# Preliminary COVID-19 Pandemic Lessons Learned from Educational Technology Coaches, Coordinators, and Specialists

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Natalie B. Milman, Ph.D. The George Washington University nmilman@gwu.edu

Jessa Henderson, M.Ed. The George Washington University jessa henderson@gwu.edu

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# COVID-19 Pandemic Lessons Learned from Educational Technology Coaches, Coordinators, and Specialists

In early 2020 a new Novel Coronavirus (COVID-19) began circulating in China (World Health Organization, 2020). By mid-March the United States had declared a national emergency, COVID-19 cases had been identified in all 50 states, the U.S. Center for Disease Control and Prevention (CDC) recommended limiting the number of people at physical gatherings, and some areas had started issuing shelter-in-place ordinances to curb the spread of the virus (Schumaker, 2020). Schools around the country had to make tough decisions on how best to protect students and staff in the face of the worsening COVID-19 situation, with many schools opting to close physical school buildings and move learning to a temporary, virtual environment. The instructional situation created by COVID-19 is often referred to as online or virtual learning; however, true online learning takes well-thought-out instructional design and a well-built ecosystem for student support (Hodges et al., 2020). A much better nomenclature for what occurred in US schools in the spring of 2020 and, for many schools, during the 2020-2021 school year is "emergency remote teaching and learning" (ERTL) as the move to learning in a virtual environment happened without warning in response to a once-in-a-lifetime pandemic (Hodges et al., 2020; Milman, 2020a; 2020b).

The 2020-2021 school year for US K-12 schools has been a mixed format depending on the area of the country in which the school system operates, with some school systems opting for in-person classes, some for virtual, and some a plan that blended both in-person and virtual. Moreover, entire schools or particular groups of affected or potentially affected groups have had to switch, sometimes with little-to-no notice, to an alternate teaching and learning format (e.g., in-person to virtual). Traditionally, instructional technology coaches are an important organizational resource to support administrators and teachers with effective integration of

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technology into the curriculum (Frazier & Hearrington, 2017; Hodge, 2017; Machado & Chung, 2015; Peterson, 2015; Stanhope & Corn, 2014). For school systems engaged in ERTL, either fully online or blended, the instructional technology coach is a critical instructional resource for supporting a variety of stakeholders during these extraordinary circumstances. Generally, there are very few published studies investigating mid-level educational technology leaders (i.e., information and communication technology coordinators, technology coaches, coordinators, and specialists) compared to other types of instructional leaders (such as school principals). This study contributes to the gap in the literature of lessons learned from individuals in these very important, front-line roles. Moreover the findings provide empirical data about what they did and how they did it during a pandemic, across grade levels and content areas, as well as to support students, their parents/guardians, faculty, and staff. These findings may also help schools, districts, and policy makers better comprehend mid-level educational technology leaders (i.e., technology coaches, coordinators, and specialists) staffing needs.

In a recent survey sponsored by Digital Promise of instructional technology coaches across the United States, researchers found that the role of coaches had changed to include less deep coaching with individuals overall but greater reach in the number of teachers and administrators with whom they worked (Bakhshaei et al., 2020). Coaches also reported having an important role in assisting school administrators in professional learning creation and implementation, assisting families in online platform use, and assisting teachers in digital tool selection and implementation. While they reported that role responsibilities were extending beyond traditional work hours, they also reported feeling more appreciated and understood by the faculty they served (Bakhshaei et al., 2020).

This study aims to gain a deep understanding of K-12 instructional technology coaches' experiences during the 2020-2021 academic year. This qualitative, in-depth examination into the role(s) and resources of instructional technology coaches during ERTL provides a realistic look at on-the-ground support and implementation. In this study we investigated the following research questions:

- 1. What lessons did K-12 technology coaches learn while supporting students, their students' parents/guardians, faculty, and staff during the COVID-19 pandemic?
- 2. How did K-12 technology coaches support digital equity (e.g., how did they support students' access to devices and reliable, high-speed internet)?
- 3. What policies and practices were used, created, adopted during the COVID-19 pandemic?
- **4.** What supports (e.g., instruction or professional development) were needed, implemented, and planned for stakeholders to support them during the COVID-19 pandemic?

