenner is also a reminder that child development does not occur in isolation but is shaped by and nested in interconnected systems, such as family and schools (Bronfenbrenner, 1979). Epstein builds on this by showing how intentional partnership between schools and families can directly support learning. While Bronfenbrenner (1979) explains the context of influence, Epstein (1987) outlines how that influence can be harnessed through parental involvement. Together, the frameworks highlight strong school and home connections, especially during times of crisis.

Drawing inspiration from Bronfenbrenner (1979) and Epstein (1987), this paper argues that involving parents in exceptional times like the COVID-19 pandemic brings significant benefits to stakeholders. The involvement of parents should not

be taken for granted, and factors that increase their involvement should be explored and understood (Levy, 2023). The model developed by Raguindin et al. (2021) guided the theoretical premise of this study, which claims that parents should be involved as facilitators of learning, sources of information, and collaborators. The typology used in the model encapsulated the six (6) dimensions of the work of Epstein (1987). Like any model that highlights the importance of parental involvement (Acevedo-Gil, 2016; Bronfenbrenner, 1977; Castro et al., 2015; Deng et al., 2018; Eccles & Harold, 1996; Epstein, 1987; Hampden-Thompson & Galindo, 2017; Hartas, 2015; Hirsto, 2010; Hornby & Blackwell, 2018; Ihmeideh et al., 2018; Kim & Sheridan, 2015; Lau et al., 2012; Mo & Singh, 2008; Mulder, 2014; Punter et al., 2016; Wilder, 2014), Raguindin et al.'s model emphasizes strategies for parental involvement that encourage monitoring, support, encouragement, advocacy, intentions, and collaboration.

1.3 Meta-teaching as a Pedagogical Framework

Meta-teaching is a dynamic pedagogical framework that equips teachers with the adaptability and resilience needed to function in unpredictable and complex situations. As a construct, it emphasizes instructional adjustments, reflective practices, and situational awareness that allow educators to adjust their teaching methods in real time (Chen, 2013; Richmond, 2014). Meta-teaching is closely related to reflective teaching, because they are centered on improving instructional practice, require a high-level of self-awareness, and involve critical thinking and adaptability. However, they differ in focus, scope, and intent. For instance, meta-teaching occurs before and during instruction, while reflective teaching happens after instruction. Moreover, meta-teaching includes planning, decision-making, delivery, and assessment of teaching itself, while reflective teaching focuses on introspection of specific lesson experiences to inform future instruction. It should be noted that the global pandemic and the ensuing move to ERT have necessitated that teachers make real-time adjustments to improve learning outcomes. By incorporating parents as active learning partners, educators were able to mitigate learning loss and create more resilient learning experiences for students.

At its core, meta-teaching draws from metacognition—thinking about one's thinking—by applying this cognitive regulation to the domain of instruction. It fosters three essential teaching competencies: reflection, responsiveness, and collaboration. Through continuous self-evaluation, teachers assess the effectiveness of their pedagogical decisions. It is also grounded in constructivist theories of learning, particularly Vygotsky's, which emphasize the teacher's role as a facilitator who scaffolds instructional choices based on students' needs and abilities. This study highlights how teachers utilized meta-teaching strategies to transform parents from passive supporters into active and dynamic co-teaching partners, where they served as facilitators, sources of information, and collaborators. Meta-teaching thus offers a future-ready framework that equips teachers with skills such as situational awareness and critical reflection. This allows teachers to remain proactive and solution-oriented in an ever-changing educational landscape (Chen, 2013; Misfud, 2022; Epstein, 2018).

1.4 The Study

Parental participation in education and student academic performance has been the subject of much prior study (Epstein, 2018; Bronfenbrenner, 1979). However, the majority of these studies overlooked the specific challenges posed by ERT, focusing instead on conventional classroom settings (Misirli & Ergulec, 2021). During the pandemic, research centered on assessing parental stress, their involvement in virtual learning environments, and the support they provided for learning at home (Spinelli et al. 2020; Lau et al. 2021). Despite efforts to lessen the difficulties associated with distance learning, it is still unclear what strategies teachers should employ to effectively involve parents in educational activities that foster learning. In a similar vein, although meta-teaching has been acknowledged as an essential skill for educators (Chen 2013), little research has examined its role in guiding teachers' engagement with parents during crises. Given these gaps, this study seeks to bridge them by investigating how educators strategically engaged parents in supporting learning continuity through meta-teaching practices during ERT.

