

School Closures and Remote Learning:
Plans, Guidelines and Strategies for Effectively Teaching in Virtual K-12 Classrooms

Janet Schwarz
ECI 652
NC State University

November 29, 2020

School Closures and Remote Learning: Plans, Guidelines and Strategies for Effectively Teaching in Virtual K-12 Classrooms

I.	INTRODUCTION	3
A.	PROBLEMS IDENTIFIED WITH MY KIDS’ REMOTE LEARNING EXPERIENCES	3
i.	<i>Primary School Concerns</i>	3
ii.	<i>Secondary School Concerns</i>	4
B.	IMPLICATIONS.....	4
II.	THE REALITY OF REMOTE LEARNING: DATA, FACTS & GENUINE SENTIMENTS	5
A.	INTRODUCTION TO DATA.....	5
B.	PARENTS & KIDS	5
i.	<i>Work-Life Balance</i>	6
ii.	<i>Physical, Social & Emotional Tolls</i>	6
iii.	<i>Special Needs & Motivation</i>	7
iv.	<i>Please Help Us!.....</i>	8
v.	<i>General Thoughts on Remote Schooling</i>	8
C.	TEACHERS & STAFF.....	9
III.	CONSIDERATIONS & PLANNING	10
A.	FAMILY & HOME CIRCUMSTANCES.....	10
i.	<i>The Sudden Shift to Remote Learning</i>	10
ii.	<i>Home Situations & Overwhelmed Families</i>	10
iii.	<i>The Need for Instructional Guidance & Support.....</i>	11
B.	ACCESSIBILITY CONSIDERATIONS	12
i.	<i>Equity & the Digital Divide.....</i>	13
ii.	<i>Students With Disabilities.....</i>	14
iii.	<i>English Language Learners & Other Vulnerable Populations</i>	15
C.	SELF-REGULATED LEARNING (SRL).....	16
i.	<i>Curriculum Pacing Strategies</i>	16
ii.	<i>Issues of Motivation & Engagement</i>	17
iii.	<i>Offering Support for Students & Families.....</i>	19
iv.	<i>Strategies for SRL in Online Groups.....</i>	20
IV.	CURRICULUM, INSTRUCTION & DESIGN	21
A.	PEDAGOGY & LEARNING OUTCOMES.....	21
B.	REMOTE LEARNING GOALS & INSTRUCTIONAL CONTENT.....	23
C.	SUPPORT, FLEXIBILITY & STUDENT OUTLETS	25
D.	THE LMS AND OTHER LEARNING CHANNELS.....	26
E.	DIFFERENTIATION & SPECIAL POPULATIONS.....	27
V.	STRATEGIES & RECOMMENDATIONS FOR TEACHING STAFF	31
VI.	EXAMPLE PLANS & IDEAS.....	35
A.	DISCOVERY-DRIVEN PLANNING.....	35
B.	THE CAFE INSTRUCTIONAL DESIGN MODEL.....	36
C.	THE ERTE FRAMEWORK.....	41
D.	ADDITIONAL WORTHWHILE IDEAS.....	44

I. Introduction

My children attend an elementary and a middle school in a large, urban district in North Carolina. Managing my kids' remote learning has been quite an experience since mid-August 2020, and almost a full-time job in itself. As someone who is an experienced licensed teacher working to complete a Master of Education in Learning Design & Technology, I have been discouraged with the problems I've encountered during my kids' remote learning experiences. Ineffective teaching strategies, inconsistencies, and a general lack of assistance have plagued my kids' education this semester. What's more, my middle school student's special needs have further been hampered by remote instruction.

I read and researched various sources looking for remote learning framework recommendations and best practices, specifically during crises. In doing so, it became more apparent to me that so much more can be done by the state, districts, and schools. With thoughtful consideration, there are numerous strategies and suggestions that can be integrated into the current practice of remote and hybrid learning. In compiling this informational remote learning guidance plan, I will explore some ongoing issues with remote learning while showcasing example plans, guidelines, and strategies for K-12 virtual classrooms. Additionally, I will be including suggestions for special education students and other vulnerable populations who continue to struggle with remote learning, but are not always considered when decisions are being made.

A. Problems Identified With My Kids' Remote Learning Experiences

Before reading the various resources for this project, I took notes on my own kids' remote learning experiences. I wanted to have a solid idea of what remote learning in practice looks like. Managing my kids' synchronous and asynchronous instruction, independent work sessions, resources and materials, breaks, and lunch has been stressful and time-consuming. There is so much more involved with remote learning than simply learning. Here are some problems we have encountered since August 2020.

i. Primary School Concerns

- Classes canceled when teacher is out, leaving caregivers to fill the time with appropriate instruction.
- With no email or chat option, primary students have no way to contact their teacher for help during the school day. The caregiver must intervene.
- During scheduled academic practice, the teacher is not always available for help or questions.
- Lunch and physical activity is 1.5 hours, from 11:30-1:00. Caregivers are left to fill excess time.
- Students need to be able to practice writing on paper rather than continuous digitized learning.

- Students do not have the typing skills necessary for full-time online learning.
- There is little learning occurring on asynchronous learning days. Caregivers are left to fill the excess time.
- There is too much downtime with little to no differentiation.

ii. Secondary School Concerns

- Classes cancelled with little to no prior notice.
- Classes unexpectedly shortened to 8-10 minutes instead of the scheduled 30 minutes.
- General inconsistencies among teachers with regard to remote learning procedures.
- Clear instructions are not always provided by teachers.
- Inadequate help available during scheduled independent work time.
- While all students are using the Google Classroom LMS, links to external resources and activities can be confusing and activities often lack specific directions.
- Students still need to be able practice writing on paper rather than continuous typing and digital learning.
- There is often too much work given with little help provided for my special education student.
- There is little to no differentiation and teachers often assign low-quality assignments.
- Typing and note-taking skills are very much needed at this level for successful online learning.
- Inattention or inability to implement individualized education programs (IEPs), even when modified for remote learning.

B. Implications

These are only some of the problems we have encountered with remote learning thus far. After researching, I found that these problems are common across the board for K-12 remote learning. Students are stressed and confused. Parents are overwhelmed and need support. The Digital Divide is more present than ever. Special populations are not receiving the attention they need. And teachers are doing the best they can given their limited resources and lackluster training. My ultimate goal with this project is to compile various resources and suggestions based on current data in order to foster positive student outcomes in a remote environment. I think that highlighting the disparities brought on by remote learning is the first step toward finding plausible solutions. I found an abundant variety of strategies and recommendations specifically for remote learning during the pandemic. On top of this, I discovered new instructional design plans created for the crisis. For remote learning, understanding the problems, exploring solutions, and including appropriate instructional design principles will work to mitigate the dilemmas affecting educators, students, and their families.

II. The Reality of Remote Learning: Data, Facts & Genuine Sentiments

A. Introduction to Data

The United States education system was never made to endure lengthy school shutdowns such as those that came alongside the COVID-19 pandemic (Dorn, Hancock, Sarakatsannis, & Viruleg, 2020, p. 2). Interestingly, the longer schools were closed, the more kids and their parents seemed to miss their presence. “There is the specter of a rejuvenation in Americans' attitudes toward schools, or at least a recognition that the role they play as a provider of social services is indispensable [*sic*],” expresses Education Week’s Stephen Sawchuk. He further explains that schools’ “functions ought to be reinforced so that schools aren't left alone to face future crises” (p. 4).

Prior to COVID-19, one in seven students “lived in homes with only one computing device for the whole family” while only 56% of adults in households making less than \$30,000 per year had access to broadband Internet (Reich, Buttimer, Fang, Hillaire, Hirsch, Larke, Littenberg-Tobias, Moussapour, Napier, Thompson, & Slama, 2020, p. 1). What’s more, half of Hispanic students were unlikely to complete an assignment simply due to a lack of connectivity. In addition to this, “42% of students say they received a lower grade on an assignment because they didn’t have access to the internet” (McLaughlin & Resta, 2020, p. 10). Obviously, there were serious problems evident even before the COVID-19 pandemic.

Now, enter remote learning. Or, the attempt at remote learning in many places. Only 60% of lower income students are regularly logging in for their online classes whereas 90% of higher income students do (Dorn et al., p. 5). At the same time, “62.3% of parents reported devoting more than one hour per day supporting their child’s learning while schools are closed,” even though parents are already stretched thin and may not be available to assist their child’s learning (Garbe, Ogurlu, Logan, & Cook, 2020, p. 48). Very few kids can manage their own autonomous learning without some outside help. All in all, most schools are doing the best they can given the circumstances. “I think it’s going to start, hopefully, a conversation—a reminder that schools may not eliminate achievement gaps, but they do a lot to limit the size of them, and do a lot of good work in providing social services,” says Ethan Hutt, an assistant professor in the school of education at the University of North Carolina, Chapel Hill” (Sawchuk, 2020, p. 4). Courtesy of the pandemic, schools are undergoing many changes to prepare for potential future disruptions in learning. But, will these plans and preparations ever lessen the constraints put on caregivers if schools were to close again?

B. Parents & Kids

“Dumpster fire. Epic Fail. ‘A bad joke’” (Zuckerman, 2020). Aside from data, we must acknowledge the personal experiences associated with remote learning from both parents and children. How they perceive remote learning emphasizes the realness of this situation and its emotional toll on everyone involved. Suzanne Zuckerman talks about her survey of kids and parents, but adds some words of caution:

The great news is that kids are adapting, and in some cases, thriving in online and hybrid learning environments. The qualifier is that the population we queried is relatively privileged. Their answers do not necessarily reflect the worst tragedies of our collective circumstances: Students who have lost parents to Covid-19. Mothers leaving the workplace in droves. Tech inequity. Untold numbers of “lost” children—some who can’t attend school because they’re caring for younger siblings; uncounted others falling through the cracks of the class and race divide. It’s also clear that all of these kids are challenged by endless hours on screens, insufficient social interactions and technical difficulties.

Almost everyone is still struggling with remote schooling, but to varying degrees. Based on parents’ and kids’ feedback about remote learning from various research data, certain themes became evident. I classified these themes as: 1.) Work-Life Balance, 2.) Physical, Social, and Emotional Tolls, 3.) Motivation & Special Needs, 4.) Please Help Us, and 5.) General Thoughts on Remote Schooling. Educators need to be listening to feedback like this while also working to make appropriate changes.

i. Work-Life Balance

Many parents described their struggles balancing home, work, and remote learning responsibilities. According to one mom, “Finding balance has been my biggest struggle. Trying to manage working, quality time with my kids, housework, getting my master’s degree online, and keeping my own mental health strong” (Garbe et al., p. 52). With remote learning, parents have been jettisoned into the primary role of teacher. This new job “has created additional hardships on most parents,” with 62.3% of them “spending more than one hour per day supporting their child’s learning at home” (p. 56-57). The fact is that “most families do not have someone to take on the full-time role of supporting remote education” (p. 58).

ii. Physical, Social & Emotional Tolls

Most of us recognize that remote learning is not ideal for the majority of school-aged kids. Socially, kids want to be around their peers and feel a sense of belonging. Amy (5th grade) describes remote learning like this: “What I dislike is that I can’t work with my friends. I also dislike that I can’t have lunch with others. It can get pretty boring eating lunch by yourself” (Zuckerman, 2020). In addition to this, Sadie (6th grade) states,

I didn’t like remote school because I couldn’t see all of my friends. And I hated the Google meets, so I didn’t attend any of them. And it was so annoying, because everyone thought I was sick when I didn’t attend! I also didn’t like missing my 5th grade graduation and all of the trips we were supposed to take at the end of the year.