## **Conceptual Frameworks**

Two conceptual frameworks influenced the research questions and design of this study, the International Society of Technology in Education (ISTE) Standards for Coaching (ISTE, 2019) and the Levels of Digital Divide in School Framework (Hohfeld et al., 2008). The ISTE Standards for Coaching consist of seven standards. These standards include a technology coach as a: change agent, connected learner, collaborator, learning designer, professional learning facilitator, data-driven decision-maker, and digital citizen advocate. These standards were used as a design framework for conceptualizing benchmark roles that instructional technology coaches may be filling.

The Levels of Digital Divide in School Framework (Hohlfeld, Ritzhaupt, Barron, and Kemker, 2008, p.1649) consists of a pyramid representing three digital divide levels. The bottom, first level of the pyramid is "School Infrastructure" (i.e., hardware, software, internet access, support for technology). The second level is the "Classroom" and use of technology by teachers and students. The third level, "Empowerment of Students," involves the individual student (p. 1649). For this study, it has been expanded (see Figure 1) and is referred to as the Digital Equity Framework to avoid using a deficit perspective—Level 1 also includes "technology maintenance" (Gonzales, 2016, p. 234) and Levels 2 and 3 involve other stakeholders (parents/guardians of students) whose technology use, knowledge, and skills are critical for ERTL.

Figure 1

Digital Equity in School Framework

Empowerment of
Students, Teachers, Staff,
& Students'
Parents/Guardians

# 2nd Level - Classroom:

Use of Technology by Students, Teachers, Staff, & Students' Parents/Guardians

## 1st Level - School Infrastructure:

Hardware, Software, Internet Access, & Technology Maintenance

#### Literature Review

## **Online Learning**

While the literature on virtual K-12 learning cannot be fully generalized to ERTL due to the plethora of unique variables between the two, there can be takeaways that may be relevant for the current situation. Rehn, Maor, and McConney (2018) conducted a qualitative study of a sample of synchronous, online, K-12 teachers. They found that when teachers transitioned to online learning they were often not trained in the technology and often not trained in new pedagogical skills for the virtual context. This is in-line with a report by the National Education Policy Center (NEPC, 2019) that recommended that research-based certification, licensure, and training requirements needed to be developed specifically for virtual teaching (Molnar et al., 2019). For Rehn, Maor, and McConney (2018), a lack of training meant that the teachers in their study were forced to translate their traditional in-person training to that of a virtual environment. They recommended that teachers be specifically trained in projecting a virtual presence, developing relationships with students virtually, and fostering digital interaction between students. Instructional technology coaches are in a position to facilitate the learning of new instructional practices in the ERTL environment in comparison to traditional learning settings.

## **Institutional Support in Technology Acceptance and Use**

Research has demonstrated that one antecedent for individual teacher technology readiness is institutional support (Ertmer & Ottenbreit-Leftwich, 2010; Howard et al., 2020; Venkatesh, Thong, & Xu, 2016). Instructional technology coaches, often teachers themselves who are viewed as mid-level leaders, have been found to be a beneficial institutional tool used to educate, model instructional practices, and troubleshoot with the teachers they serve (Hodge, 2017; Machado & Chung, 2015; Sugar & Slagter van Tryon, 2014). This study relies on the idea

that instructional technology coaches are a key resource for schools, as institutions, in supporting the effective implementation of instructional technology by teachers.

#### Method

This study was designed from a social constructivist philosophical perspective. Social constructivism believes that "reality is co-constructed between the researcher and the researched and shaped by individual experiences" (Creswell, 2013, p.36). The experiences of technology coaches during ERTL are subjective in nature and vary not only based on region and resources, but also based on their own interpretations of the situations in which they find themselves.

Additionally, the researchers' own backgrounds as a technology coach and a professor of educational technology adds extra layers of meaning as it was the researchers who interpret participant responses and descriptions through their own lenses and experiences.