This paper aimed to establish a deeper understanding of the intricacies of parental involvement, paving the way for more effective strategies that strengthen home and school relationships in post-pandemic contexts. Specifically, it sought to answer the following research questions: (a) What strategies for parental involvement were utilized by teachers during ERT? and (b) How do the qualitative data provide a nuanced understanding of these strategies? Determining teachers' prevalent strategies for parental involvement during remote instruction lends support to the theoretical and practical significance of meta-teaching in navigating sustainable mechanisms and delineating effective practices that promote better home and school relationships. As climate-related school closures and future crises continue to threaten education systems, findings from this research can help schools develop structured frameworks for long-term remote learning preparedness.

2. Methods

This study addressed the research questions through a sequential mixed methods design. A sequential mixed-methods study commences with a quantitative design followed by a qualitative inquiry. The integration of both data provides a more comprehensive and nuanced understanding of the phenomenon under study (Creswell & Plano-Clark, 2018). The initial quantitative phase quantifies the prevalence of parental engagement strategies and then explores the underlying experiences and contexts that shaped those strategies.

The quantitative data were collected through a cross-sectional survey of in-service teachers. Results of the quantitative phase informed the development of the qualitative phase. Patterns that required deeper understanding guided the creation of semi-structured interview questions and focus group prompts. The data integration occurred during the interpretation stage, where the qualitative findings were used to explain, support, or contextualize the quantitative results.

To integrate ethics in the conduct of the study, a consent to take part in the study was collected to ensure a clear relationship between the participants and the

researcher. Further, the identity of the participants was anonymised to exercise confidentiality.

2.1 Quantitative Phase

The first phase of the study involved a cross-sectional survey of elementary school teachers from rural areas in the northern Philippines. The region was selected because of its vulnerability to educational disruptions during the pandemic, including limited digital infrastructure, resource constraints, and socio-economic disparities. These contextual factors positioned the participants as key informants in understanding the challenges of parental involvement in ERT beyond the urban context.

The survey instrument used in this phase was the Strategies for Parental Involvement during Emergency Remote Teaching- Scale (SPIERT-S), developed and validated by Raguindin et al. (2021). Anchored in Epstein's (2010) model of parental involvement, the tool consists of 15 items grouped into three dimensions: parents as facilitators of learning, sources of information, and collaborators. A total of 793 responses were processed for analysis.

The extent to which parents were involved as sources of information, facilitators of learning, and collaborators was analysed using descriptive analysis, specifically the mean as a measure of central tendency – to show the average frequency of each parental involvement strategy as reported by teachers. The following threshold was used for interpretation: Every time (4.21-5.00), Almost every time (3.41 – 4.20), Sometimes (2.61-3.40), Rarely (1.81-2.60), Never (1.00-1.80).

The results of the quantitative phase were used to inform the design of the qualitative protocol. Specifically, statistical trends – such as the high frequency of parental engagement – informed the development of the interview questions. The demographic patterns in the data also supported the purposive selection of participants who could offer diverse perspectives on the nuances of parental involvement during ERT.

2.2 Qualitative Phase

In contrast, the second phase of the study aimed to provide deeper insights into the quantitative findings by exploring teachers' experiences in engaging parents during ERT. The qualitative inquiry employed the basic interpretive approach of Merriam and Tisdell (2015). Patterns identified in the quantitative data informed the construction of the interview questions and guided the selection of participants representing a range of pedagogical profiles.

Twenty participants were purposively selected among the survey respondents to ensure representation. Data were collected through semi-structured interviews guided by a researcher-developed protocol consisting of five questions. The questions probed how teachers involved parents as facilitators, sources of information, and collaborators, as well as explored the challenges, adaptations, and decision-making processes behind those efforts.

The qualitative data were analysed through first and second-cycle coding. In the first cycle, descriptive codes were used to capture teacher language and

behaviours. In the second cycle, pattern coding was applied to identify themes and explanations that extend the quantitative findings. The iterative analysis allowed the researchers to develop a nuanced understanding of why certain strategies were employed more frequently and how contextual constraints shaped the teachers' pedagogical decision.

