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A Revised Curriculum Framework for Emergency Remote Education: Lessons from Parents' Perspectives of K-12 Online Remote Instruction During Covid-19

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Much research has been conducted to examine K-12 online/hybrid learning during the COVID-19 global pandemic, however, little research has studied this unique educational situation from the parents' perspective. Using Schwab's Traditional Curriculum Design Framework, this study examined the four common places (students, teachers, curriculum, and Milieu) of education for K-12 students' emergency remote education (ERE) based on parent's input. By qualitatively analysing 662 comments from parents and guardians during Fall 2020 semester, this study identified causes to students' engagement issues, teachers' online pedagogical challenges, parents' curriculum concerns, and technological barriers during the ERE. We propose a revised Schwab's traditional Curriculum Design Framework that encourages a more comprehensive and in-depth analysis of the ERE Milieu of teaching and learning. The revised framework emphasizes strong school leadership in preparing for the ERE, involving critical stakeholders particularly parents and guardians in the overall process, and providing various support and technology resources to address challenges from technological, pedagogical, social and other aspects that emerge in ERE situations. Lessons learned from this study will have meaningful implications for remote/hybrid learning in general and for future emergency situations in particular.

Keywords: Revised curriculum design framework; Emergency Remote Education (ERE); K-12 online/hybrid learning; Parents' perspective.

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INTRODUCTION

In the last three years, the COIVD-19 pandemic presented unprecedent challenges to educational institutions and caused an educational emergency around the world. In the effort to continue providing education to students, many schools and colleges turned to online or hybrid learning with little to no preparation (Azevedo et al., 2020; Kong 2020). In the U.S., most K-12 schools adopted online or hybrid teaching methods for the young student population in 2020 (Francom et al., 2021). Although previous literature indicated that distance education had become essential for education continuity (Creed & Morpeth, 2014), online or hybrid learning is still a relatively new concept for K-12 schools.

Much research has been conducted to examine K-12 online/hybrid learning during the COVID-19 global pandemic from the perspectives of teachers (Shamir-Inbal & Blau, 2021), preservice teachers (Hodge et al.,2020), school administrators (Coker, 2020), and students (Petillion, et al., 2020). However, little research has studied this unique educational situation from the parents' perspective. Educators and researchers acknowledge the crucial role parents, guardians, and communities play to support learning, development, and health of children and adolescents (The Centers for Disease Control and Prevention, 2012). Given the fact that K-12 students had to learn from home for a significant duration during the pandemic, parents and guardians played a particularly instrumental role in their children's education. Researchers call for empirical research focusing on parents' perception and experience towards remote or hybrid education at K-12 level during the pandemic to learn important lessons for future emergent education situations (Hwang et. al, 2020).

Using Schwab's Traditional Curriculum Design Framework (Schwab, 1983), this study aimed to examine the four common places of education (students, teachers, curriculum, and Milieux) for K-12 students' emergency remote education (ERE) based on parent's perspective and input. We believe that lessons learned from this study will have meaningful implications for remote/hybrid learning in general and for future emergency situations in particular.

LITERATURE REVIEW

A broad discussion has been raised by practitioners and researchers around the world to explore the effectiveness of emergency remote education implementations in various contexts, particularly during the global COVID-19 pandemic (Baran & AlZoubi, 2020; Ferdig et al., 2020). Many of these emerging studies are conceptual or theoretical discussions on the differences between online education and emergency remote education (Barbour et al., 2020; Hodge et al., 2020). Hodges et al. (2020) described emergency remote teaching as an attempt not "to re-create a robust educational ecosystem but rather to provide temporary access to instruction and instructional supports in a manner that is quick to set up and is reliably available during an emergency or crisis" (p. 13). This concept has been expanded to "emergency remote education (ERE)" used by scholars (e.g., Erlam, et. al., 2021).

Many researchers have attempted to examine education issues during the COVID 19 pandemic. Most existing studies focused on understanding the perspectives of in-service teachers (e.g., Francom et al., 2021; Gudmundsdottir & Hathaway, 2020) and preservice teachers (e.g., Hill, 2021; Long et al., 2021), while limited attention has been paid to school district administrators or to parents and guardians. For example, one survey research (Francom et al., 2021) conducted in two states in the U.S. explored K-12 teachers' experience in using technology resources and strategies in ERE and reported the major challenges that teachers faced. Similarly, a mixed-method study (An et al, 2021) investigated US K-12 teachers' perceptions toward the transition to online or hybrid learning and identified

teachers' struggles in engaging students, concerns about students' well-being, lacking work-life balance, and learning new technology.

A few international studies reveal that parents and guardians have been playing a particularly instrumental role in their children's education during the pandemic (Coppola et al., 2020; Zhang, 2021). For example, Misirli and Ergulec (2021) reported that Turkish parents were actively involved in their children's remote learning: 85% of parents remained in regular meetings with teachers and interacted in activities, received video or audio materials, and participated in weekly communication meetings from schools. Half of the parents provided technical support to their children during the live class sessions, and 34% of the parents either stood by their children during the live sessions or actively participated in the remote teaching. Zhang (2021) surveyed Chinese parents' opinions and argued that online learning could not replace face-to-face one in the brick-and-mortar classrooms, and it only benefited those students with good self-regulation and high autonomy in learning. Shaw and Shaw (2021) surveyed parents in England in three areas of challenge including Infrastructure, Impact on parents, and Impact on child. Several other studies surveyed parents' satisfaction with their children's online learning in Hong Kong (Lau, Li, & Lee, 2021), Kazakhstan (Bokayev, et. Al, 2021), and in India (Sharma & Kiran, 2021).