This interpretive design qualitative study was part of a two-phased quan  $\rightarrow$  QUAL sequential mixed methods design study (Morse, 2003, p. 198). Sequential mixed method design studies, which fall under the mixed method umbrella, consist of two methods that occur in different phases of a study, each applying different methods, and conducted sequentially. The quantitative phase supported the purposeful selection of participants in the qualitative phase, in addition to addressing other research questions. This qualitative methodology allowed for the creation of detailed descriptions that highlighted how participants experience a particular situation or phenomenon without the underlying philosophical assumptions that the description captures similarities of all those who experience the phenomenon, like in phenomenology (Merriam, 2002).

## **Study Participants**

In this study we contacted the 21 instructional technology coaches, coordinators, and specialists in the United States who volunteered to participate in interviews after completing an online survey from the first phase of the study. Participants were full-time or part-time educational technology coaches (Drennan & Moll, 2018; Peterson, 2015; Sugar, 2005; Sugar & Hollman, 2009; Sugar & van Tryon, 2014) who were supporting US K-12 schools during the 2020-2021 school year. Individuals in these roles have various titles such as "technology coordinator," "technology coach," or "educational technology specialist." Participants were selected from a convenience sample of technology leaders. Of the 21 volunteers, 12 scheduled and completed semi-structured interviews.

Recruitment occurred via Twitter, the Instructional Technology for Teachers, Coaching via Technology, and Instructional Coaches Facebook groups, and the ISTE Education Leaders Network, Edtech Coaches Network, Technology Coordinators listservs. The unit of analysis for the qualitative phase of the study was mainly focused at the individual level. Individual technology coach reports of their roles, responsibilities, supports, and resources were the focus of this study, not the objective resources purchased by the school system for ERTL or district-level perspectives of the role of and resources for technology coaches during ERTL.

## **Procedure**

Approval was granted from the GW Institutional Review Board (IRB) prior to data collection. Survey recruitment occurred via Twitter, Facebook, and ISTE listservs. Interview participants were contacted after they volunteered through the digital survey. Contact was made via email and interviews were scheduled. Participants were provided informed consent to participate in writing and acknowledged a clear understanding of the purpose, risks, and benefits of participating in this study. Interviews were recorded and transcribed via WebEx

(https://www.webex.com/), a webconferencing tool that also transcribes recordings. Transcripts were downloaded, cleaned, and analyzed using Atlas ti software (https://atlasti.com/). Analysis was completed in two stages. This paper represents the findings from the preliminary analysis. A deeper qualitative analysis of the data is the next step for the researchers. The research procedure around data collection and analysis is written in more detail below.

**Data Collection.** For the quantitative phase of the study, participants completed a survey in Qualtrics XM (https://www.qualtrics.com/) that collected information about role and responsibility changes during COVID-19. This survey collected participant contact information for those interested in volunteering for the semi-structured interview. A total of 21 people indicated they would be interested in participating in an interview, with 12 out of 21 scheduling an interview. One semi-structured interview was conducted with each participant. These interviews lasted between 22-78 minutes. They took place via the web conferencing platform Webex due to Webex's ability to record audio and not video. Initial questions were pre-written. These questions were open ended and focused on how the (1) roles and (2) resources that each instructional technology coach experienced have changed from before ERTL to currently in ERTL. Participants were prompted to think of role and resource changes in connection with different stakeholders' perspectives. The stakeholders of focus included (1) families, (2) administrators/school leaders, and (3) teachers. This allowed the researcher to better understand not just how the job roles and resources have changed overall, but how they have changed with each of the three stakeholder groups. These were semi-structured interviews as the main openended questions were written in advance, however, the researchers had the ability to ask additional follow-up questions to clarify or gain additional insight based on participant responses. Questions were also able to be asked in any order depending on the flow of the

conversation. Transcripts were auto created after the interview through Webex. Transcripts were reviewed and cleaned by the researcher who conducted the interview and shared with the other researcher for analysis.