To ensure rigour in the conduct of the qualitative inquiry, the criteria suggested by Lincoln and Guba (1985) were followed. Interview transcriptions were checked to ensure accuracy. The researchers also invited external researchers to check the themes generated from the qualitative data through a confirmatory audit. Lastly, the transferability of the qualitative inquiry was ensured by reporting in detail how the qualitative inquiry was pursued (Lincoln & Guba, 1981).

3. Findings

This paper investigated the strategies utilized by Filipino teachers to encourage parental involvement during emergency remote teaching. To this end, a cross-sectional survey was conducted among 793 elementary teachers. Further, qualitative data were collected to gain a more nuanced and comprehensive understanding of the results yielded from the survey.

3.1 Strategies for parental involvement during emergency remote teaching

The respondents of this sequential explanatory study reported that parental involvement is one of the most effective means of achieving educational goals during remote learning. Through a descriptive analysis, it can be construed from Table 2 that during the sudden implementation of ERT, teachers involved parents as facilitators of learning ($M=4.16$), sources of information ($M=3.77$), and collaborators ($M=3.81$). A closer scrutiny of Table 2 shows that teachers predominantly involved parents as facilitators of their child's learning ($M=4.16$), emphasizing their role in monitoring and supporting children's academic progress. On the other hand, involving parents as a source of information was least utilized by teachers, suggesting potential gaps in communication strategies ($M=3.77$).

The unprecedented implementation of ERT has placed teachers in uncharted territory. While promoting partnership with home learning partners was the most viable option during ERT—when the educational system as a whole was unprepared in terms of teachers' competencies, infrastructure, and delivery modes—teachers utilized this approach sparingly.

Table 2. Strategies to involve parents during ERT

Dimension	Overall mean	Interpretation
Parents as facilitators of learning	4.16	Almost every time
Parents as sources of information	3.77	Almost every time
Parents as collaborators	3.81	Almost every time

Teachers in rural areas reported unique challenges that shaped how they involved parents during ERT. Many families were confronted with a lack of access to stable internet connections, scarcity of digital devices, and limited formal education. The

challenges often hindered consistent and meaningful engagement. Teachers recalled that even when parents were present, they were not always confident in their ability to guide their children's learning, particularly in subjects where they had limited background knowledge. In response, the teachers had to adjust their expectations and provide extra support to help rural parents in their roles as learning facilitators.

Despite these barriers, qualitative findings highlight that teachers actively sought ways to involve parents in meaningful ways. They relied on low-tech, accessible communication methods such as SMS, phone calls, and paper-based updates sent along with printed modules. These efforts reflect deliberate strategies based on the teachers' understanding of the parents' local contexts. One participant reported that she contacted each parent to clarify expectations and encourage motivation. Teachers adapted both the content and mode of delivery to enable parents' participation, even when ideal conditions were absent. In essence, teachers practiced meta-teaching.

The qualitative data also support the findings that teachers engaged parents more as a source of information. While they encouraged parents to monitor their children's module completion and daily routines, there was no mechanism in place to provide feedback to parents and to record their children's needs. In rural areas, the absence of two-way digital platforms, such as feedback loops, creates a gap despite parents' involvement in their children's learning. The qualitative narratives affirm the quantitative trend ($M=3.77$) and reveal a need for better support mechanisms that empower rural parents not only to guide learning but also to provide information about the evolving needs of their children during emergencies.

3.2 Strategies to involve parents as facilitators of learning

The survey revealed that the respondents utilized various strategies to involve parents as facilitators of learning during remote instruction (Table 3). The table shows that most teacher-respondents strongly encouraged parents and guardians to monitor their children during asynchronous and synchronous sessions ($M=4.24$, $SD=0.84$, every time), informed parents of the importance of motivating their children ($M=4.24$, $SD=0.84$, every time), and encouraged parents to contact the teacher not only about the progress of their child but also about the difficulties they were going through because of the wide-scale school closure ($M=4.23$, $SD=0.84$, every time). Conversely, the results of the analysis showed that not all teachers considered encouraging parents to share their expertise in the classes almost every time ($M=3.98$, $SD=0.88$, almost every time).