However, little research has studied emergent remote educational situations from the parents' perspective, particularly within the US. Bond's (2020a) living rapid systematic reviews of ERE concluded that scant research was conducted in the US compared to Europe and Asia, and most research focused on teachers. Multiple calls for additional research have emerged, specifically for investigating parents' perception and experience towards ERE at K-12 level during the pandemic (Hwang & Hariyanti, 2020), studying the role that parents and home knowledge can play in student learning (Richmond et al., 2020), understanding parental involvement in ERE (Garbe et al., 2020), and examining how ERE is implemented at home by all stakeholders (Andrew et al., 2020). Our literature review identified one survey study (Garbe et al., 2020) conducted at the beginning of the pandemic in the US that included primarily upper-middle-class, well-educated mothers and captured their initial perceptions of emergency remote learning at the early stage of pandemic. More research is called for to examine K-12 online and hybrid education as the pandemic continues to evolve and bring uncertainties.

A sound understanding of parents and guardian's perspective on the remote/hybrid learning during the pandemic or similar ERE is important as they are the ones who physically accompany learners most of the time with new roles in the home learning environment to support remote learners (Donmus Kaya & Eroğlu, 2020; Parczewska, 2020). More importantly, parents and guardians' perspectives and experiences of ERT may influence the quality and quantity of online learning in the future (Misirli & Ergulec, 2021). Therefore, empirical lessons learned are helpful to prepare for continuing meaningful education during similar or other emergent situations.

This qualitative study investigates American parents and guardians' perspectives to gain a systematic understanding of education during the pandemic. We also hope that the empirical findings can identify critical components of education during ERE.

THEORETICAL FRAMEWORK

This study used Schwab's Traditional Curriculum Design Framework (Schwab, 1983) to examine K-12 students' emergency remote education (ERE) based on parents' perspective and input. Schwab characterized education in terms of four common places: teacher, learners, subject matter, and milieu of teaching-learning (Schwab, 1973, 1983) (illustrated in Figure 1). He suggested to examine each of the commonplaces equally in order to develop a balanced and relevant curriculum to the real people and real activities involved with teaching

and learning. Schwab explained, "Curriculum in action treats real things: real acts, real teachers, real children, things richer than and different from their theoretical representations" (1970, p. 633). Many scholars recognized this work as a practical inquiry to not only aid in the development of new curricula but can also provide a reflective examination of existing educational practices (e.g., Schubert, 1986).

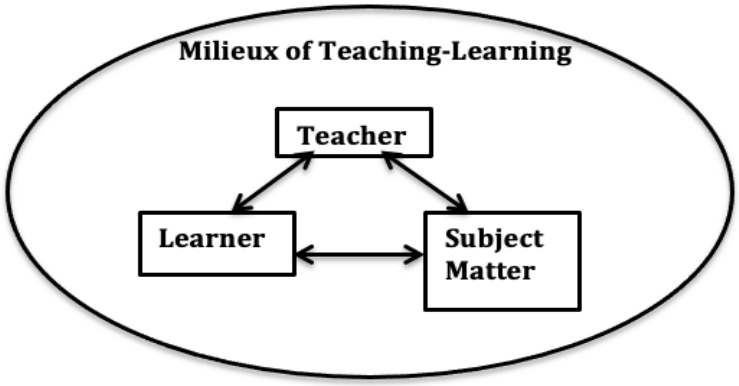

Figure 1. An Illustration of Schwab's Original Curriculum Framework.

Schwab's practical inquiry emphasizes that educational activities should be grounded in the practical and specific situations in which it will be eventually enacted (Schubert, 1986). Specifically, educational practices need to consider who will be teaching, who will be learning, the educational environment and context in which the learning and teaching will take place, and the subject matter to be addressed. Today's education process involves teachers and students and relies on parents' involvement and support from the community (CDC, 2019).

Therefore, we aimed to use this framework to guide our study and to explore what adaptions might be needed. This study used "parents" to indicate parents, guardians, and caregivers. This study examined the following research questions:

Q1: What were the parents' perspectives on the successes and challenges in K-12 online/hybrid learning during the COVID-19 pandemic?

Q2: How could Schwab's Traditional Curriculum Design Framework be adapted to guide the analysis of emergency remote education?

METHOD & DATA SOURCES

Data were collected from a public school district in a Northeast state in the US in fall 2020 semester. Due to uncertainties of pandemic, the school district offered fully in-person learning to K-1 students and offered two options involved remote learning for all 2-12 students: (a) fully remote instructions: instructions delivered online through a blend of asynchronous and synchronous learning; and (b) hybrid instructions: a blend of remote and in-person instructions with two-days in person and three days online (school district website). ln mid semester, the school district disseminated a survey link to parents and guardians in all schools of this district to understand their experiences and perspectives on their students' blended learning.