Data Analysis. Transcripts were created of the audio of each interview. For an understanding of preliminary results, researchers analyzed responses using analytic induction (Erickson, 1986). Analytic induction calls for the generation of empirical assertions which are then warranted through a search for instances of confirming or disconfirming evidence. Through the analysis of data and the questions that originated the study, a set of empirical assertions were \formulated and warranted through a search of confirming and disconfirming evidence. Both researchers worked to find consensus in assertions.

Validity and Reliability. It is important to again stress that the results of this study do not generalize to all instructional technology coaches during ERTL. The themes discussed in the findings will only be applicable across the participants of this study. Both researchers involved in this process separately coded the interview transcripts, developed themes, and compared similarities and differences in responses. They came together to compare ideas and develop key take-aways for each research question. This process was designed to increase the reliability of findings.

## Limitations

A major limitation of this research is that the number of participants is very small; therefore, this study is not generalizable at all. While comparison will be conducted between the sample of cases included in this study, larger assumptions about differences in instructional technology coach roles and resources between school system settings on the whole cannot be made.

#### Results

Preliminary results around each research question are detailed below. These results are part of a larger, more formal qualitative analysis that will be shared in future work. The following includes demographics/context for the technology coaches, as well as the preliminary assertions.

# **Demographics and Context**

The technology coaches' backgrounds and contexts in which they worked varied. For instance, 9 identified as female and 3 as male; the average number of years teaching for all of the coaches was 19.75 years total and 8.83 years in their current position. Additionally, they taught in public schools (9), independent/private (2), and other (1) of which 2 were in elementary schools, 2 in middle schools, 1 in a high school, 1 in a k-8 school, 3 in K-12 schools, 1 in 5-12 schools, 1 in a 6-12 school, and 1 noted "other." However, while these were the current teaching scenarios, these were not all consistent teaching formats for the full academic year. For instance, TC1 noted that the day of the interview was the first day in which students were returning to inperson teaching though a small number were continuing remotely. Table 1 shows the format in which the coaches responded their schools/districts had offered instruction during the academic year and also how they were currently teaching. Following the table are the preliminary assertions that were warranted through analytic induction.

Table 1

Teaching Format (Participants could check all that applied)

Format	<b>Current Format</b>	2020-2021 Year
Fully Virtual	0	0
Blended/Hybrid	7	1
Fully In-Person	2	0
Combination:	3 (Fully Virtual, Blended/Hybrid,	11 (Fully Virtual,
	Fully In-Person: 2,	Blended/Hybrid: 6;
	Blended/Hybrid, Fully In-Person,	Fully Virtual, Blended/Hybrid,
	Other: 1)	Fully In-Person: 4)
		Blended/Hybrid, Fully In-
		Person: 1)

## **Assertions**

- 1. Major lessons learned involved synchronizing technology systems, building trust in a non-evaluative role, and flexibility responding to a variety of ever-changing needs.
- 2. Technology coaches' roles shifted from being primarily instructional to being more of a technical support role which fostered digital equity via school infrastructure (level 1) and "classroom" use needs (level 2).
- 3. Technology coaches implemented a variety of policies and practices that promoted standardization and seamless use of the technologies used/adopted within their schools.
- 4. Technology coaches provided emotional support, technical support, and professional development to teachers to learn how to use technology and noted their own PD and network of technology coaches within their schools and districts were the greatest sources of support to them.

## **Major Lessons Learned**

The technology coaches interviewed expressed many different lessons learned. Common themes among them involved synchronizing technology systems, building trust in a non-evaluative role, and flexibility responding to a variety of ever-changing needs. Synchronizing technologies among the variety of technologies used in all of the technology coaches' schools was challenging. Each technology coach supported several grade levels and schools and each of these used a variety of technologies. They had to identify ways to sync the various technologies they used.

The technology coaches noted how important it was to build trust with teachers, students, and in many cases, students' parents/guardians too. They explained it was also very beneficial to be in non-evaluative roles. Their non-evaluative roles helped them build strong relationships where stakeholders could share their own vulnerabilities and mistakes. Additionally, being flexible problem-solvers was noted as a huge lesson learned. Although this may not seem unusual for most educators, the level of flexibility that technology coaches needed to deal with was critical to their roles. Tech coaches also had to solve myriad problems.