Table 3. Strategies utilized by parents to involve parents as facilitators of learning (N=793)

Item	Statements	Mean	SD	Interpretation
1	I encourage the parents in my class to share their expertise that can help optimize their children's learning experiences.	3.98	0.88	Almost every time
2	I regularly provide the parents an update on class activities (text messages, Facebook, etc.).	4.15	0.6	Almost every time
3	I inform parents of the importance of motivating their children.	4.24	0.84	Every time
4	I encourage parents to contact the teacher during scheduled consultation (except for emergency concerns) on matters about their children's progress and difficulties.	4.23	0.84	Every time
5	I encourage parents to monitor their children during synchronous and asynchronous learning sessions.	4.24	0.84	Every time
6	I provide additional support to parents who have no or limited education on how to engage their children to achieve the learning outcomes.	4.10	0.85	Almost every time
Overall Mean		4.16		Almost every time

The quantitative results showed that teachers frequently encouraged parents to monitor learning ($M=4.24$), reflecting a strong reliance on parental facilitation during ERT. The qualitative data affirmed the patterns but have also revealed the challenges and tensions that shaped their implementation. Teachers consistently mentioned that parental involvement is not only helpful but is also important in sustaining learning continuity, especially in areas where digital access, teacher contact, and school-based support are limited.

However, while the quantitative data suggested a high level of parental engagement, the qualitative data revealed gaps between intention and reality. For example, teachers noted that many parents lacked formal education. This affected their confidence in supporting their children, especially with lessons and content that are unfamiliar to them. This led to a trend in which some parents completed the tasks themselves out of frustration or concern that their child would fail. To address this, teachers would often send regular SMS, make regular calls, and pay visits to coach parents not only on lessons but also on the importance of promoting independence and resilience in their children. As one teacher reported:

P2: "I always call and send text messages to all the parents and remind them that the module is for their children. They do not have to get a perfect score. They need motivation and drive even when they are at home."

The need for parental coaching aligns with the results of the quantitative data on providing additional support to parents who lack education (4.10), emphasizing that effective facilitation requires teacher-led scaffolding, not just parental willingness.

Another insight from the qualitative findings is the underutilization of the parents' expertise (M=3.98). Teachers in rural areas often avoided involving parents in classroom content delivery, even when those parents had relevant backgrounds or knowledge. Some teachers reported limitations in parents' pedagogical skills, while others simply did not take these skills into consideration. In contrast, teachers reported that parents who were involved in content delivery were able to solicit positive responses from learners. The data suggest a missed opportunity to enrich instruction by capitalizing on contextual resources that can facilitate community-based learning.

While the survey data confirm that parent-teacher communication was frequent, interview findings revealed that it was largely one-directional and logistical, merely focused on reminders and updates rather than on collaborative dialogues. Teachers reported more time with individualized parent-teacher conferences, often during weekends and after work hours. These meetings not only served as check-in meetings but informal coaching sessions to help parents navigate their new roles. The real-time adaptation of instructional relationships reflects the core of meta-teaching—teachers making context-sensitive decisions to optimize learning outcomes, especially during uncertainties.

3.3 Strategies to involve parents as sources of information

The quantitative findings (Table 3) indicate that teachers involved parents as a source of information less frequently than in other roles, such as facilitators or collaborators (M=3.77, Overall). Among the strategies in this category, teachers were most likely to guide parents in supporting their children's learning (M=3.96), every time), followed by providing information about online risks (M=3.86) and the effects of COVID-19 (M=3.72, almost every time). The least implemented strategy was conducting regular online parent-teacher conferences (M=3.45, almost every time), which is notable given the importance of two-way communication during an emergency. Conversely, the qualitative data confirmed these trends while also providing nuances that complicate the surface-level interpretations of the survey data.

Table 3. Strategies utilized by parents to involve parents as sources of information (N=793)

Item	Statements	Mean	SD	Interpretation
7	I provide resource materials (text, graphics, videos, etc.) about COVID-19 and its effects on school children.	3.72	0.89	Almost every time
8	I provide information on how parents can protect their children from online risks.	3.86	0.92	Almost every time
9	I provide information on how parents can best support their children during emergency remote learning.	3.96	0.89	Almost every time
10	I conduct a regular online parent-teacher conference.	3.45	1.01	Almost every time
11	I encourage parents to share the difficulties they face in parenting and emergency remote learning and help them figure out solutions to these challenges.	3.86	0.93	Almost every time
Over-all Mean		3.77		Almost every time

Moreover, participants in the qualitative phase affirmed that providing information to parents is important. Teachers reported simplifying or rephrasing learning concepts to help parents understand their children's learning modules and other needs. One teacher reflected on the role parents played during this time:

P9: " I had to coach [...] not just about the lessons, but also how their children learn. They are like para-parents, so I need to help them too."