A total of 662 comments of parents and guardians were collected through this online open-ended survey. The comments were downloaded, cleaned, and saved in a word file. We employed qualitative content analysis, following the conventional approach, including six main steps: "1) focusing research objectives, 2) establishing the frame, 3) selecting the unit

of analysis, 4) developing content categories, 5) protocols for analysis, and 6) performing data" (Williamson & Johanson, 2017, p. 464).

The data were then uploaded to MaxQDA where the codes and sub-codes were generated for each response, using an inductive method. We first identified the smaller concepts and then focused on the more general themes as they emerged. Similar codes were grouped into categories, and similar categories were assembled into broader themes (Bryant & Charmaz, 2010). The unit of analysis was meaning. Therefore, one comment could be coded more than one time based on its content. Two researchers independently coded the first 100 comments with 93% inter-rater reliability. Discrepancies were resolved through discussions by the research team and the coding scheme was revised and finalized through this iterative process.

RESULTS & DISCUSSION

A total of 823 codes were generated from the data, grouped under 16 sub-themes (Table 1). The sub-themes were analysed according to Schwab's four common places of education: teacher, learners, subject matter, and milieu of teaching-learning, discussed below.

Table 1. *Summary of the sub-themes*

Schwab's Four Common Places of Education	Sub-Themes	# of codes	Percentage
Students	Student engagement	219	26.61%
	Students' skills and knowledge	32	3.89%
	Accommodating students with special needs	6	0.73%
Subject Matter	Assessment and feedback	39	4.74%
	Consistency in technology, schedule and expectations	36	4.37%
Teachers	Teachers' effort	104	12.64%
	Teachers' skills and knowledge	16	1.94%
	Managing an online teaching schedule	65	7.90%
Milieux	Communication between students, parents, and teachers	29	3.52%
	Consistency in technology, schedule and expectations	36	4.37%
	Parents' skills and knowledge	10	1.22%
	Parents' support	46	5.59%
	Coordination, leadership and management	54	6.56%
	Social Relationships	28	3.40%
	Mental health	69	8.38%
	Physical health	70	8.51%

(a) Students: Parents' top concern was low learner engagement due to inadequate technology proficiency, insufficient self-regulation skills, and lack of social support and guidance.

Most parents (65.9% of the codes) reported that learner engagement in remote learning was compromised. Students had difficulties managing and regulating their online or hybrid learning (14.5% of the codes), and younger students struggled even more.

Researchers have pointed out that meaningful students' engagement plays a significant role with learning motivation (Carter Jr., et. al, 2020; Losier et al., 2001) and academic achievements (Fredricks et al., 2016; Schnitzler et al.,2020). However, students' lack of engagement in online learning has been a serious problem reported in many studies (e.g. Bedenlier et al., 2020; Sherer & Shea, 2011). This is a particularly serious issue for K-12 students because scant attention has been paid to K-12 school settings (Chiu, 2021). For example, for most K-12 teachers, the idea of teaching online was not a consideration before the pandemic, and little professional development has been offered (Stewart, et. al. 2020). In addition, most K-12 students and their parents were not familiar with the transition from traditional face-to-face classroom to online or hybrid learning.

Our results identified the following specific aspects that contributed to students learning engagement issues: a) a lack of technological knowledge and skills to manage online learning; b) inadequate self-regulation ability; c) insufficient support and guidance.

- Insufficient Technology Proficiency

Being able to succeed in a virtual classroom demands participants' high level of knowledge and skills to investigate relevant learning materials. However, parents reported that their children did not have sufficient technological knowledge and skills to manage online learning. Younger students struggled even more because of their lack of technological skills such as navigating learning resources, operating the online platform appropriately, and seeking help in a remote learning environment. For example, one parent commented "*...She (student) is missing information and the experience. She has to waste time waiting for the session to start. She never knows if there's a technical problem." (Code No.118).* Another comment pointed out that for online classes, *"not every child is able to easily mute or remember each time" (Code No. 147).*

The use of information and communication technology (ICT) with potential benefits or risks has been widely discussed in the education field (Sanders & Geogre, 2017). Scholars suggest that schools should provide authentic education for learners in the real world of the digital age where high-level technical skills are in demand and that one of the educational goals is teaching the technical skills to access information for lifelong learning (UNESCO 2004; OECD, 2016). Parents in our study also suggested that clear guidance and technology training were needed to help students learn online. One comment point out that *"Kids this age (in middle school) need to be taught how to use Gmail etc. Teaching kids how to manage in a remote learning world should have been the first priority." (e.g. Code No.88).* However, students in this study didn't receive sufficient preparation in technology skills and knowledge.

On the other hand, it is worth exploring the use of various media forms during remote/hybrid learning to reduce dependency on digital technology. For example, elementary students' parents appreciated the use of paper materials with a combination of digital/online resources, so that students without digital skills (e.g., typing skills) were able to learn and work on the assignments with paper materials.