K-12 students are social creatures. They learn from each other and help each other learn. When they are at home isolated from their peers, the social connection that once helped them thrive

is gone. Lilah (1st grade) describes remote learning as “very hard because my brother had to homeschool too and there was only one mommy to teach us.” While she likes to “see the wonderful faces of [her] friends through Zoom,” she wishes “that school was regular again.” Lilah also misses “playing on the playground and doing the monkey bars with my friends.”

As if its social impact wasn't enough, remote learning is starting to take a physical toll on our kids too. Henry (3rd grade) explains, “I ... don't like staring at a screen for six straight hours. It gives me a headache and makes me feel tired and stressed.” Along the same line, Claire (5th grade) laments “I don't like that you have to be on the computer all the time and you can't stand up unless you have a short break.” With so much screen time, are kids really getting the exercise and play that they need? Also, is there a way to give students some virtual social time with their peers?

However difficult remote learning is for kids, many parents are suffering too. One parent's response from a recent study outlines the serious emotional toll remote learning has taken on her (Garbe et al., p. 56):

My son has dyslexia. I find that his district is taking a very privileged and neurotypical stance on nearly everything. While my household has the financial and intellectual means to care for and educate my child, not every child is so fortunate. The stresses I feel as a wife and mother who works (ordinarily) outside the home and is under normal circumstances, pushed to my limit every week. . . this is absolute hell for me. I wake up every day and dread what awaits me. I can't sleep at night, even though I am desperately tired. I don't know how I'll get through this. I know I must, but I am beyond exhausted.

This parent's situation echoes my own. When parents are experiencing such a high level of stress and exhaustion, how can they really help their kids? Remote learning is not only difficult to manage, it's also extremely time-consuming—especially for those of us with younger or special needs students. Is there a way to make remote learning successful while also allowing parents and caregivers the time that they desperately need?

iii. Special Needs & Motivation

For parents of special needs children (myself included), remote learning in practice is exceptionally difficult. From clarifying and reexplaining directions to having to spend above average amounts of time on schoolwork, those with special needs (and their parents) are having a rough time learning at home. As this mom explains,

Both of my kids have special needs & eLearning has to be 1:1 with each of them, which isn't practical or possible. My son acts differently at school than at home (he's easygoing & cooperative at school, oppositional and inflexible at home). Last but definitely not least, I can't stand being around my kids all day every day (Garbe et al., p. 56).

It's not easy to tailor special education instruction for home because historically, necessary supports were only used while the student was physically in school. These supports may be difficult to implement at home and plans may even need to be rewritten for remote learning altogether.

Remote learning can affect motivation for special and regular education students alike. One parent explains that her son "is plenty capable but doesn't put forth as much effort as he would when at school" (Garbe et al., p. 52). Motivation can even be stifled when a parent takes on the role of teacher. This mom writes "My children don't mind learning, but they hate having Mom as a teacher. They want their own teacher back." What's more, Garbe et al.'s study found that 55% of parents attributed their child's "lack of motivation specifically to remote learning" (p. 58). So, how can remote learning be tailored to meet the needs of more students?

iv. Please Help Us!

Another significant problem with remote education is the lack of overall assistance when students and parents need it the most. Online environments are not the easiest to navigate and it's difficult to get help when problems arise. Parents have a general "desire for guidance on using the online resources and clarification on procedures" (Garbe et al., p. 54). In Garbe et al.'s study, one parent has trouble "figuring out what [students] are supposed to do, how to use the many, many different websites, and how to submit to the teacher." Another parent claims that "All of the online resources are in different places, very spread out and hard to keep track of having multiple platforms of receiving and doing school work all on different sites." If parents are finding that navigation is difficult, what about the students whose education is at stake?

In addition to online navigation, students' problems are compounded by other issues beyond their control. Ascher (1st grade) expresses "I don't like that it's hard to know what your homework is. And when you really want to say something, sometimes the host mutes you" (Zuckerman, 2020). Savannah (3rd grade) describes remote learning as "the worst thing ever. It was too hard to figure out how to use the Google slides. [But] I liked that I could mute myself and turn off my camera." On top of this, we can add technology into the mix of problems. Marlowe (6th grade) articulates "sometimes there were problems joining [online classes] and that was kind of annoying."

v. General Thoughts on Remote Schooling

Almost everyone involved in K-12 education has their own opinion about remote learning. While some praise the efforts put forth by schools, "most of the adult-driven feedback ranges from "challenging" to "a disaster and terrible for children" (Zuckerman, 2020). According to Garbe et al., many people believe that a "curriculum delivered in an online platform [is] inferior" to in-person instruction (p. 55). As such, one parent feels that students "aren't getting enough in one day. I am worried about making a year progress or any at all" (Garbe et al., p. 54). Another parent worries that schools are planning remote instruction from only the educator's perspective:

They are trying to recreate a school day, complete with work from every subject as if the parent had hours available during the day to devote to that education. And every child in a family adds to the time needed. So even if each child could do all their work in 2 hours, if you have 3 kids, that's 6 hours a day. If mom and dad are lucky enough to have jobs, they are not able to give this time to the kids AND do their job AND have all this quality time that we're supposed to be having. Oh, and cook, clean and maintain supplies without making too many trips to the stores (p. 56).

Some parents feel like remote learning is too demanding while others believe that critical components of in-person schooling are simply being left out. As one parent explains, “Both [children are] very active and are not getting enough physical activity. I also don't believe all the screen time is helping basic skills like writing and communication” (p. 55). Is it possible to incorporate skills such as physical activity and writing into remote learning while also ensuring that education at home doesn't overwhelm families?

C. Teachers & Staff

At the same time parents and students are grappling with the pandemic and remote learning, teachers, principals, superintendents, and support staff are working harder than ever on their ever-expanding job duties. “Superintendents and principals have, in effect, become social-service coordinators' organizing child care, providing meals for students, cobbling together internet access, and trying to arrange continued learning opportunities for students” (Sawchuk, p. 2). Like other superintendents, Katrise Perera, who is in charge of the Gresham-Barlow district near Portland, Oregon, “has been focused on keeping food services and social-emotional learning supports in place.” She discloses “This is stressful. I'm trying to maintain myself, and keep a level head, and be an example to my employees by staying calm and collected, even though inside, I may feel like I'm falling apart.” Similarly, Paul Kelly, the principal of Elk Grove High School in Illinois explains his job role now: “My role ... is to make sure [we] get them whatever they need, having staff members feeling like we care about them as humans and as families.”

Just as principals and superintendents are concerned for their staff, teachers are worried about their students. Jasmine Lane, a secondary English teacher near Minneapolis, explains “I'm thinking we'll have anywhere between 40 percent and 60 percent of kids show up, and 60 percent is probably high” (Sawchuk, p. 3). Jasmine continues to express concern with remote schooling:

My biggest fear—really what I'm concerned about—is there are so many kids who need you to be there to check in with them every few minutes, especially our high English-learner population. Not having that basically ensures they're going to be listening to a lecture for 45 minutes, and it's much harder to check for understanding. It's months of learning potentially gone, and less than 50 percent of kids read on grade level already. I'm worried that they'll just fall farther behind.

In addition to concerns for students, educators are also grappling with “an abrupt shift to a teaching method that few educators have been extensively trained in” (p. 2). Just as students and parents are trying to figure out remote learning, educators are trying to gauge how to teach remotely. Everyone is still learning how to make remote learning effectively work.

III. Considerations & Planning

The next part of this project aims to offer research-backed guidelines and strategies for successfully implementing a remote learning plan. Additionally, sample remote learning plans and assignments are provided to exemplify the planning and execution of online learning. This component of the project contains five vital topics associated with remote learning: 1.) Parents & Home Circumstances, 2.) Accessibility Considerations, 3.) Student Engagement & Self-Regulated Learning (SRL), 4.) Curriculum, Instruction, & Design, and 5.) Strategies & Recommendations for Teaching Staff. Each of these topics fit together to solve the puzzle of how to make remote learning effective.

A. Family & Home Circumstances

i. The Sudden Shift to Remote Learning

School closures due to the coronavirus crisis have prompted a “massive and scattershot transition” to remote learning (Herold, 2020, p. 1). According to Education Week’s Benjamin Herold, the nationwide transition to remote learning “has shifted much of the burden of schooling onto overwhelmed parents and caregivers.” When schools suddenly close and students have to learn from home, “their home circumstances dramatically affect their educational success” (Arnett & Waite, 2020, p. 40). Furthermore, districts need to acknowledge the working parents who will be supporting remote learning: “stay-at-home parents, work-from-home parents, and full-time working parents.” We all know that home and family circumstances are unique. Therefore, “one-size-fits-all solutions aren’t going to work” for everyone. While almost all parents back school closures due to coronavirus safety concerns (Garbe et al., p. 57), they continue to worry about the quality of remote learning as opposed to in-person learning. “Parents want a high quality education for their children” so that they do not fall further behind due to the lockdown (p. 59).

ii. Home Situations & Overwhelmed Families

Students’ home situations greatly impact their educational opportunities. To start with, it’s worth drawing attention to the fact that approximately 5% of students in U.S. public schools lack a stable residence (Kaden, 2020, p. 2). This makes remote learning exceptionally difficult, if not impossible, for these students. For those students lucky enough to have a place they can call home, finances may also negatively impact a child’s education. According to Drs. Robert McLaughlin and Paul E. Resta,

Lower-income parents are more likely to have to work in high-risk, poorly paid positions with few or no medical benefits and to work one or more jobs, leaving them with little time and energy to effectively supervise and support their children's remote learning.