This insight validates the high mean score of the item in the survey (M=3.96), where teachers reported consistently offering instructional support to parents. However, this finding also highlights that parental involvement as a source of information is not merely about receiving data from parents but also about providing meaningful guidance to them, thereby shifting the direction of communication more toward teacher-to-parent.

While it can be gleaned from the survey that regular parent-teacher conferences were the least practiced strategy, narratives revealed that consultations were done, albeit irregularly. Teachers reported that scheduled meetings were replaced with ad hoc check-ins via SMS, depending on the availability of working parents. As one participant reported:

P4: "Setting individual consultations was challenging because we cannot establish regular schedules [...] I have to anticipate changes in schedules and manage short notice. First, most parents were busy with household chores if not working from home. Some are also attending to a sick family member [...] I have to strategize and always think of the best option available".

P7: [...] original schedules are often cancelled. But check-in meetings are still conducted [...] they mostly depend on the parents' availability".

These findings clarify the lower mean score for scheduled conferences (M=3.45) and suggest that teachers adopted flexible, need-based approaches rather than formal routines. In rural areas where families faced competing priorities, teachers exercised meta-teaching by making real-time decisions on how and when to connect to parents effectively.

Another important insight is that teachers actively encouraged parents to share their challenges, not merely to report on their child's progress. The survey reflects teachers' efforts to gather feedback from parents about their difficulties (M=3.86). However, qualitative data revealed that these conversations often happened informally, with teachers acting as emotional and logistical support systems for overburdened families. One teacher reported:

P12:" Sometimes, parents ask for help. Not always about the lesson, but how to manage everything."

The accounts reveal that teachers became counsellors, filling critical gaps in parental knowledge and well-being during COVID-19.

Together, the qualitative findings not only affirm the survey data but also expose the adaptive strategies and underlying tensions in how teachers involve parents as a source of information. The findings suggest that structured communication models were often challenging, promoting the need to adopt flexible, responsive practices that aligned with parents' lived realities. This responsiveness reflects the essence of meta-teaching—adjusting methods based on situational demands—and underscores the importance of culturally and contextually grounded engagement strategies in creating meaningful home and school collaborations.

3.4 Strategies to involve parents as collaborators

The quantitative results (Table 4) suggest that teachers made efforts to involve parents as collaborators in the learning process, with an overall mean of 4.16 (almost every time). Among the four strategies investigated, the most frequently used strategy was involving parents in decisions about school matters such as submission deadlines, delivery modes, and online activity schedules (M=4.24, every time). Teachers also reported encouraging parents to share their expertise (M=4.23, every time) and avail social protection services (M=4.15, almost every time). On the contrary, encouraging parents to collaborate with external organizations (M=3.98, almost every time) was not frequently utilized. This suggests that available resources and support from the broader community were not tapped and utilized.

Table 4. Strategies utilized by parents to involve parents as collaborators (N=793)

Item	Statements	Mean	SD	Interpretation
12	I encourage parents to collaborate with different organizations and individuals to support their children's remote learning	3.98	0.88	Almost every time
13	I encourage parents to avail of social protection mechanisms (financial support, mobile devices, etc.) to facilitate effective remote learning	4.15	0.6	Almost every time
14	I involve the parents in the decision-making process about school matters (submission of the module, online activities, delivery modes, etc.)	4.24	0.84	Every time
15	I encourage the parents in my class to share their expertise that can help optimize their children's learning experiences	4.23	0.84	Every time
Overall Mean		4.16		Almost every time

Furthermore, the qualitative inquiry deepened and contextualized the quantitative data, especially in rural areas where structural limitations constrain how collaboration can be done. Teachers describe flexible consultation practices with parents, often co-deciding module pickup schedules, adjusting deadlines, and responding to family needs in real time. The co-constructed approach is the most frequent strategy used based on the quantitative findings and highlights how collaboration extended beyond formal school policies to personalized arrangements. One participant recalled:

P18: " We agree on module collection depending on the parents' availability. It helped them feel involved and in control."