- Inadequate self-regulation ability (10.3% of the codes)

K-12 students may not have the self-regulation skills required to manage online learning (Richard, et al., 2020; Dong, et al., 2020). One possible reason is that students' learning in regular k-12 environments is structured and mediated by teachers, while in remote/hybrid mode, they must learn on their own from learning resources. In this study, parents reported that some teachers provided the learning resources and written instructions to the students and expected them to learn on their own, with limited or no support from peers and teachers. One parent commented, *"Without more direct interaction, I fear they (students) will fall very*

behind. They are too self-directed, and 10-year-olds don't always excel at self-direction" (Code No. 156). Most younger learners were not competent to keep track of their own schedule via online or hybrid instruction because of a lack of self-regulated skills, or the confusion and chaos caused by inconsistent communication from teachers with technical challenges. A parent commented *"My child checks out of zoom sessions, can't keep her attention to it for more than a few minutes." (Code No.1607).*

Parents were frustrated when students were left on their own, particularly in asynchronous instructions. If students were not willing or able to explore resources independently, they may not take the initiative to ask for help (e.g., Code. 133). Some students did not have typing skills and the knowledge of submitting their questions to the online platform such as Google Classroom, and some did not complete their assignments. Parents believed that since many young learners were not fully equipped with self-regulated learning ability, the learning loss was enormous.

- Lack of Social Support (17.3% of the codes)

Parents also reported that the lack of social support from teachers and peers also led to students' engagement issues. There was little opportunity for students to interact with teachers or their peers (17.4 % of the codes). The engagement issues expanded to social relationship challenges for children (3.4%). Without sufficient in-person interaction or live streaming to build relationships with teachers and classmates, *"students suffered from falling behind" (code No.320) or "disconnected with others/school" (code No.618).* One parent noted*: "Our students are not getting an opportunity to build relationships with their teachers or receive interactive instruction (synchronous)" (Code No.535).* Some teachers did not provide timely feedback to the learners, which exacerbated students' disinterest in asynchronous learning. For example, one parent wrote: "Teacher and students need more interaction to answer questions and get to know each other" (Code No 242-242). The multiple approaches of instruction also led to inconsistent engagement between students and teachers, especially when instruction was delivered fully online. One parent reported there was *"Inconsistent engagement with teachers while fully remote. My son is often bored and feeling on his own, with little work to do and little connection with teachers or classes" (Code No. 513-514)*. Even during the synchronous sessions, there might be only minimum interactions. One parent noted: "I noticed there is little participation in most of my child's classes. Appears a couple minutes on zoom and then fends for himself. It is important that these zoom classes keep the children involved, if not, what is the purpose of hybrid?" (Code No. 360-361)

(b) Subject Matter: Parents requested more synchronous instruction and more emphasis on core subjects to ensure the quality of learning.

Parents were concerned with the quality of instructional activities and the lack of sufficient learning support. They believed face-to-face learning and synchronous learning to be better than asynchronous learning because *"Students learn better by being in-person, where they can more easily ask questions, receive help and interact with their peers." (Code. 649-650).* Therefore, parents requested more synchronous activities to build connections and improve engagement (26.61 % of the total codes). Parents commented: *"We need more live instruction and interaction between kids, teachers and their peers" (Code No.196).*

Uneven quality and quantity of instruction and content coverage was another issue reported by parents (9.5% of the codes). Many parents perceived that the workload and class session were not consistent. The workload and learning time for remote learners was limited compared to other hybrid learners. One parent wrote: *"Fully remote students do not seem to be part of most classrooms; my son only has two of his classes engaging in Zoom instruction. He is not getting the same instruction as those who are hybrid." (Code No.393)*

In terms of content coverage, most parents believed that more attention was needed for core subjects. For special areas, a more reasonable plan with appropriate coordination was required from parents, as they found the learning for arts, physical education, and other

project-based activities offered in an online environment was not as effective as in-person instruction. They suggested that the limited and precious synchronous session should focus more on core subjects such as math, literacy, or science. Parents expressed their expectations in these areas: a) *"it's important for school teams to collaborate to make sure subjects/work is balanced" (e.g., Code. No.154)*; b*) "specials could be optional at elementary level for those fully remote children" (e.g., Code 578),* and c) *"set a clear expectation and put requirements in one place for the specials on 'home' days" (e.g.,Code. 270).*

Another concern was unengaging pedagogical practices including a) inconsistent expectations from teachers (7% of the codes); b) misalignment between learning content and assignments (3.2% of the codes); and c) a lack of sufficient learning materials (3% of the codes). Parents complained that the content and amount offered in the same grade varied across classes. Although parents understood that the learning experience was different depending on students and teachers, they still preferred to have a standardized curriculum and to have clear expectations. One parent wrote: *"We need to standardize what schools are offering, it should not matter who your teacher is, there should be minimum expectations" (Code No.129).* Another parent stated: *"There is a disconnect between how the material is being delivered online and how the student is supposed to take what they need from it to perform wel. (Code No.30).*

The data also revealed an issue with limited learning materials for students learning at home. Particularly in synchronous classes, one parent suggested *"Saving videos long term will allow students to review material for better understanding" (Code. No.19).* Taking advantage of free educational resources on the Internet can inspire students and offer learning opportunities (Morgan, 2020; Murphy 2020). For example, schools and teachers can use Cloud services to save the digital learning materials, so that students and teachers can access and revisit the resource. Saving the instructional materials on the Cloud could also help students who were not able to attend the synchronous classes.

(c) Teachers: Teachers faced various pedagogical challenges and technological barriers in online or hybrid teaching.