In light of this information, even parents who are better off financially are trying to cope with working amid increased responsibilities. Even though Garbe et al.'s study primarily surveyed well-educated, upper-middle-class mothers, they found several similarities between them and lower-income parents. As an example, several participants "cited a lack of technology hardware or internet quality that created a learning barrier" (p. 54). Likewise, parents and others simply "within the physical proximity of the learner provided ... responsive, on-the-fly learning support" during remote learning (p. 59). This alone has led to difficulty balancing employment demands with student learning obligations, especially with multiple school-aged children in the home (p. 51). When caregivers are tasked with extra responsibilities such as supporting children's schooling, they can easily become overwhelmed by a "lack of personal balance" and "insufficient time to meet all of their responsibilities." As one parent sums it up, "Wearing the many hats of teacher, parent, chef, employee, and so on is difficult on any given day; taking on said roles for two children with special needs is arguably even more difficult" (p. 60). Another consideration is the fact that having mom, dad, or grandma as a teacher has been shown to negatively impact student motivation. Aside from normal household rules, "structures for learning [need] to be established, and cooperation ... could be unenticing" (p. 58). It's worth mentioning that a related challenge comes from the "increased amount of non-educational based distractions" in the home environment. Resultingly, there become even more rules for students to abide by.

iii. The Need for Instructional Guidance & Support

Justin Reich and his team of educational researchers at MIT analyzed remote learning data from all 50 U.S. states in order to create a guide of recommendations for remote learning. One of their recommendations is that "Instructional guidance should acknowledge the challenges and constraints of home-based, distance learning" (Reich et al., p. iv). Home environments and family situations can vary wildly and this can affect a student's ability to learn remotely. For example, when families are dealing with unemployment and other hardships during the pandemic, computer hardware and internet may be more difficult to access throughout the day (Reich et al., p. v). For this reason, students may have difficulty showing up to classes held synchronously. According to Reich et al., "for households with many family members, competing needs, few devices and/or limited bandwidth, asynchronous learning is more feasible." Asynchronous schedules offer the flexibility that many families need. However, Reich et al. do recommend using synchronous meetings "for office hours or individual check-ins." This way, time for one-on-one communications can be set aside for instructional assistance or other help.

Based on parental feedback from Garbe et al.'s study, synchronous meeting times would be much more valuable than synchronous instruction for interpersonal communication with families. Many parents felt that the lack of teacher communication created a formidable

instructional barrier (Garbe et al., p. 54). Parents wrestled with “unclear expectations” and also needed clarification on class procedures. Parents also mentioned the need for guidance on how to use teachers’ online resources. With a lack of online resource organization across the board, meeting with the teacher can help mitigate future frustrations with web content. In addition to this, parents generally need more support from their schools and teachers. According to Garbe et al.,

They need teachers and schools who realize they are barely able to make it through each day and are doing their best to support students. Without support and even acknowledgment of their feelings, they will not be able to maintain a healthy mental and emotional status or support their children to do the same (p. 62).

Another cause for concern is the overwhelming feeling that parents lack the skills to really help their kids. Garbe et al. considered both the lack of content knowledge and pedagogy as barriers to successful remote learning (p. 53). Parents of special needs students felt even more underprepared for remote learning because they additionally lacked the training and pedagogical knowledge required to teach special education curriculums. As a result,

Many students’ special learning needs were left unmet by teachers due to the lack of capacity of schools, internet access, and diverse students’ special needs and also left unmet by parents because of a lack of time, content knowledge or pedagogy, communication, and/or resources (p. 59).

Synchronous meeting times could easily be delegated for helping those students with the most need, such as special education and English language learner (ELL) populations.

B. Accessibility Considerations

Schools continue to play a crucial role during the coronavirus pandemic. By paying attention to the widespread disparities resulting from remote learning, we can “ensure that schools focus their efforts on students with the greatest needs and challenges” (Reich et al., p. 3). Furthermore, “establishing routines, providing intellectual stimulation, and maintaining relationships with peers and trusted adults can all be protective factors helping young people cope with an emergency.”

Amid online learning during a pandemic, accessibility is of utmost importance. According to Education Week’s Benjamin Herold, equity has been a huge concern ever since schools scrambled to online, remote instruction (p. 3). According to Herold,

Even before the pandemic, advocates decried schools’ lack of digital resources for English-language learners and students with disabilities, as well as a nationwide ‘homework gap’ that leaves an estimated 12 million American children without a reliable high-speed internet connection at home (p.3).

Are schools really doing the best they can to reach all of their students? Reich et al.'s study found that many states "emphasized addressing multiple dimensions of equity" during the transition to remote learning (p. 4). But, were states' recommendations consistently followed by districts and schools? "Digital divides, special education needs, needs of English learners, and concerns of the homeless and vulnerable" continue to be problems, late into 2020. Hopefully having a better understanding of these issues can lead us to appropriate solutions more quickly.

i. Equity & the Digital Divide

Almost everyone has heard of the digital divide. Many people believe the digital divide is "simply the lack of access to a device and connectivity" (McLaughlin & Resta, p. 8). However, it's much more than that. In reality, "access to a device and connectivity [only] represent the first-level divide" and unfortunately, this access often "differs based on a group's race, socioeconomic status, or national identity." This means that persistent school closures will most likely expand the learning gap between students in lower- and higher-income families (Kaden, p. 2). According to Emma Dorn, Bryan Hancock, Jimmy Sarakatsannis, & Ellen Viruleg,

Learning loss will probably be greatest among low-income, black, and Hispanic students. Lower-income students are less likely to have access to high-quality remote learning or to a conducive learning environment, such as a quiet space with minimal distractions, devices they do not need to share, high-speed internet, and parental academic supervision (p. 4-5).

The inequitable access to high-speed internet, devices at home, apps, software, and tech support has also been termed the "homework gap" (McLaughlin & Resta, p. 8-9). Stephen Sawchuk adds that "Many areas of the country lack the broadband access necessary even for a basic online-learning program," meaning that many students do not even have regular access to their teachers during the pandemic (p. 2). Some districts have found creative ways to mitigate the problem of internet access. For instance, the "82,000-student Austin Independent School District in Texas began adding Wi-Fi connectivity on more than 500 school buses, so that they can be used as roving hot spots to help students get online" (Herold, p. 3). However, this is can only be a temporary solution. Many more problems associated with access remain to be solved.

The second-level digital divide relates to "digital skill, usage patterns, and production" and there are a couple of reasons for this (McLaughlin & Resta, p. 8). First, socioeconomic status greatly affects the second-level divide because "lower-income parents often have less access, experience, and skill in use of e-learning tools; lower educational attainment levels; and less confidence helping their child become an effective remote learner" (p. 12). Second, the overall lack of "professional development for teachers to equip students with the skills they need to use such learning tools safely and effectively" will only increase the homework gap (p. 9). The result of this lack of technical know-how will lead to "persistent achievement disparities across income levels and between white students and students of black and Hispanic heritage" (Dorn et al., p. 2). The fear is that extended school shutdowns "could not only cause disproportionate

learning losses for these students—compounding existing gaps—but also lead more of them to drop out.”

ii. Students With Disabilities

Affording special needs students a Free Appropriate Public Education (FAPE) is especially important while schools are closed during the pandemic (Reich et al., p. iv). Furthermore, teachers must remember that “The Individual Education Programs (IEPs) co-created by district staff and parents are legally binding and districts are responsible for executing the plans regardless of learning mode” (Garbe et al., p. 58). This means that whether a special needs student is taking classes in-person or online, IEPs must be implemented as appropriate for the learning environment, which may require some collaboration and creativity. For example, teachers in New York City “worked quickly to make online lessons more accessible, through accommodations such as audio-recorded instructions” (Herold, p. 3). Nonetheless, suddenly shifting to a remote learning environment requires careful thought and planning for IEP implementations. For in-person instruction, “teachers have access to curricula and materials that are used across multiple students with ‘in the moment’ adaptations” (Stenhoff, Pennington, & Tapp, 2020, p. 2). But with remote learning, teachers “may need to commit additional time to prepare materials that are modified for each student.” While recognizing that many teachers are already stretched thin, they do have a legal obligation to accommodate their special needs students.

Due to personal interest and relevance, I am focusing on Autism Spectrum Disorder (ASD) in this section. Yet, there are many more disabilities that must be considered such as students with intellectual or physical disabilities, hearing or sight impairments, dyslexia, ADHD, and more. Further research involving appropriate accommodations and what remote learning should look like for students with specific disabilities is readily available on [Google Scholar](#). Special education students deserve a FAPE as much as any other student. We must remember that the barriers created by remote instruction can be easily overcome by researching, being creative, and reaching out to others for help.

According to Stenhoff et al., “Schools serve an essential function for individuals with autism spectrum disorder (ASD)” (p. 1). For many children with ASD, closures prompted by the pandemic can “produce a more difficult transition from school to home routines than for their peers without ASD.” Students with ASD often possess limited skillsets, making online learning even less accessible. In these online formats, students must “attend to online instructional content, apply a range of traditional and digital literacy skills, and remain engaged in the presence of a limited set of reinforcers.” From personal experience, I will say that students who lack these skills require a great deal of one-on-one attention from a parent or caregiver. What’s more, using a device at home for class “may be even more difficult if a student’s home computer or tablet is typically used for other purposes (e.g., playing games, watching videos)” (p. 1-2). For students with ASD, it can be difficult for them to differentiate between using their device for school and using it for free time. The concrete and rigid thinking typical of individuals

with ASD adds yet another barrier to remote learning that teachers and caregivers need to work through.

In order for remote learning to be successful, schools “need to plan for multiple levels of instructional support for students with ASD and their families” (Stenhoff et al., p. 2). Likewise, caregivers should be receiving regular support from their child’s team of teachers because many of them “have little knowledge of and experience in the delivery of educational programs.” What’s more, teachers will need to “plan for at least a partial transfer of responsibility for instructional delivery to caregivers (e.g., parents, siblings, grandparents),” even though their work schedules or other responsibilities “may prohibit a consistent routine of educational programming.” Teachers should also be prepared to “train caregivers to use specific instructional strategies in addition to preparing curricular materials.” ASD students are continuing to struggle with the isolation associated with the pandemic. Their regular supports have all but disappeared and they do not always have someone to turn to for help. Therefore, “teachers also must prepare to help caregivers engage in problem-solving strategies related to students’ challenging behavior or a lack of response to instructional procedures,” despite the fact that caregivers may already have extra responsibilities due to the crisis.

iii. English Language Learners & Other Vulnerable Populations

Special needs students and those who are disproportionately affected by their socioeconomic status regularly encounter constraints associated with accessibility. Nonetheless, English Language Learners (ELLs) and students who are otherwise vulnerable deserve special attention too during the pandemic. While learning in an online environment can be difficult for many students, schools and districts need to develop “a plan for providing language development instruction for English learners appropriate to their level of English language proficiency” (Reich et al., p. iv). The supports in place during in-person learning cannot simply be transferred to the remote learning environment. Newer ELLs especially will require help understanding course documents and assignments. They may also need support by frequent check-ins. In Boulder, Colorado for example, “administrators rushed to translate online materials into multiple languages” to support ELLs and their parents (Herold, p. 3).