# **Shifting Roles in Support of Digital Equity**

Most technology coaches noted that their schools had one-to-one (1:1) computer programs in place before the pandemic (i.e., each student had a computer they could use in school and many also at home) or had plans underway to implement 1:1 computing in their schools/districts. The pandemic accelerated these efforts and provided funding through the Coronavirus Aid Relief, and Economic Security (CARES) Act for the Elementary and Secondary School Emergency Relief Fund (ESSER Fund).

Most participants stressed their focus on technology tools for this school year, emphasizing the need to ensure that stakeholders (i.e., teachers, students, administrators, and parents) knew the buttons to click and how programs operated. Overwhelmingly, participants believed that the stakeholders with whom they worked saw benefit in educational technology tools and resources, even many who were not on board with edtech prior to the COVID-19 pandemic. A majority of participants reported that the planned focus for next year and beyond was to move beyond how tech tools worked and focus on pedagogically-based best practices for integration.

## Policies and Practices that Promoted Standardization and Stability

Tech coaches had to develop and implement a variety of policies and practices. They indicated that they had to promote standardization and seamless use of the technologies used/adopted within their schools. Also, the majority of school-based technology specialists described close bonds that had been developed between themselves and school administration. Often technology specialists became an important member of their school's emergency working groups which allowed them to build relationships and give/receive support. This did not always translate to division-level decision maker relationships, with some school-based technology coaches reporting feeling disconnected from leaders at division central offices.

Another practice that was prevalent among all of the tech coaches as a focus on getting them up and running/in the tech OVER the way they are using. Although initially hired to focus on curriculum and instruction, this was a big shift to being more like technology support. The future more focused on integration, best practices, pedagogy, etc.

# **Emotional, Technical, and Professional Development Support**

An important recurrent theme was that of the types of support tech coaches had to give which ranged from emotional support to technical support, to professional development. The tech coaches did not always acknowledge 'how much' responsibility they have had to carry, and a few got emotional during our interviews. Even so, much of their focus was on the teachers and students they served and not on their own workload.

## Hope, Positivity, and a Focus on the Future

The main take-away for the researchers was the overwhelming level of positivity and optimism from the participants during a once-in-a-lifetime situation. They all acknowledged the difficulties of the 2020-2021 school year but frequently chose to focus on the positives that came out of the year and held real optimism for the future. At times the technology coaches even became emotional about the challenges they experienced, what they accomplished, and how wonderful the people around them were: teachers, students, their parents/guardians, and staff. There is no doubt these experiences have made them grow a great deal as mid-level educational technology leaders who have had and will continue to have great potential to impact teaching and learning for years to come.

#### Recommendations

As a result of this research, we have several recommendations which are to:

- 1. Determine needed preparation and professional development of tech coaches
- 2. Cultivate tech coach learning community and mentorship within school district

#### **Future Research**

Suggestions for future research include research that:

1. Investigates he role of tech coaches in decision-making processes

- 2. Examines how many tech coaches should support teaching and learning per school/teacher/classrooms
- 3. Identifies how ed tech coaches best support teachers, students, and staff post-pandemic
- 4. Surveys schools that do not have tech coaches to understand why they do not.

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 $\underline{timeline?gclid=EAIaIQobChMI3vmP1KWx6wIVgrLICh2iGQ6nEAAYASAEgIxdPD\_B}\\ \underline{wE}$ 

# Appendix A: Researchers' Subjectivity Statement

The researchers' interest in this research topic was influenced by their prior work experiences as instructional technology coaches. These experiences as tech coaches (2 years for Natalie and 3 years for Jessa) influenced their personal understanding of the role and cultivated an emotional connection to the role's purpose and potential. Each also has depth of experience as former classroom teachers (and as a professor of educational technology) integrating technology into their instruction. Neither of us has any experience working as an instructional technology coach during ERTL. These subjectivities will be well documented in advance of interviews through a subjectivity memo and will be well documented in the presentation of findings as this background may unintentionally influence the way we interpret findings and should be a consideration of those who read and use the findings.