While parents commended teachers' efforts in delivering online and hybrid instructions and acknowledged the difficulties in providing education amid the pandemic, they also identified several pedagogical challenges and technological barriers that teachers faced.

First, teachers lacked effective pedagogical strategies for online/hybrid teaching. Parents commented that some teachers did not scaffold student learning (11% of the codes) or did not provide appropriate assessment and feedback (4.7%). Questions were raised regarding teachers' pedagogical practices in both synchronous and asynchronous sessions. Asynchronous instruction presented more barriers for younger learners and less connection with teachers when only written instructions were provided. One parent suggested that *"recorded verbal discussion by the teacher on lessons or work expectations provides more connection" (Code No.128*). In synchronous sessions, parents noted that some teachers only read slides instead of engaging students in the learning. Many parents indicated that their children were not provided with opportunities to ask questions or to interact with teachers. Learning inquiry could also be easily ignored if the teacher was not available or did not check the chat window in time. Sometimes students were put into breakout groups but were not assigned specific tasks or provided a scaffolding mechanism for the group activity. One parent commented: *"Students need to talk to their peers in small groups, but they must be supervised. Teachers shouldn't be pressured to add this piece if it's not possible" (Code NO. 838 - 839).*

Not equipped with effective online/hybrid teaching strategies, teachers relied too heavily on assignments for students to learn without adequate support and facilitation to undertake the assignments. Parents indicated that too many assignments and too much learning-by-self added cognitive load for both parents and students, and thus might lead to increased mental

stresses. It was reflected in the following comment: *"On a day where all students are home, why don't the teachers do live instruction via zoom? It keeps the kids' spirits up When they can ask teachers directly instead of trying to figure things out on their own. It would save some mental health issues down the line" (code No. 115-116).* One parent shared*, "We have no instruction but just assignments when the kids are working remotely. Math sheets. That's NOT instruction!!" (Code No. 523).*

Second, teachers had challenges with managing online teaching and coordinating with other teachers, and thus faced logistics challenges including inefficient management of online teaching (7.9%), inconsistency in technology platforms (4.4%), and using multiple (and thus confusing) communication channels (3.5%). Teaching effectiveness was negatively affected by insufficient class management in online/hybrid format. Parents sympathized with teachers that the ERE system and structure seemed incredibly overwhelming, but worried about the quality of teaching: *"They (teachers) are being pulled in so many different directions and the quality of instruction suffers" (Code NO.80).* Another parent commented: *"Not having (an) educated teacher who has been trained in classroom management, learning strategies, etc hurts the student's experience" (Code No.447).*

Third, teachers also faced various technological challenges in teaching a hybrid mode and communicating with students (7.05%). When most teachers were forced into online teaching in an emergency, maintaining the quality of education heavily relied on teachers' knowledge and skills in ICT-based teaching, while insufficient technology proficiency or inappropriate use of technology could impede students' learning. One parent wrote: *"Teachers are not fully understanding how to use Zoom... is frustrating for all" (NO.359).* Another parent noted *"Teachers are not always putting assignments in the assignment folder" (Code No, 313*). The inconsistency with the use of technology from teachers increased the risk of missing instructions or assignments.

Existing studies found that most K-12 teachers lack online teaching experience (Trust & Whalen, 2020), which supported our findings on teachers' areas of struggles in online teaching, such as insufficient ICT literacy and the lack of online pedagogical practice competencies. Some studies pointed out that a lack of knowledge or skills to use technology was a leading factor in the failure of using technology to facilitate teaching (Blignaut et al. 2010; Ward & Parr 2010). Our data revealed that teachers' preparedness in ERT was limited. Though there was a large proportion of recognition of teachers' efforts, parents noted that *"Teachers have not been provided enough professional development on how to use Google classroom" (No.214).* Parents expected more actions to focus on *"...Spend the money getting PD (professional development) for staff, so that they can use technology in more meaningful ways. Teach them how to make their own instructional videos" (Code No.179-180).*

(d) Milieux of teaching-learning: the ERE Milieux had Technological challenges, Communication confusion, serious mental and health concerns, and parental struggles.

The ERE learning environment during the pandemic was more complicated than in regular times, involving the use of various new technologies, the cooperation of multiple stakeholders, and fast decision-making as the situation evolved. In this study, parents reported various challenges in the ERE learning environment (15.8%):

(1) Technological challenges:

Delving into parents/guardians' comments, we identified that teachers, students, and parents' competencies of using digital technology played a significant role under the COVID-19 crisis when students had to learn from home. Parents acknowledged that they themselves lacked technological literacy and skills to use the various digital tools for learning purposes (10%). For example, one parent admitted: *"I as a parent have trouble figuring out how google classroom works" (Code No.657)*. Parents asked for a variety of learning material types for younger learners. *"Appreciate the use of paper materials for 2nd grade. Kids who*

do not have typing skills should have a combination of online/video and other materials" (Code No.404).