The narrative supports the idea that parental collaboration was not merely symbolic but actively shaped instructional delivery.

Despite the teachers' efforts, the combined quantitative and qualitative findings reveal missed opportunities for external collaboration. While teachers encouraged parents to connect with institutions for social services, very few facilitated partnerships between families and local government organizations and other agencies. The passive networking (M=3.98) was attributed to teachers' limited awareness of available services, time constraints, quarantine protocols, and unfamiliarity with how to navigate the partnership. This highlights a potential area for professional development, where teachers could be equipped to serve as liaisons between home and broader educational ecosystems.

The results highlight collaboration rather than institutional or system-driven cooperation during ERT. The qualitative narrative reveals a rich spectrum of informal, adaptive, and often creative partnerships forged in response to crisis. These findings affirm the importance of viewing collaboration not just as policy implementation but as a product of teacher agency, community knowledge, and responsive pedagogy. Meta-teaching grounds all three of them.

4. Discussion

This study explored the strategies utilized by teachers to engage parents during the COVID-19 school closure. It has also provided an understanding of how these strategies reflect adaptive pedagogical thinking. As ERT rapidly unfolded in response to the pandemic and ongoing climate-induced school closures, the role of parents was redefined. The findings of this study confirm that Filipino teachers frequently involve parents as facilitators of learning, collaborators, and as a source of information. In challenging circumstances, parental involvement continues to be an essential educational approach that adapts over time (Levy, 2023). This study foregrounds meta-teaching as a critical framework for empowering educators to reimagine home and school relationships, anchored in Epstein's (2010) typology of parental involvement and Bronfenbrenner's (1979) ecological systems theory.

Teachers frequently involve parents as facilitators of learning—for example, by encouraging them to monitor their children during online sessions, support their motivation, and communicate with teachers about their progress. The practice reflects the emerging nature of home as a primary learning environment. When situated in Bronfenbrenner's work, the microsystem of the home assumes dominant importance, with parents becoming co-navigators of instruction. The findings are consistent with the view of Kartel et al. (2022), who emphasized that parents are instrumental in transforming households into educational spaces, ensuring that children's access to quality education is maintained even during disruptions. However, the qualitative findings reveal that although engagement was high, many parents lacked confidence and sufficient educational background, making teacher-led scaffolding necessary. This is where meta-teaching emerged: teachers provided customized coaching and adjusted communication styles to match families' needs (Chen, 2013 & Misfud, 2022). Rather than a reactive process, this represented a strategic pedagogical shift rooted in reflective practice.

Despite their high involvement as facilitators, the role of parents as a source of information was less frequent. Teachers often provided parents with resources on online risks and COVID-19, but there were fewer regular parent-teacher conferences. This gap reveals the limitation of one-way communication and the need to have a feedback mechanism during online learning. Epstein (2010) emphasized communication as a foundational component of effective home-school partnerships. While the findings show that teachers provided pedagogical coaching to parents, an important element of communication was missing. Teachers seldom received feedback from parents about their children's progress and needs. The asymmetry highlights a missed opportunity to leverage parental involvement in real time. However, teachers adapted by conducting informal

consultations via SMS or calls, reflecting the core of meta-teaching – a situational awareness and flexible decision making.

The third dimension, parental collaboration, involved shared decision-making around logistics like module submissions, delivery modes, and activity rescheduling. Teachers frequently involved parents in co-decision making timelines and sharing experiences. These forms of collaboration are cohesive with Epstein's (2010) work and affirm the view that empowering parents as partners in decision-making strengthens educational delivery. The willingness of teachers to adjust to parents' availability reflects relational pedagogy – a hallmark of meta-teaching (Chen, 2013). However, collaboration with external organizations was not maximized. According to Bronfenbrenner's (1979) concept of the exosystem, institutions and communities can indirectly impact children's education. This gap has to be explored through professional development to "future-proof" education systems.