Vulnerable populations can be described as “children facing housing insecurity, children in foster care, and incarcerated students” (Reich et al., p. iv). They can also be characterized as low-achieving students and/or those “from disenfranchised ethnic and racial groups” (p. 2). The coronavirus and the move to remote learning is obstructing “many of the supports that can help vulnerable kids stay in school,” such as “academic engagement and achievement, strong relationships with caring adults, and supportive home environments” (Dorn et al., p. 6). Sadly, “online schooling can come with an ‘online penalty’ for struggling and vulnerable learners” (Reich et al., p. 1). Furthermore, this penalty is often “more severe for vulnerable and struggling students” (p. 2). By paying special attention to these populations, inviting them to synchronous meetings, engaging with them in phone conversations, and offering them more flexible work arrangements, they can succeed in remote learning environments.

C. Self-Regulated Learning (SRL)

According to Education Week's Benjamin Herold, many children are "attending school in their beds and on their sofas and at their kitchen tables, alongside siblings and pets, with laptops and tablets and textbooks that offer only a partial connection to the rest of the world" (p. 2). During a circumstance such as the coronavirus pandemic, students' emotional states may impact their ability to focus on learning. Plus, they "may also find it more difficult than usual to be self-directed" (Carter, Rice, Yang, & Jackson, p. 322). For these reasons, making course materials easy to access is of utmost importance. Moreover, students need to be explicitly taught how to learn remotely. The self-regulated learning (SRL) framework can help because it is routinely used "to support students in learning to work independently" (Carter et al., p. 321).

SRL is central for promoting independent learning. Likewise, it is significant for helping individuals identify and meet their specific learning goals. [Stephanie MacMahon et al.](#) explain SRL as "the metacognitive awareness and control of an individual's thoughts, behaviours, and motivations as they work towards identified learning goals" (p. 353). In a classroom, both teachers and peers play an important part in SRL because they motivate and support "students to plan, monitor and evaluate their own learning" (p. 354). The social isolation associated with the pandemic coupled with the move to remote learning "has created a social disconnect, making these immediate regulatory supports less accessible." At home, students who are learning remotely do not have the on-demand support of their teachers and peers. This can be problematic in terms of motivation, persistence and achievement (Carter et al., p. 322). Experts caution that "If left unchecked, poor learning regulation may hinder student learning" (MacMahon et al., p. 354). This also means that students could fall further behind academically making it more difficult to catch up when schools return to in-person learning.

To mitigate the problem of students falling behind, "supporting SRL must emerge as learning platform features included in course design" (Carter et al., p. 323-324). To do this, instructional designers need "to consider learning designs that yield learning opportunities for all students" (p. 321-322). Clear organization of resources and learning structures must be in place. Tools for organizing content and activities must be present (p. 324). Goal-tracking is needed in various forms. Students need to be able to collaborate with each other. And open streams of communication are needed more than ever. Additional support can even be provided by on-site mentors, specialists, or teaching assistants who can utilize synchronous meeting times for working one-on-one with students. As stated by Carter et al., "Instructional design during the pandemic and beyond might consider how to support K-12 learners concerning both goal orientations and the need for structure" (p. 326).

i. Curriculum Pacing Strategies

According to MacMahon et al., "students often use techniques that are relatively ineffective or not appropriate for the particular learning task" (p. 356). Put simply, many students do not know how to apply the methods required for effective learning. MacMahon et al. explain that "different strategies are effective at different phases of learning – whether for surface learning

of basic knowledge and skill; for deep learning, when understanding is being consolidated; or for transfer of learning from one context to another.” However, students do not inherently know this. They will most likely need “guidance in setting appropriate expectations for online learning” (Carter et al., p. 324). MacMahon et al. explain that “Strategies for learning and for self-regulation need to be explicitly taught, modelled, and practiced in order for students to develop the skill not only to use a strategy, but also to decide when to use it” (p. 356). When students were thrust into online learning this year, they never learned these strategies that would have helped them tremendously. Unfortunately, teachers continue to be focused on content rather than ensuring their students know how to learn online.

Many strategies have come from prior SRL research in primary and secondary online environments (Carter et al., p. 324). Some strategies include “asking students to consider how they learn online; providing pacing support; monitoring engagement with instructional materials; and supporting families.” It’s worth noting that pacing support may be especially relevant during emergency remote learning (p. 325). Carter et al. clearly justify the need for pacing support in online learning, especially now:

This pacing is important because for some students, the days might blend into one another or they may become captivated by staying online for long periods. Differences in access to the internet and type of device might also cause fatigue for some learners. For example, learners moving through lessons on a cellular phone or a slow internet connection may be able to complete less work in the same period as a person with a laptop and high-speed internet. Another possibility is that students might be overwhelmed by the cognitive demands of the content and potentially complex digital interfaces. Being overwhelmed for extended periods could be detrimental to learners’ long-term achievement as well as their self-efficacy as online learners. Overall, pacing is an individualized negotiation that will require vigilance from those supporting the learners (e.g. teachers and on-site mentors) (p. 325).

Additional research in pacing support suggests that providing a guide with hard or soft due dates so that students know when assignments are due. While a guide may not provide adequate support for all learners, many will find it helpful. Some students may need further support from their teacher or another adult on how to use the guide. “Many online learning programs and courses offer pacing flexibility” in terms of soft due dates (Carter, p. 325). Pacing support has already been used as a strategy for aiding students with disabilities. However, given the current circumstances surrounding remote learning, this strategy may also be helpful for students without disabilities.

ii. Issues of Motivation & Engagement

When student motivation is high, teens and young adults appear to show competence in online learning (Reich et al., p. 2). However, research indicates that students who are isolated from their peers and teachers for a prolonged period of time are not as motivated and often face difficulty learning virtually. In fact, this “social disconnect may erode a students’ sense of

belonging, [which is] an important motivator” because friends and peers are able to positively affect student learning regulation, engagement and motivation (MacMahon et al., p. 354). Students tend to be motivated “by their sense of autonomy, competence, and belonging” due to their social connections providing them with a feeling of acceptance. Being socially isolated from others can also negatively impact motivation because students are left with “a reduced sense of control of their learning, a lowered sense of achievement and competence, and disconnection from the place and people of learning.” Garbe et al.’s study highlights this as well. It found that parents are overwhelmingly concerned about “a lack of personal connection, social/emotional engagement with peers, peer collaboration, and learning that typically occur in social settings with same-age peers” (p. 60).

Of course, students are motivated by more than just social interactions. According to Carter et al.,

When students suddenly stop attending [school] or when their performance declines, those may be signs of affective disruption. Also, learners who do not understand tasks or feel they lack the skills or resources to complete it may avoid the task (p. 325).

When this happens, one strategy is for teachers to “closely monitor student participation in and engagement with instructional materials.” Luckily, there are many ways to monitor this. The LMS dashboard is perhaps the quickest and easiest method for collecting data. The LMS can provide information on when students login and logout, if and when they complete assignments, the times when students are most active, and how long they are active in the LMS. From this information, teachers of remote learners can look for patterns. “Were learners turning in assignments late at night? Only on the weekends? Only after class meetings or check-ins?” Having this data can be incredibly useful for expanding pacing support.

Another motivational issue comes from the pandemic itself and how districts decided to handle grading when schools suddenly closed. As Garbe et al. explain,

As an equity practice, many school districts suspended grading which would negatively impact the motivation of some learners. Students’ disregard for learning with the goal of gaining knowledge and understanding, rather than a process to earn a grade and pass a class could be another factor to weaken their motivation (p. 58).

What’s more, Dr. Ute Kaden of the University of Alaska Fairbanks studied a secondary teacher working in Alaska during the pandemic. Some of the teacher’s students were not participating in online learning (p. 6). In an attempt to alleviate this problem, he indicated “Daily communication was key. I called home if a student was not in class and encouraged to join” (Kaden, p. 8-9). For students who are not motivated to attend school online, a phone call is a great first step to find out what the problem is. Reich et al. also recommend video conferencing, which “has tremendous potential to maintain social connection during a quarantine” (p. v). The teacher in Dr. Kaden’s study also indicated that “Breakout rooms

and group assignments, partner work, and sharing some personal stories about coping with the situation helped engagement.”

Due to time constraints this semester, I am now listing the important points under each topic for the remainder of this paper.

iii. Offering Support for Students & Families

- Learners need to perceive that they have on-site support for SRL in online learning. Before the COVID-19 pandemic, online teachers relied heavily on parents or other mentors to help with SRL, including monitoring student progress, providing encouragement, communicating information about tasks and achievement and even providing instructional support. Considering the different perceptions, expectations and capabilities parents or other on-site mentors might bring to online work, establishing consistent communication patterns about how to provide support for SRL seems vital to successfully transitioning to online work. What course designers should consider is that learners may not have access to parents or other on-site mentors that are willing and able to support their learning. This is especially likely to be true as the pandemic wears on. This introduces a new problem where these adults who are supporting young learners also need support embedded into the course for them to be successful (Carter et al., p. 326).
- For students, the increased independence of managing their remote learning may be challenging. Therefore, it could be speculated that with fewer immediate supports in place, learning challenges may be left unmet, and this may result in a reduced sense of competence (MacMahon et al., p. 356).
- Special populations such as English learners, students with disabilities, or other learners representing cultural or socioeconomic diversity might also need different types of examples and access to new forms of support (e.g. translation, screen readers, captions, leveled reading, etc.) (Carter et al., p. 326-327).
- Remote learning may, subsequently, increase parental responsibility to support or co-regulate their children’s learning, presenting challenges to parents unfamiliar with the strategies that can support learning regulation. Furthermore, this change in parental responsibility may increase strain on the parent-child relationship, particularly if the parent is supporting more than one child or working from home (MacMahon et al., p. 355-356).
- Another need within the field of learning science is to develop models of SRL that meaningfully consider children’s capacity for forethought, performance and evaluation. There might also be other elements important for young learners that have yet to be

uncovered, particularly in models that account for differences in cognition and motivation in the presence of advanced technologies (Carter et al., p. 327).