Parents also indicated that extensive time and support was required for children to learn online or in blended mode (5.59%). Learning from home required sufficient technical skills, time, or financial capacity. Disadvantaged students and families faced more challenges to obtain educational resources. Parents without knowledge of using online learning technology might not be able to assist their students at home, and working parents struggled with coordinating their students' online class, as indicated in this comment: *"The teacher did not send a new link out until the class started yesterday, and my child has a grandparent who is helping, who is not savvy" (Code No.985-986).*

On the other hand, some parents acknowledged the benefits of using technology in promoting students' learning. They believed that using ICT could provide more active engagement for students in the learning process. There were positive outcomes with using technology in the ERE including expanding options for small group work, discussions, and social connections during daily technology use. One parent gave this example: *"One of my sons' teachers is using technology so that students at home and in class can see one another during actual class. This example is powerful, because it helps the students feel more like they are in actual class together. Hearing the same things at the same time" (Code NO.35).*

(2) Ineffective communication:

Parents also reported the need for a comprehensive schedule with consistent communication channels to help parents and students to plan their week and days. Multiple channels (texting, emails, google classroom, ClassDojo, etc.) were used by teachers and school administrators to communicate with parents and students (8.6%). As a result, many parents reported that their children missed some synchronous sessions due to communication issues such as unawareness of session timings, losing track of emails, or not being able to support children to be online at a certain time. For example, one family expressed their concern, *"we have missed several zoom meetings due to confusion and poor communication. We as a family spend time every morning playing detective to find clues" (Code NO. 333-334).*

Parents identified that a detailed and clear lesson plan on what happens in the class would be helpful for remote learners. Sharing weekly agenda with parents would be convenient for them to better coordinate and facilitate their children's remote learning. For example, one parent said, *"We need a clearly defined agenda of what is expected during the week. We also need instruction when the kids are remote!!!" (Code No. 522*). Having the agenda at the beginning of the week including a bulleted list of assignments and schedule of synchronous classes will help the parents and children to design their schedule, manage work and home responsibilities, and look for the appropriate support from the family or friends. For example, one parent commented, *"Working parent at home with two remote learners. I need a consistent schedule and ample notice of(to) change. I can block off my calendar to help if I know when they need help. Otherwise, they will miss meetings and opportunities to see their friends in class" (Code No.214)*

(3) Physical and Mental health concerns:

Health and safety issues were another major concern during the covid pandemic (16.89%). Parents shared their concerns in two dimensions: the family's health and wellbeing, and the stress and mental health issues exacerbated by the need to adapt to the new medium of teaching and learning in a hybrid format. One lesson learned from the pandemic is that school systems must consider the ability of students to safely learn. Adjustments should be carefully considered with parents' involvement. From our data, keeping remote/ hybrid learning as an option was pointed out as important by many parents who have at-risk family members at home.

Parents also indicated withering social relationships between students and teachers, a lack of mental-health support, and the resulting anxiety and frustration as precursors to the potential mental health issues amongst students (8.38%). Noticeably, mental stress became increasingly common in younger learners, since they could not independently use online learning platforms or get involved with the learning activities online without adults' assistance. *"The kids can't be left to figure out things on their own when parents are at work. It is creating a lot of anxiety for them." (Code No.21).* A parent indicated that "Students should not be negatively impacted in their grades (lost points) due to technology issues. It causes unnecessary stress" (Code No.18). Parents also pointed out that teachers' presence and scaffolding could help to reduce learners' mental stress if they can connect with teachers online. One parent expressed *"...When they (students) can ask teachers directly (via Zoom) instead of trying to figure things out on their own. It would save some mental health issues down the line" (Code No.42).*

(4). Parental struggles.

The COVID-19 posed many uncertainties for families with students at home. The various learning barriers mentioned above resulted in anxiety for both parents and students. Parents had to work extra hours to support their students' learning, yet they also reported not having the knowledge and skills to be helpful. Although previous studies found that parental scaffolds as helpful to the virtual learner including monitoring and motivating student engagement, and instructing students as necessary (Borup, 2016), most parents in our study commented that their students needed scaffolding from teachers and mental health services from schools. *"I cannot watch my 6th graders all year and chide them for doing their work. This is causing stress and a bad relationship between me and my child." (Code No. 486).*

Researchers found that parents often struggle with facilitating their children's remote learning needs when they need to take the responsibility to keep their students on schedule with online learning (Sorensen, 2012, Garbe et al., 2020). Our data revealed many parents' struggles with "In school" structure and "At home" Structure. A consistent structure would help parents to better manage their life-work balance. One parent iterated: *"As a working parent, I need to set up my child's day the night before & if a Google Meet isn't posted until the day of, I am unable to let him know." (Code No.74).*

Moreover, the absence of in-person educational options also disadvantaged children in low-resourced communities. Children's difficulty with regulating their learning was more of a concern for families with a single parent who had to juggle between economic and parenting responsibilities simultaneously, and for families when both parents were working with shifts. *"Maintaining the ability to take off work on non-in class days, financial burden placed on my family" (Code No. 540).* They could not provide their children with the support required to manage their learning. Parents with multiple children in different grades also found it difficult to manage children's learning. In addition to the time and multiple responsibilities, parents found it difficult to teach their kids as they found themselves unaware of the content and appropriate pedagogical strategies to help their kids. *"...trying to teach your child/ren while working is not ideal" (Code No.160).* Another parent noted*: "Teaching my children from home is not going well. I am their parents not their teacher and having to do both is not good for our relationship" (Code No.272)*

(5) Strong leadership is needed.