Socio-economic disparities influenced the nature and extent of parental involvement. For example, some parents were unable to take on teaching responsibilities due to unemployment or limited academic backgrounds (Mocho et al., 2024; Madima Shumani & Makananise Flulufhelo, 2021). Others were able to hire tutors (Zhang et al., 2021). In economically stable families, factors such as "parental support, parental academic emphasis, and parent-teacher communication" (Cheng Yong Tan & Peng, 2020) played a key role. Teachers had to recalibrate expectations and provide individualized support to parents with varying needs. Contextualizing parental involvement aligns with the work of Donham et al. (2022) and Pozas et al. (2021). The pedagogical equity exhibited by parents, like making real-time instructional adaptations, is entrenched in the meta-teaching framework.

The reflective and adaptive practices of teachers during ERT were manifestations of meta-teaching. Educational resilience during crises relies not only on digital infrastructure but also on pedagogical agility (Bozkurt & Sharma, 2020). Teachers demonstrated such agility by redesigning their instruction to involve parents as co-teachers. This dynamic and decision-driven response aligns with Chen's (2013) view of meta-teaching. Meta-teaching is not merely an abstraction but a practical approach that is activated when teachers face complex realities and must pivot responsively.

Moving forward, teacher education institutions must systematically integrate meta-teaching into pre-service trainings. Embedding this framework alongside parental involvement models equips future educators with the ability to adapt, reflect, and co-construct learning environments with families. Training in this area will prepare educators to engage beyond emergency contexts by cultivating long-term resilient partnerships that benefit students under both normal and disrupted conditions. Further, educational policies can institutionalize support mechanisms that differentiate parental engagement strategies according to family context. This includes developing crisis-responsive protocols that formalize home-school collaborations and equip teachers with resources for adaptive pedagogies.

This study presents a compelling narrative for elevating parental involvement as a core pedagogical strategy during ERT and beyond. By mapping teachers' strategies and analysing them through the lenses of Epstein, Bronfenbrenner, and meta-teaching, the findings present a roadmap for sustainable educational resilience. When teachers are empowered to reflectively engage parents, they create new forms of partnerships. Thus, meta-teaching becomes not just a response to crisis but a blueprint for enduring, inclusive, and context-sensitive pedagogy.

5. Conclusions

The ERT experience reaffirms that learning is an evolving and multifaceted process, extending beyond technical skill acquisition and requiring ongoing pedagogical innovation. This study highlights how teachers strategically integrate meta-teaching into their practice by making context-driven decisions concerning parental involvement during ERT. In navigating the challenges of remote instruction in rural areas, teachers engaged parents as facilitators, collaborators, and sources of information. Among these roles, the most emphasized was that of parents as facilitators of learning, while parents as sources of information was the least utilized role. Thus, in times of crises, meta-teaching can integrate reflective instructional planning and thoughtful engagement of parents as stakeholders in meaningful and contextually relevant ways. Moreover, despite facing unique and complex challenges during ERT, teachers demonstrated professional commitment by making certain adjustments and providing extra support to help parents. These actions highlight a reflective and adaptive teaching approach, which is at the core of meta-teaching, aiming to foster stronger school and home collaboration during times of educational disruption. Finally, a balanced and intentional approach to parental involvement has been emphasized. Parents should be seen as co-partners in the educational process.

Furthermore, pre-service teachers should be exposed to meta-teaching as a framework, along with digital pedagogy and crisis-responsive instructional design. This can facilitate future-proof educational practices that are capable of reflective and real-time pedagogical adjustments. Integrating meta-teaching into professional development programs ensures that educators develop the adaptability needed to address future educational disruptions. Embedding crisis-responsive instructional strategies and competencies within teacher training curricula can foster long-term resilience, pedagogical innovations, and equitable education.

To enhance the effectiveness of meta-teaching, educators must develop strategic approaches to engage parents—ensuring their support without overwhelming them with additional responsibilities. Through meta-teaching, teachers need to ask themselves ceaselessly how parents and children can be equipped with skills and strategies that promote learning even under the worst circumstances. The integration of these notions transforms learning into a social and self-reflecting process that can take place under any condition, including during an epidemic. Lastly, meta-teaching has the potential to redefine teacher-student-parent relationships, fostering sustained engagement beyond emergency contexts. Schools, policymakers, and teacher training institutions must prioritize

professional development programs that incorporate meta-teaching strategies. This ensures that educators continue to collaborate with parents in navigating complex educational challenges. Meta-teaching strengthens educational outcomes by promoting resilience during periods of educational disruption.