- Some lack of cooperation is due to distractions at home; for example, “Getting kids to focus and complete work. There are so many distractions.” and “My younger son is uncooperative and lacks the attention span/ability to focus on schoolwork when he has other options at home.” Another lack of cooperation can be attributed to the parent as a teacher, “My child listens way better to his teacher than he does to me, which makes eLearning difficult” (Garbe et al., p. 58).

iv. Strategies for SRL in Online Groups

- Evidence-based resources to support learning regulation in online groups (MacMahon et al., p. 356).
- The ten student strategies are the focus of the remainder of the present paper. These strategies provide simple prompts for individual and group actions that can apply to a range of tasks and disciplines (MacMahon et al., p. 356).
- The 10 student strategies follow a consistent format, which aligns with Zimmerman and Moylan’s (2009) cyclical phase model of SRL. Each strategy prompts the students to individually and/or collectively analyse the task ahead, set goals, select strategies and identify possible challenges – aligning with the Forethought Phase (MacMahon et al., p. 358).
- Some of these planning activities are completed individually and others collectively. Prompts in the Performance Phase of the learning activity support students to attend to specific aspects of the task, to collectively and individually select and apply relevant strategies, share ideas and questions, justify positions, and monitor their own and others’ understanding of and engagement with the task. The Reflection Phase may involve group tasks, individual tasks, or both. In the Reflection Phase, students are prompted to evaluate their learning, identify areas for further consolidation or clarification, and articulate next steps. The strategies include prompts to encourage self-regulation, co-regulation and socially shared regulation of learning. Working with peers is designed to heighten motivation and engagement, as well as increase accountability. Within this framework of learning regulation, students have choice over the topic or task they wish to engage in, and the duration of online sessions. A description of two strategies (respecting the word limit of the paper) will illustrate how regulated learning and the learning principles are synthesised. The ten strategies are summarised in Table 1, with short descriptions and names of relevant underlying principles of learning (for full the infographics of all ten strategies please see: <https://education.uq.edu.au/slrc>) (MacMahon et al., p. 358).

- The shift to remote learning has created many new conversations around how to support effective regulated learning, particularly when the face-to-face support of teachers and peers is removed. Carefully designed online collaborative learning can be a meaningful way for students to connect with peers, but also a powerful way for them to regulate their own and others' learning, and to develop the skills to regulate collectively as a group (MacMahon et al., p. 361).

IV. Curriculum, Instruction & Design

- While it's painfully obvious that students will get an inferior education online, the threats that remote learning pose to student development go far beyond academics. An abundance of evidence suggests that distance learning has disastrous social and emotional consequences for students, raising the chance that a destructive mental health crisis will arise from online classes. After the first round of remote learning earlier this year led to an increase in anxiety, depression and suicidal or self-harming thoughts for school-aged children, we cannot afford to make the same mistake twice. In addition to a way for students to develop academically, socially and emotionally, in-person classes also serve as a safe haven for students who come from troubled backgrounds and are endangered by violence and abuse at home. A significant number of school districts and law enforcement officers continue to voice concerns that distance learning prevents teachers and school administrators from finding out about abuse and intervening for the benefit of the student (Stern, p. 1-2).
- Second, offer instructional guidance that recognizes the challenges and constraints of home-based, distance learning. States, districts, and schools will need to quickly learn how to bolster technological infrastructure in the houses, apartments, and shelters where children live. We observe that states are recommending divergent approaches on issues such as the risks and rewards of pursuing asynchronous over synchronous schedules, the question of whether to emphasize enrichment versus covering new material, and the new challenges posed by synchronous videoconferencing in school systems (Reich et al., p. 13).

A. Pedagogy & Learning Outcomes

Due to time constraints, I am listing the important points for this topic.

- While online learning will undoubtedly play an essential role in remote learning during the coronavirus pandemic, there are several reasons to be seriously concerned about the equity implications of a pivot to online instruction (Reich et al., p. 1).
- Many students earn lower grades and fail more often in online learning settings (Reich et al., p. 1-2).

- High-achieving learners tend to be minimally affected by online schooling (Reich et al., p. 2).
- Learning continuity is not a new challenge in education; but widespread school closures have suddenly made it an urgent one for the mainstream population (Pazur, p. 2).
- Research literature on education during emergencies suggests that schooling can play an important role in building and reinforcing youth resilience (Reich et al., p. 3).
- Prior to COVID school closures, many districts engaged in implementing a guaranteed and viable curriculum to reduce the risk of learning failure for students. During the shift to remote, online, and blended learning, districts will need to review the defined guaranteed and viable curriculum and develop a plan to implement a guaranteed and viable curriculum through alternative modes. A guaranteed and viable curriculum gets at the heart of accessibility. It is recommended that districts consider ways to mitigate the known issues of accessibility, including special learner needs, lack of technology access, support with learning tasks and resource navigation, and the need for the presence of a learning coach (Garbe et al., p. 61).
- Traditionally, educators and stakeholders have not wholeheartedly embraced virtual learning, pointing to low course completion rates and lack of compelling student performance data as indicators of its ineffectiveness (Pazur, p. 2).
- Most studies have found that full-time online learning does not deliver the academic results of in-class instruction (Dorn et al., p. 3).
- When we introduce distance learning—at scale—to mainstream education, we reconstitute the conditions for student achievement (Pazur, p. 2).
- As leaders plan for students to return to school this fall, they must honor what virtual learning environments can do to reach all students (Pazur, p. 2-3).
- First, schools and state agencies should assume that young students will require direct supervision to participate in remote schooling—supervision that may not be available from working parents providing essential services (Reich et al., p. 2).
- Online learning has limitations. Most of his students missed social interactions, peers, and their school. What was learned by students during this emergency-driven move to online education was less than in the face-to-face classroom (Kaden, p. 11).
- If the goal of learning is truly to learn (and not earn a particular grade), then additional support and education need to be provided to students so they do not lose sight of the importance and the true goal of remote learning activities (Garbe et al., p. 62).

- In fact, 'the challenge is how do you practically do this in a different way?' he said. 'Because you're not going to get 25 kids together in a room and teach them. It's going to be different. It's rethinking the approach, not just from a tools perspective, but from a pedagogy perspective' (Lieberman, p. 2).
- Teachers worked together on developing stimulating activities...that students can complete independently, without teacher interaction. The assignments vary widely across all subjects, from writing prompts based on students' chosen reading to more abstract to teaching someone in your household five words in a foreign language (Lieberman, p. 3).
- Share example schedules, lessons, and plans from across the state (Reich et al., p. v).
- Special attention must be paid to learning outcomes that are based on socialization, interpersonal relationships, and interpersonal problem-solving. Young learners, especially, engage in play-based learning and learn skills such as turn-taking, group work, and developing positive relationships with peers. These types of interactions and learning activities require interaction with classmates and are unique to the lower grades (Garbe et al., p. 62).
- 'But really learning is occurring when students are interacting with the content in a meaningful way. That can happen in an online environment' (Lieberman, p. 3).
- Leverage "the assets of home-based learning, rather than trying to recreate school" (Reich et al., p. iv).

B. Remote Learning Goals & Instructional Content

Due to time constraints, I am listing the important points for this topic.

- The most substantial point of divergence in remote learning policy guidance relates to whether LEAs should focus on "enrichment" or "new material." ... These different perspectives provide an opportunity for states and LEAs to reflect on the purpose of remote learning during a pandemic (Reich et al., p. iii).
- Whether to pursue only enrichment and review or to attempt to advance in new standards-aligned material (Reich et al., p. iv).
- New material might consider suggesting critical standards or topics that are important to subsequent courses (Reich et al., p. iv).

- Divergence in state guidance relates to the goals of remote learning during school closures. Some state agencies are hoping to continue forward progress through new material from standards-aligned curriculum. Texas, for instance, describes their efforts as helping “districts launch ‘at-home schools’ that maximize the amount of instructional time for students this school year and support student mastery of grade level standards.” Alabama has proposed a set of critical standards for K-8 teachers to use in focusing instruction during school closures. By contrast, some states argue for an emphasis on skills review, projects, and similar activities categorized as “enrichment.” New Mexico’s early guidance suggests that home is not the place to try to recreate school, and instead school divisions should focus on supporting home-based learning (Reich et al., p. 7).
- By contrast, students pursuing enrichment, freed from the constraints of standards-based learning, might have more time to focus on connected learning, hobbies and interest-driven projects. They might finish the quarantine period having developed valuable new life skills or personally-relevant knowledge. On the other hand, they may experience the equivalent of an extended period of summer learning loss (Reich et al., p. 8).
- The necessity of continued remote learning cannot be an excuse for inaction or indifference. There are examples of high-quality online education, and reaching this level should be the general expectation (Dorn et al., p. 8).
- A concern for quality or quantity of content and/or general concern about the rigor of the curriculum were coded as a curriculum concern (Garbe et al., p. 54).
- Finally, given the many barriers to online access, the cloistered difficulties of life in a pandemic, and the research on virtual schooling and homeschooling, it may be appropriate to assume that students, especially the youngest students, will not be able to participate in school activities for lengths of time equivalent to a typical school day (Reich et al., p. 2).
- Issues of time and schedules are closely connected to these questions of enrichment and progress. Massachusetts offers the blanket guidance that schools should prepare learning activities that would take up about half of a typical school day, including daily time for art and exercise. 14 Kansas recommended limits that expand by grade band: “Pre-K : 30 minutes; Grades K-1: 45 minutes; Grades 2-3: 60 minutes; Grades 4-5: 90 minutes; Grades 6-12: 30 minutes per teacher (3 hours max in a day).” 15 These guidelines align with typical schedules followed by voluntary homeschool families (Reich et al., p. 7).

C. Support, Flexibility & Student Outlets

Due to time constraints, I am listing the important points for this topic.

- Stronger emphasis on asynchronous over synchronous learning (Reich et al., p. v).
- Second, the typical approaches from virtual schools emphasize asynchronous learning. However, the sustained coordination of synchronous class times during a pandemic may prove infeasible (Reich et al., p. 2).
- First, some guidance encourages schools to consider the right balance of asynchronous and synchronous learning. While some schools or districts might be trying to replicate their existing schedule of synchronous meeting times, several state agencies explicitly caution against this approach, since coordinating the meeting times of students, parents/caregivers, and teachers (who are often addressing the needs of their own children) makes this approach very difficult and perhaps unsustainable (Reich et al., p. 5).
- Specifically, a guaranteed and viable curriculum should address the need for a learning coach, a person present in the remote learning location—family member or other—or a school district employee, that can support the learning process throughout the school day (Garbe et al., p. 61).
- Online assignments need to be flexible enough to accommodate all operating systems 'asking students to 'open a word processor' or 'type' an essay rather than instructing students to 'open Microsoft Word,' which they might not have. Williamson said widely accessible or cloud-based resources, like Google Docs, work best (Lieberman, p. 3).
- The best virtual school teachers spend most of their days individually reaching out to students and families to provide coaching, tutorials, and support, making extra efforts to connect with struggling or disengaged students (Reich et al., p. 2).
- Third, the teacher plays two major roles: curating asynchronous curriculum and providing regular feedback, coaching, and support. This might be a major shift for teachers who see their primary role as providing whole-class, oral, direct instruction (Reich et al., p. 2).
- If as many students as possible make as much progress as possible, then the needs for later remediation may be lessened (Reich et al., p. 8).
- Crises focus our priorities. Some of the changes that schools are making during this pandemic may be worth continuing when normal times return. We appreciate that several states published recommended schedules that call for daily time for physical

activity and the arts, even among states recommending a shortened day (see the San Antonio Case, for example). The benefits of exercise and creative expression for addressing stress and extended crises are well documented ... many school systems, when operating under a typical full-day schedule, do not allot daily time for physical activity and the arts. These are the kinds of changes that school systems may reflect upon after the pandemic: if America's children needed daily exercise and arts during hard times, why not in good times as well? (Reich et al., p. 13).