The various challenges reported by parents also indicated the lack of strong leadership and management at the school district level during emergency education (6.56%). The problems identified include difficulty of parents and children to adapt to an online learning schedule, unplanned and abrupt scheduling, uncertainty around school calendar, use of multiple platforms for teaching and learning, lack of technological and pedagogical support for teachers, health and safety issues, and digital divide issues.

In the time of crises, it is difficult to act on established principles of leadership (Leithwood et al., 2020). In this study, parents made the following suggestions regarding leadership: (a) develop a shared vision among all stakeholders and involve families in the decision-making process: "*Families similarly were excluded from the decision-making process." (Code No.377)*; (b) Set and communicate clear strategies: "*In consistency with use of technology as a means to communicate with students and collect assignments. It is creating a "searching game" for students to figure out where to get information and increases risk for missing assignments, ect. (Code No.68)*; (c) Set clear expectations: "*We need to standardize what schools are offering, it shouldn't matter who your teacher is, there should be minimum expectations." (Code No.129)*; (d) Provide opportunities for professional development: "*teachers have not been provided enough professional development on how to use Google classroom" (Code No. 214)*; and (e) Develop a more standardized hybrid teaching: "*Too much variability by teacher, School needs to create standards"(Code No.16)*.

A REVISED FRAMEWORK

Based on our findings, we proposed to revise Schwab's Traditional Curriculum Design Framework to reflect a more complex Milieu of teaching-learning for ERE. Educators and scholars recently recognized that ERE pedagogy is different from online pedagogy with the key distinguishing term 'Emergency', though they shared some similarities (Barbour et al., 2020; Whittle et al., 2020). Compared to the traditional campus-based education, ERE is much more complex and multifaceted, influenced by a range of factors (Bond, 2020b). A noticeable shift occurred in K-12 ERE where parents have been significantly involved in the milieux of emergency remote teaching-learning (Abuhammad, 2020; Zhang, 2021). The school leadership needs to play a crucial role in preparing all school stakeholders for the ERE in which instruction would take place from the school to home effectively (Christensen & Alexander, 2020). The whole procedure involves all stakeholders and relies heavily on various technology resources and support. New challenges from technological, pedagogical, social and other aspects have emerged in such situation for stakeholders in K-12 education (Cardullo et al.,2021; Ferri et al., 2020).

The adoption of online learning in an emergency brought a shift from Schwab's traditional teaching-learning milieux to emergency remote teaching-learning milieux. With the empirical data, we identified the essential factors and challenges of the emergency remote teaching-learning milieux from parents and guardians' perspectives. Therefore, parents' role, school leadership, pedagogy and technology are emphasized in the Milieu of teaching-learning. The revised framework is shown in Figure 2.

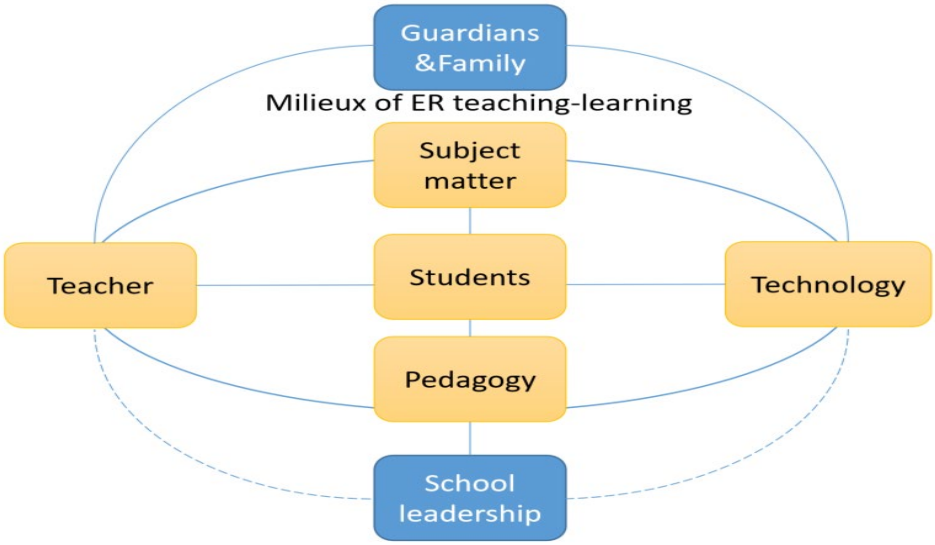

Figure 2. The Revised Schwab Curriculum Framework.

STRONG SCHOOL LEADERSHIP. A well-functioning teaching-learning milieu requires a coordination of effective school leadership with all stakeholders. Emergencies such as the pandemic may prevent face-to-face daily communication between schools and families, resulting in significant changes and variation in communication channels between parents and teachers. As some parents mentioned an overload of daily emails from teachers, while some complained about the complete loss of contact with teachers. Second, many parents noticed that their children had little to do at home because of the very limited online synchronous instruction or uneven asynchronous self-paced instruction. They questioned and compared pre-pandemic school education with ERE, in terms of academic standards and learning effectiveness. Third, parents perceived that teachers were not able to incorporate ICT-supported instruction and did not fully understand students' learning needs. A preparedness on professional development on ICT-supported instruction and online/hybrid class management was lacking. Our findings showed strong evidence on the importance of school leadership's role in the emergency remote teaching-learning milieux, the effectiveness of instruction, assessment, and feedback.