While the study provides invaluable insights into how teachers integrate meta-teaching with parental involvement, its limitations should also be acknowledged. First, the sample was limited to elementary school teachers from rural areas in northern Philippines, which may affect its generalizability. The unique socio-cultural context of rural settings may not exactly capture the experiences of teachers in urban or other learning environments. In addition, the inclusion of only 22 participants in the qualitative phase poses another limitation on the depth and representativeness of the findings. It should also be noted that the data analysis techniques used in this study have methodological boundaries. Thus, expanding the sample to include diverse educational contexts in future research endeavours could enhance the generalizability of the findings. In addition, conducting longitudinal studies could further explore how parental involvement and meta-teaching practices evolve, while cross-cultural comparisons could provide deeper insights into different cultural contexts. Moreover, the study relied on self-reported data from the participants, which may have affected the accuracy of the findings. Next, issues related to the digital divide may have influenced teachers' perceptions and the realities of parental involvement, especially for those living in areas with limited internet connectivity and technological resources. Lastly, the exclusion of parents' voices as key stakeholders in remote learning should also be considered. This omission could limit the understanding of how parents perceived their roles, challenges, and support systems during ERT.

The findings of this study underscore the critical need to future-proof education systems by embedding structured parental engagement frameworks into education policies, equipping both pre-service and in-service teachers with meta-teaching competencies through comprehensive training programs, and ensuring equitable digital access for all learners and households—particularly those in rural areas.

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Appendix

Appendix

STRATEGIES FOR PARENTAL INVOLVEMENT DURING EMERGENCY REMOTE TEACHING SCALE (SPIERT-S)

Name: (optional) _____

* Please put a check in the space provided to express your answer.

*Age: ___ 21-25 years old ___ 26 - 30 years old
 ___ 31-35 years old ___ 36 - 40 years old
 ___ 41- 45 years old ___ 46-50 years old
 ___ 51 years old and above

*Gender: ___ Female ___ Male ___ Prefer not to say

*Highest Educational Attainment
 ___ Bachelor's Degree ___ Master's Degree ___ Doctorate Degree

*Agency: ___ Public School ___ Private School

*Years in the Teaching Profession
 ___ 0 -3 years ___ 4 - 6 years ___ 7 - 9 years
 ___ 10 years and above

The following statements describe strategies for a meaningful home and school collaboration during Emergency Remote Teaching (ERT). Please rate your agreement on the indicators below to describe how frequently you use the following strategies. Use the anchors below

- 1 - never
 2 - almost never
 3 - occasionally/sometimes
 4 - almost every time
 5 - every time

Please check the appropriate box.

Thank you!

Statements	1	2	3	4	5
A. PARENTS as FACILITATORS of LEARNING					
1. I encourage the parents in my class to share their expertise that can help optimize their children's learning experiences.					
2. I regularly provide the parents an update about class activities (text messages, Facebook, etc.)					
3. I inform parents of the importance of motivating their children.					
4. I encourage parents to contact the teacher during scheduled consultation (except for emergency concerns) on matters about their children's progress and difficulties.					
5. I encourage parents to monitor their children during synchronous and asynchronous learning sessions.					
6. I provide additional support to parents who have no or limited education on how to engage their children to achieve the learning outcomes.					
B. PARENTS as SOURCES OF INFORMATION					
7. I provide resource materials (text, graphics, videos, etc.) about COVID-19 and its effects on school children.					
8. I provide information on how parents can protect their children from online risks					
9. I provide information on how parents can best support their children during emergency remote learning.					
10. I conduct a regular online parent-teacher conference.					
11. I encourage parents to share the difficulties they face in parenting and emergency remote learning and help them figure out solution to these challenges.					
C. PARENTS AS COLLABORATORS					
12. I encourage parents to collaborate with different organizations and individuals to support their children's remote learning.					
13. I encourage parents to avail of social protection mechanisms (financial support, mobile devices, etc.) to facilitate effective remote learning.					
14. I involve the parents in the decision-making process about school matters (submission of the module, online activities, delivery modes, etc.)					
15. I encourage the parents in my class to share their expertise that can help optimize their children's learning experiences					