D. The LMS and Other Learning Channels

Due to time constraints, I am listing the important points for this topic.

- Reggio Emilia ambassadors believe the environment shapes and is shaped by the learning process, creating a “constant dialogue between architecture and pedagogy” (Reggio Emilia Approach, 2020). In our present learning ecosystem, the architecture of school has changed. Classroom walls are permeable, school is amorphous. In this version of school, the LMS functions like a classroom environment, a third teacher (Pazur, p. 3).
- An effective LMS is inclusive, supportive, responsive, rich with resources, and able to foster connections within and across communities. Unfortunately, the abrupt shift to remote teaching outpaced many districts’ readiness and capacity to implement a coordinated web-based or remote infrastructure (Pazur, p. 3).
- In other words, remote instruction during the pandemic taught schools the importance of a universal, coordinated platform with common social and communication norms to facilitate the flow of information between all stakeholders (Pazur, p. 3).
- Choosing an LMS that fosters learning continuity; continuity that empowers students to work synchronously and asynchronously, to collaborate, to communicate, and to feel connected to the school community and culture (Pazur, p. 3-4).
- Previously, students relied on school as a place to stay connected with their peers. But now that face time with their peers at school will be reduced and fragmented with longer periods of virtual time in between, they will need a school-sponsored social application to satisfy these gaps. The LMS is one way to address the need for a virtual school-social space (Pazur, p. 4).
- Most states acknowledge that this learning will need to be provided through both digital channels, like online tools, and non-digital channels, like broadcast television (e.g. new PreK-12 educational programming and schedules from New York’s nine PBS stations), SMS messages, phone calls, and printed packets. States are clear that any efforts to

provide education must also address students with special education needs (Reich et al., p. 4).

- State agencies are also asking schools to simultaneously develop a parallel set of non-digital options for learners. Perhaps the most commonly represented approach is “worksheet packets.” Schools are encouraged to curate, print, and distribute—by mail, school bus service, or family pickup site—paper packets of learning materials. Given the dim reputation of worksheets and packets among many educators and families, a number of states are also proposing a second approach where students do learning activities with their families: e.g., walk and observe nature, cook meals, do chores around the house, or plant a garden as the winter turns to spring. Rather than try to do school learning in ill-equipped home environments, the idea is to maximize the kinds of learning that naturally happens at home (Reich et al., p. 5).

E. Differentiation & Special Populations

Due to time constraints, I am listing the important points for this topic.

- As with so many issues in school closures, these programs raise issues of equity and access, as students failing courses are disproportionately from poverty-impacted neighborhoods that may lack online access to these programs. New Mexico recommends a competency-based approach to awarding credits, including opportunities for: “Passing a locally designed test, - Completing a locally designed series of assignments, - Achieving a set cut score on a college entrance exam, - Demonstrating applied work experience” (Reich et al., p. 11).
- Remote learning opportunities as having less differentiated support than instruction in the traditional school setting (Garbe et al., p. 53).
- Online education can support learning for many students but needs to be carefully designed and individualized to not deepen inequality and social divides (Kaden, p. 1).
- In places where few students can keep up with a distance curriculum, efforts to move forward might cause teachers and families to experience more stress and angst than positive learning outcomes (Reich et al., p. 8).
- States primarily have suggested technology tools that can be used to make curriculum materials more accessible (for instance, North Dakota highlights the translations in Khan Academy, the potential applications of Google Translate, and the use of synchronous video for small group instruction). Some states have suggested that in limited cases, school buildings might be used to provide instruction to small groups of socially distanced students with the highest need (Reich et al., p. 9).

- There is one area where we urge our colleagues to accelerate their efforts: attention to the needs of English learners (ELLs). We identified only 21 states that specifically reference ELLs in their policy guidance, and only 9 that modeled sample lessons and translations. Schools' legal obligation to English learners is no less than their obligation to students with other special needs. We encourage other states who have not yet centered the needs of English learners to continue to share materials in multiple languages, partner with content developers on translations, and build peer networks among multilingual families and teachers to provide translation help and support (Reich et al., p. 9).
- Identify a consistent location for instruction to occur. This area should present few distractions, provide clear physical boundaries (e.g., desk or table labeled as school area), and be in close proximity to technological supports ... primarily designated for school activities, and when not possible, there should be clear and removable stimuli (e.g., colored placemats, school zone sign) indicating when the area is in use for school activities. Furthermore, caregivers might consider using a timer (e.g., cell phone, kitchen timer) to support their child's understanding of the duration of instructional activities and breaks ...teachers review the schedule of instructional activities that will occur during each school session. This review may be supported by the provision of a virtual or paper visual schedule (Stenhoff et al., p. 4).
- Schools serve an essential function for individuals with autism spectrum disorder (ASD) and complex needs (Stenhoff et al., p. 6).
- Teachers must consider ways to target those curricula in less time and often with fewer resources. In addition, the shift to a home-based instructional environment may illuminate other programming needs as teachers may be able to directly observe their students' performance in the home (Stenhoff et al., p. 4).
- For individuals with autism spectrum disorder (ASD), schools can serve a range of essential functions from the delivery of academic instruction to the development of effective communication and social skill repertoires. ... importance of this specialized programming for students with ASD and repeatedly have demonstrated its relation to positive outcomes across numerous skill domains. These specialized programs for students with ASD often involve explicit instruction across a range of skills areas, repeated practice across environments, environmental arrangements and supports to facilitate interactions and independent performance of daily routines, and function-based assessment and treatment of problem behavior. When implementing these high-quality and individualized programs, schools are poised to maximize positive outcomes for individuals with ASD (Stenhoff et al., p. 1).
- Educators should teach caregivers how to provide instructional, communication, and behavioral support ...If caregivers do not have access to the internet, then a telephone

meeting, face-to-face training, or written instructions need to be provided (Stenhoff et al., p. 6).

- When preparing materials for students, it is important that teachers continue to design instructional materials that are individualized to meet the needs of each of their students (Stenhoff et al., p. 3).
- Although the teacher may be able to point to duplicate material at their distance location, some students may not respond to this distanced response prompt, especially those with challenges in maintaining attention, or limited imitation repertoires (Stenhoff et al., p. 3).
- Teachers might address these challenges by displaying instructional materials online and using the cursor or highlighting feature to prompt students to respond. Furthermore, teachers might embed additional stimulus prompts into materials. For example, a teacher might direct a student to identify and then read a repeated story line in a brief passage (Stenhoff et al., p. 3).
- In the materials sent home, the teacher might use color to highlight repeated story lines. In another example, a teacher might ask a student to place a counter in the “tens” column. In the classroom, she can easily correct errors by pointing to the correct column, so instead she sends colored materials home so that she can prompt the student to put the counter in the “red” tens column (if the student has acquired color discriminations) (Stenhoff et al., p. 3).
- Communication support materials. Arguably, one of the most important considerations in the provision of distance education to students with ASD is ensuring that each student has a method for demonstrating their understanding of content. Ideally, students will communicate using the same response form and materials, when appropriate, (e.g., picture, sign, speech) across school and home environments. When this is not the case, teachers should collaborate with caregivers and related service providers (e.g., speech-language pathologists, assistive technology specialists, deaf and hard of hearing teachers) to identify a method by which students will respond to instructional stimuli (e.g., teacher questions, materials) (Stenhoff et al., p. 3).
- In addition, it will be important for teachers, related service professionals, and caregivers to maintain regular and direct contact with each other during the disruption in typical school routines. This consistency of contact likely is necessary to facilitate the ongoing effectiveness of communication support materials so that students can gain maximum benefit from instruction. It is also critical to the development of transdisciplinary teaming, in which all educational team members bear some responsibility for all aspects of a student’s programming (Stenhoff et al., p. 3).

- Behavior support materials. Some students may have difficulty accepting a shift toward home-based instructional delivery and, as a result, may engage in problem behavior to avoid or escape instruction. It is important that teachers provide caregivers with behavior management strategies to support students during instruction. While many students will have a behavior intervention plan (BIP) as part of their Individualized Education Program (IEP), the strategies within the BIP may not generalize to the home setting. BIPs are designed from contextual information gathered through a functional behavior assessment (FBA) conducted in the school environment; thus, features of the school environment (e.g., antecedent and consequent events) related to the occurrence of problem behavior may be different from those in the home. Thus, teachers should determine the contextual fit between the home setting and the current BIP and, if necessary, conduct additional assessment procedures and make modifications to the BIP (Stenhoff et al., p. 3-4).
- Teachers must adapt evidence-based practices established in face-to-face arrangements for online delivery. ... teachers must consider several essential features of online instruction, including preparation of the instructional environment, selection of curricula, selection of an LMS, active engagement and systematic prompting during instruction, and progress monitoring, while navigating the rural limitations at home (Stenhoff et al., p. 4).
- Although easily the most direct approach this thinning of the curriculum may leave critical skills unaddressed and, ultimately, students with ASD even further behind their peers (Stenhoff et al., p. 4-5).
- Teachers must then determine how to actively engage students and provide prompting during instruction. There are many software features that may be used to increase engagement. As mentioned above, teachers may use various accessibility features (e.g., pointers, enlarged cursor, highlighted text, picture cues, color-coded materials) to facilitate student attention and engagement. In addition, software is available that permits teachers to embed interactive questioning tools (e.g., Kahoot, Zeetings, Boom Cards). Embedding a variety of questions fosters multiple opportunities to respond (Stenhoff et al., p. 5).
- It is important that teachers continue collecting data during online instructional delivery ... Teachers can potentially identify critical areas of need by viewing students within their natural environment (Stenhoff et al., p. 5).

V. Strategies & Recommendations for Teaching Staff

Due to time constraints, I am listing the important points for this topic.

- Should districts seek to maintain continuity and offer structure, by moving as much of the normal school day as possible online? Or should they embrace uncertainty and prioritize flexibility, by being as responsive as they can to the ever-shifting demands of an escalating emergency? (Herold, p. 2).
- But in unknown, uncertain, and evolving circumstances, conventional approaches to planning just won't work because knowledge is scarce and uncertainty is high (Arnett & Waite, p. 40).
- Recommendation 3: Communicate information clearly with multiple target audiences in mind (Reich et al., p. vi):
 - Consolidate key information into a small number of documents or webpages.
 - Prepare a short, high-level summary of key policies and guidance in one document or webpage for schools and families (see Massachusetts Remote Learning Recommendations).
 - Consolidate information into comprehensive documents or webpages with a linked table of contents, rather than a series of multiple web pages that each contain links to more documents (see the Illinois Remote Learning Recommendations).
 - Prioritize accessibility efforts for the key documents, with universal design, recorded phone messages, SMS broadcasts, printed mailings, and translations into multiple languages.
 - Organize policy documents labelled by topic, and timestamp, and then archive outdated information.
 - consolidate documents by topic, not date; Continue to collect feedback.
- The necessity of remote or blended learning can be an opportunity to improve the communication channels between schools and families, figure out mastery-based progression so that learning is the constant and not seat time, and discover new ways to incorporate high-quality online learning tools into instruction (Arnett & Waite, p. 39).
- The following are recommendations for school districts, teachers, and policymakers, based on our analysis and interpretation of the data. Successfully moving forward with remote learning will require that districts and teachers understand the continuum of home lives and concerns (or lack thereof) that parents are experiencing and work to meet the needs of each family (Garbe et al., p. 61).