The issues identified by the parents suggest that the virtual school management is different from the brick-and-mortar school. Beck, LaFrance, and Richardson (2014) illustrate four broader categories of differences in virtual and brick-and-mortar schools including: interacting with students, teacher supervision, providing professional development, and managing day-to-day operations. Leadership and management is evidently different across the media of communication. Thus, there is a dire need to invest and support teachers and school management in conducting online teaching and schooling, to not only enhance the current pedagogical repertoire and tap into technological resources to engage students in deep learning, but also to prepare for similar or other emergency situations that might happen (Metcalfe & Perez, 2020).

SUPPORT FOR FAMILY INVOLVEMENT. Parents shared their struggles with helping their children's learning at home amongst time conflict, financial burden, and other parenting responsibilities. Noticeably, the changes of teaching-learning milieux affected instructional practices and quality in many aspects. With the transition from in-person to remote instruction, parents had to adapt to their new roles in facilitating their children's learning in school subjects, managing the online class schedules, and assisting the use of online learning technologies and digital resources. Many reported that they could not teach the subject content or monitor the learning track for their students, did not have sufficient technology

skills and knowledge, or did not have the technology resources needed, and did not receive support from schools. Previous studies determined that parents' attitude towards remote learning are mixed (Selwyn et al., 2011) and identified the most challenging and favorable aspects of K-12 online instruction for parents (Sorensen, 2012). Goodall (2016) found that schools and teachers needed more guidance to improve the parental involvement experience, particularly in effective use of technology. We suggest that parents need to be involved in the decision-making process during ERE, engaged in ongoing communications, and provided technical support and clear guidance as needed during the process.

EFFECTIVE TECHNOLOGY INTEGRATION IN ERE PEDAGOGY. Another significant aspect of ERE Milieu is that technology plays a critical role on how instruction is delivered to students. Moreover, the quality of ERE highly relies on teachers' meaningful technology integration in teaching (Crompton et al., 2021), students and their families' access to digital learning resources (Rapanta et al., 2020), and students and guardians' readiness to adopt remote learning (Ewing & Cooper, 2021). Aguilar (2020) characterized digital divide under the COVID-19 crisis as what technology students had access to, where they accessed it, and what infrastructure was in place to enable its use. What has not been discussed is how to make meaningful teaching and learning with any available technology on hand. Thus, for the proposed Milieu of teaching-learning for ERE, we emphasized on the integration of technology into ERE pedagogy and digital literacy of all ERE participants (teachers, students, and parents/guardians). One related significant factor is learners' self-regulation ability to learn online or hybrid. Any form of online instruction should consider students' digital literacy as well as their self-regulated learning abilities.

CONCLUSION

The COVID-19 pandemic crisis has affected almost all students around the world (UNESCO, 2020), and forced many educational institutions to transition to remote learning with little to no preparation (Azevedo et al., 2020; Kong 2020). Unlike previous short-term and localized education interruptions, the globalized pandemic in today's interconnected world forced educators to be prepared for online or hybrid education when needed. It is imperative to investigate the solutions, readiness and encountered challenges of emergency continuing education from all parties involved during the process.

The pandemic reshaped the family microsystem that had become the new norm for technology-supported learning and working environment (Coppola et al., 2020). The challenges at home can be exacerbated by stakeholders' lack of preparedness in using technology for instructions and inadequate communication (Barko-Alva et al., 2020). An understanding of parents' perspective suggests that it is important to develop resilient school systems where all the stakeholders are supported to succeed in emergency situations. Specifically, it would be critical to a) prepare teachers with the technological skills and pedagogical strategies to engage learners and manage learning in online and hybrid learning environments; b) strengthen the communication channel with parents and guardians to ensure their engagement; c) help students develop self-regulation and resilience; d) provide support for students with special needs; and e) to provide technological, emotional, and psychological support to students and families. It is also important to analyze students' evolutionary needs and provide ongoing support accordingly.

Based on our findings on online/hybrid learning in K-12 settings, we proposed to add several new factors for consideration to Schwab's traditional Curriculum Design Framework. In addition to the original four common places (Teacher, Learner, Subject Matter, and Milieux of Teaching-Learning), analyzing online or hybrid ERE needs to also consider (1) the role of guardians and family as they provide learning support and complement to teachers' role, (2) the role of technology as online/hybrid ERE heavily relies on technology

resources and learners technology competencies, (3) the role of pedagogy as the unique nature of online/hybrid ERE in K-12 settings requires teachers to be able to effectively employ instructional strategies to support student learning in digital environment, and (4) the role of school leadership, which is particularly crucial in online ERE to ensure the overall system works efficiently to provide resources and support teachers, students, and parents. This revised framework encourages a more comprehensive and in-depth analysis of the ERE Milieu of teaching-learning in which the educational process situates. The revised framework emphasizes strong school leadership in preparing all school stakeholders for the ERE in which instruction would take place from the school to home effectively, involving all stakeholders, particularly parents and guardians, in the overall process of ERE, and providing various technology resources and support to address challenges from technological, pedagogical, social and other aspects that emerge in ERE situations. We also call for more empirical research to further examine and validate this revised curriculum design framework to guide future ERE research and practices.

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