- Interactive, flexible, and supportive online learning environments had the capacity to fight social isolation and increase social presence, however, teachers needed continued support to learning how to do this and maintain the practice. The practice of building relationships with students needs to continue, as does building relationships with parents, so as to understand their current trials (Garbe et al., p. 61).
- Developing coronavirus-contingent learning plans requires a higher degree of creativity and collaboration among educators, staff, and families, which in turn necessitates a different type of team structure (Arnett & Waite, p. 39).
- With the onslaught of COVID-19, we underscore the need to awaken school administrators, teacher educators, and policy makers to what school librarians have long understood: successful educational use of broadband and computers for learning opportunities, engagement, and results also requires equitable access to tech support, hidden web resources (i.e., access to not just that which is Googleable), and librarians skilled in helping students and educators locate and use these learning resources safely and effectively (McLaughlin & Resta, p. 10).
- School systems, especially those in low- and moderate-income (LMI) communities, need to strengthen their capacity to recognize and address systemically all these essential dimensions of the digital divide. 4. As is widely recognized, the capacity of educators and caregivers to help students become successful online learners varies tremendously. The uneven quality of online pedagogy and learner support is nearly as problematic as inequitable student home access to broadband and their own computer (McLaughlin & Resta, p. 12).
- Provide teachers with resources that show them how they can make virtual engagement and instruction effective and to train them in remote-learning best practices (Dorn et al., p. 8).
- Building teachers' confidence with basic blended-learning practices — perhaps using the online professional development resources from the Modern Classroom Project (learn.modernclassrooms.org), the iLearn Collaborative (www.ilearncollaborative.org/pd-catalog), or the Relay Graduate School of Education (www.canvas.net/browse/relay) — all of which will also give teachers a huge leg up if and when they need to take their classes fully virtual (Arnett & Waite, p. 41).
- Educators should continue to differentiate their practices for families; some of which are experiencing significant struggles (Garbe et al., p. 61).
- He spent more hours on planning and feedback during the first weeks, and with routine settling in, his days became more balanced (Kaden, p. 7).

- Teachers do say they've picked up skills using new tech tools during this period, which they can see integrating into their brick-and-mortar classrooms (Schwartz, p. 2-3).
- Options for expert support are considered and encouraged when questions are unresolved. This strategy is designed to make students more comfortable with uncertainty by actively seeking out what they do not understand. It also prompts group members to articulate their thinking around a puzzle and their strategies for resolving it (MacMahon et al., p. 361).
- As a blend of remote and in-classroom learning becomes possible, more flexible staffing models will be required, along with a clear understanding of which activities to prioritize for in-classroom instruction, identification of the students who most need it, and the flexibility to switch between different teaching methods (Dorn et al., p. 9).
- Providing district-assigned learning coaches to support students throughout the process of learning and completing assigned tasks has the potential to mitigate this accessibility issue. Similarly, districts may reallocate staff so that some teachers focus on building the online content while others support students in navigating content, clarifying learning tasks, responding to learning struggles, providing feedback, and problem-solving issues that arise for learners. This approach in which a district employee would provide supports to help learners organize and manage schedules, motivate learners, and provide responsive instruction as necessary ... In addition, there is a need to address the lack of supports for students with special learning needs. More frequent and regular virtual check-ups and check-ins with the IEP team and parents would be worthwhile to provide needed support (Garbe et al., p. 61).
- Teachers are delivering lessons on public television via school district partnerships with local PBS affiliates. Other districts have focused on curating and distributing links to free online learning sites such as Khan Academy. In some schools, teachers are posting lessons and homework assignments to learning platforms such as Canvas or Google Classroom, where students can also upload their work. Elsewhere, schools are focused on maintaining social connections among staff and students, encouraging them to meet during virtual office hours or share photos on Seesaw (Herold, p. 2).
- And those live lessons on Facebook and Instagram, or those class discussions teachers are hosting via the free Zoom accounts they just signed up for? They're almost certainly violating state and federal privacy laws, and they are exposing children to widespread collection of their location data, browsing histories, and other sensitive personal information (Herold, p. 3).
- Dual coding refers to the use of both visual and verbal information when learning. Human working memory can cope with a greater total amount of information if some of it is presented visually, as images or animation, and some verbally, as speech or text ...

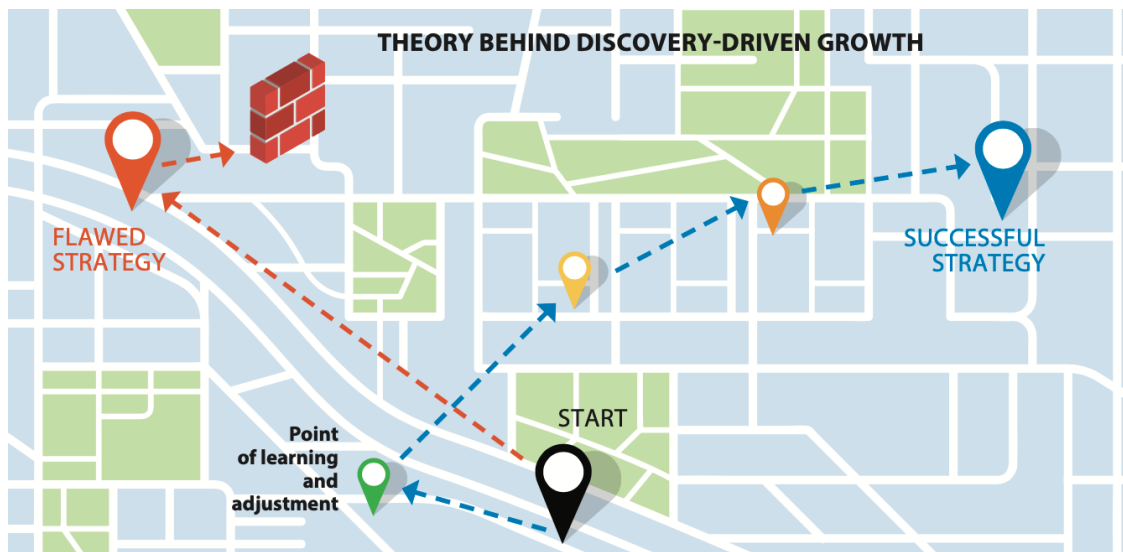
adding visualisations tends to improve learning. However, it is important that visualisations are designed to aid explanation; evidence suggests that dramatic pictures or animations without an explanatory purpose will tend to be distracting and in fact impair learning (MacMahon et al., p. 357).

- Retrieval practice When information is deliberately brought to mind by a learner, their memory for that information is reinforced (Rowland, 2014). Any activity that requires deliberate retrieval of information from memory seems to produce learning, including simple practice tests, whether in multiple-choice, short answer or other formats ... Retrieval tends to be most effective when it is effortful, requiring some deliberate thought from the learner, and when corrective feedback is provided (MacMahon et al., p. 357).
- Elaboration involves the adding of information to a memory, such as the addition of detail to something already known ... it connects new ideas to old, making new information more accessible and deepening understanding. ... This process can be facilitated through elaborative interrogation – asking “how” or “why” questions about material being learned. This metacognitive strategy can prompt students to think more deeply and explore their understanding about a topic (MacMahon et al., p. 357).
- Whilst working individually, students are prompted to create quiz questions and answers on challenging aspects of a topic. Using an online quiz platform, each group member uploads their questions and answers, and then participates in the quiz. Whilst the retrieval of knowledge when completing the quiz is valuable, of greater value is the opportunity for students to explain and justify the answers they have provided. In doing so, students will be able to identify knowledge, and develop a shared understanding across the group (MacMahon et al., p. 358-359).
- Developing deep understanding: Strategy 4 (Figure 2) draws on the principle of elaboration. Individually, students are prompted to be aware of their metacognitive processes and puzzles, and to note down unresolved musings. When collaborating online, students share their questions, and collectively the group explores the solutions or answers. They discuss strategies to resolve the identified challenges and build deeper understanding by connecting to prior knowledge (MacMahon et al., p. 360).

VI. Example Plans & Ideas

Due to time constraints, I am listing the important points for this topic.

A. Discovery-Driven Planning



(Image from Arnett & Waite, p. 39).

- When organizations need to develop completely different processes and approaches for tackling a new challenge or opportunity, they need to organize what we call heavyweight teams. (Arnett & Waite, p. 39).
- Here's how heavyweight teams can use discovery-driven planning as they develop coronavirus-contingent learning plans: Align on a SMART goal. SMART: specific, measurable, attainable, results-based, and time-bound (Arnett & Waite, p. 40).
- Who should be involved in a district's heavyweight team to figure out new approaches to instruction?
 - District or outside experts on online learning;
 - Conventional classroom teachers who will be leading virtual instruction for their students;
 - IT staff members; and
 - District communications leaders (Arnett & Waite, p. 40).
- Make an exhaustive list of the assumptions that must prove true for the goal to be realized (Arnett & Waite, p. 41).
- Many discovery-driven planning teams document as many as 100 assumptions to start (Arnett & Waite, p. 41).

- Develop plans to test the highest-priority assumptions first (Arnett & Waite, p. 41).
- Tests initially should be simple and cheap, such as running a quick poll or calling a colleague at a virtual school who has experience with the issue to see if his or her experience supports your assumption. As time goes on, tests should increasingly be run in the field by monitoring the results of actual implementation (Arnett & Waite, p. 41).
- Determine if the assumptions are holding true at predetermined checkpoints, and adjust if they don't (Arnett & Waite, p. 41).
- As plans change, remember that you can introduce new assumptions, so don't be afraid to add to or adjust your assumptions list. As opposed to a static plan that can be filed away once it's approved, a discovery-driven plan is a living document (Arnett & Waite, p. 41).
- Instead of worrying about plans being imperfect and things not working out, define success as getting from assumptions to knowledge as quickly as possible (Arnett & Waite, p. 41).
- Prioritize the fastest and cheapest ways to convert ideas to real evidence (Arnett & Waite, p. 41).

B. The CAFE Instructional Design Model

Due to time constraints, I am listing the important points for this topic.

- Organize your instructional content in a systematic way. You have four levels of content – Course, Module, Lesson, and Activities (Wang, p. 5).

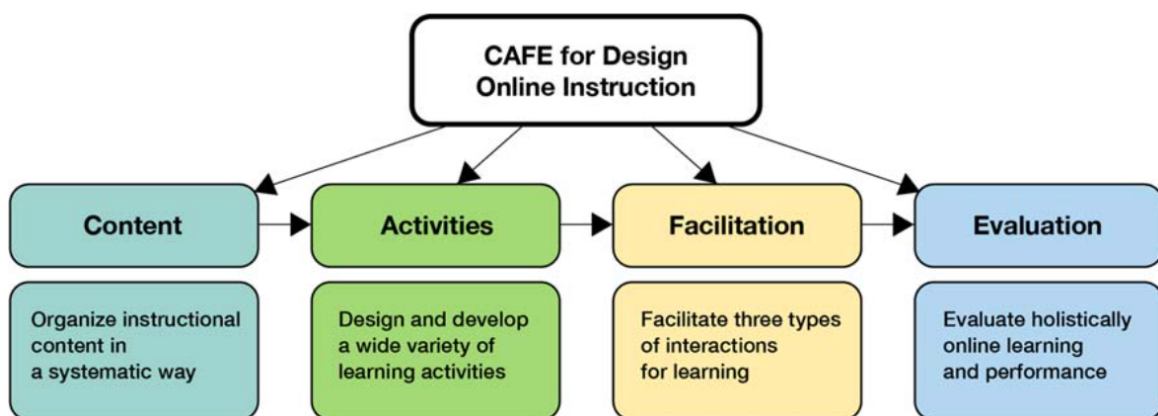


Fig. 1 CAFE for Designing Online Instruction (Wang, p. 5).

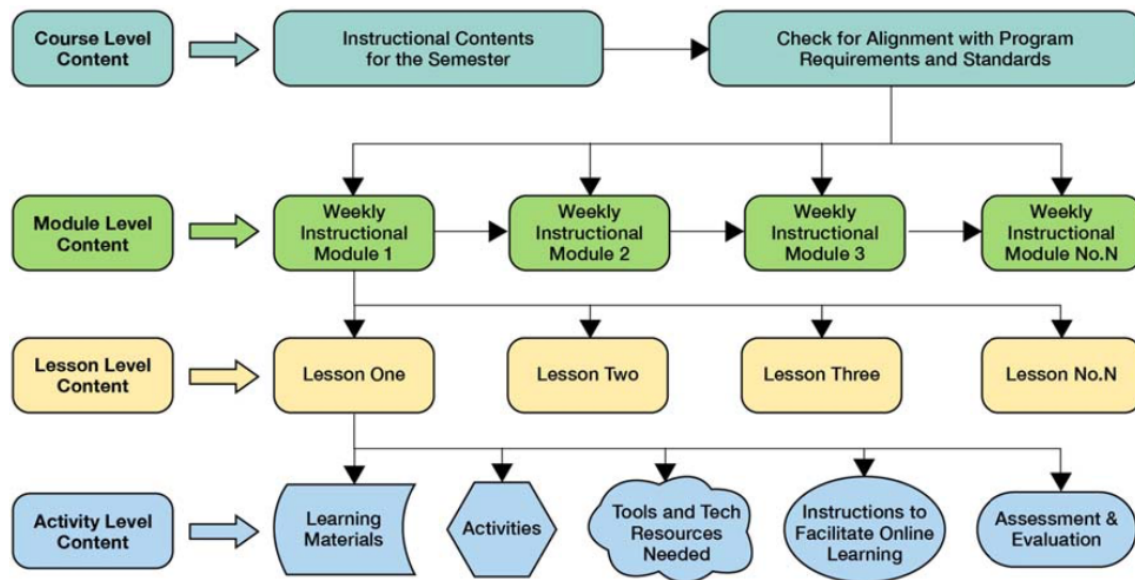


Fig. 2 Content Organization

- Course Level: Check your course content against your program requirements and standards. Make sure that they are well aligned with your program requirements and standards (Wang, p. 5).
- Module Level: Organize your instructional contents for the semester into a weekly module. Give a title to each module and write out its instructional goals (Wang, p. 5).
- Lesson Level: Identify the learning contents for each module first. You might have several instructional units or lessons within each module. Write out the title of each lesson for each module and list of learning outcomes/ objectives you want to achieve (Wang, p. 5).
- Activity Level: List out all the needed materials for the lesson. This includes reading materials such as textbook chapters, activities, instructions on how to perform tasks in your remote class, assignments, project explanations, technological or other types of tools needed (Wang, p. 5).
- Have consistent expectations (repetitive structure) each week in the development of your instructional content. This will assist the K-12 students with developing a routine and engage in learning with less confusion (Wang, p. 6).

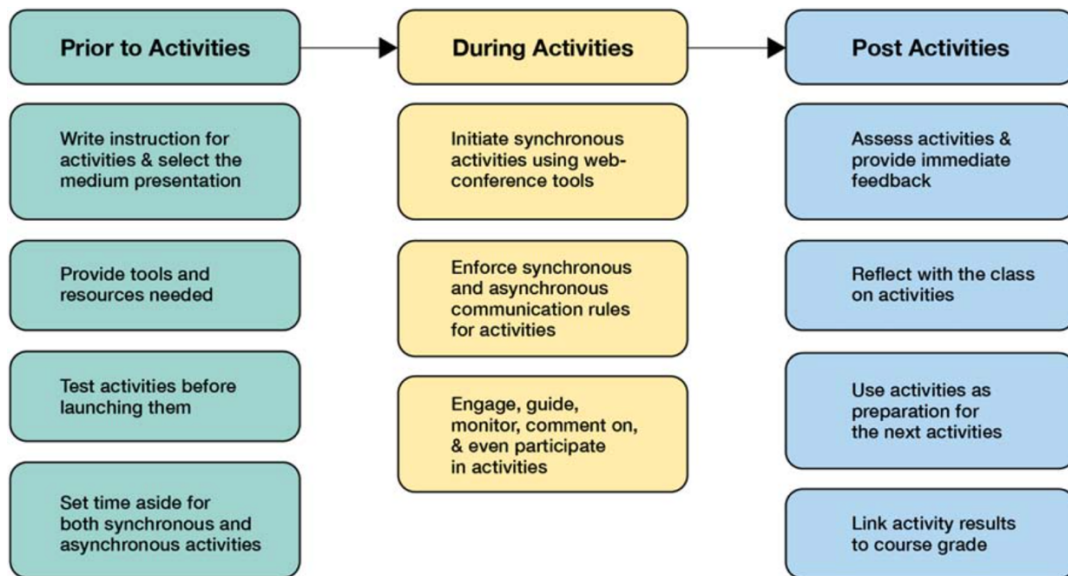


Fig. 3 Activities for Learning

- Activities here refer to those organized learning efforts to help your students achieve learning objectives/outcomes you set up for your students. They can be a collaborative project, individual assignments, tests and quizzes, discussions, online explorations for problem solving. Organize your thoughts according to (1) Prior to the Activities, (2) During Activities, and (3) Post Activities (Wang, p. 7).
 - Reflective Activities: Online discussions, writing a chapter summary, or writing an argument (Wang, p. 7).
 - Productive Activities: Creating a plan for online learning, sharing a piece of newly-composed music, a collaborative writing project, or recording a video talk to synthesize a book chapter (Wang, p. 7).
 - Synchronous Activities: Participating in a live class polling, and synchronous online discussion forums (Wang, p. 7).
 - Asynchronous Activities: Sharing personal understanding of a chapter through social media, hosting an asynchronous discussion forum, or a math problem solving assignment (Wang, p. 7).
- If the learning activities are found online, make sure they are adapted to your own classroom situations and check for accessibility to make them compliant with ADA for students with disabilities.
- If you design and develop your own activities, ask a student to read your instructions to ensure they are clearly written.
- Providing appropriate scaffolding and clear guidance, offering needed tools and resources, and motivating students to engage in these three types of interaction to help your students to achieve pre-established learning objectives (Wang, p. 8).

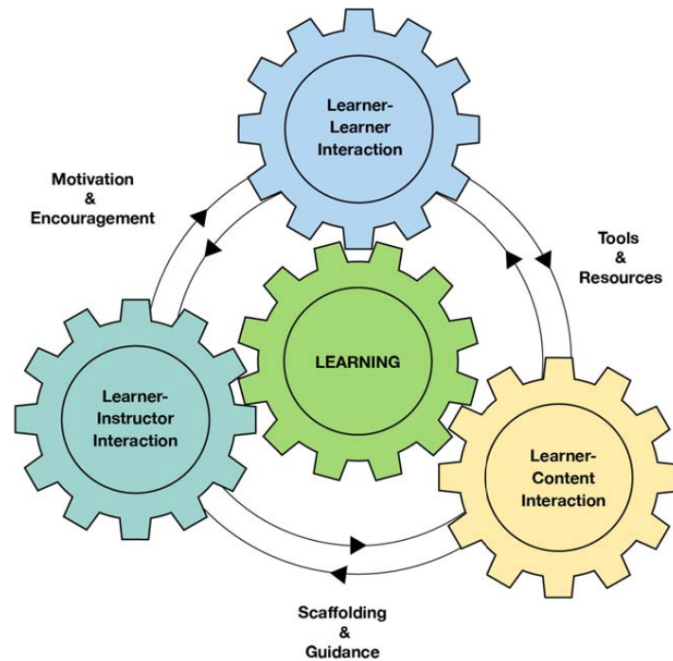


Fig. 4 Learning Variables and Three Types of Interaction for learning

- **Learner-Content Interaction:** Use appropriate instructional materials in appropriate formats. It is easily said but not that easy to implement in an online class. Have a student proofread your materials or let them select material formats. If possible, offer your materials in multiple formats. Please consider adapting long reading materials into shorter sections to accommodate attention span for student learning at home. Also pay special attention to students with disabilities and make sure your online materials have gone through an ADA access check (Wang, p. 8).
- **Learner-Instructor Interaction:** Establish regular communications with the class using text, audio, and video messages. Use virtual office hours to answer questions and to support student online learning. Set up a regular instructional time to monitor student learning and provide timely feedback and encouragement. In addition to using one-to-one communications with students, you can use one-to-group (e.g. group emails) and one-to-class communication (e.g. class announcements) to increase your communication efficiency. Change your communication formats occasionally and use more audio and video messages in addition to texts. These efforts will increase the teaching (social, cognitive, emotional) presence in your online classes (Wang, p. 8).
- **Learner-Learner Interaction:** Create learning groups and encourage student collaboration. Embrace student differences in class. Ask some students to take a leadership role in learning so that they can learn from and help each other in your online class (Wang, p. 8).

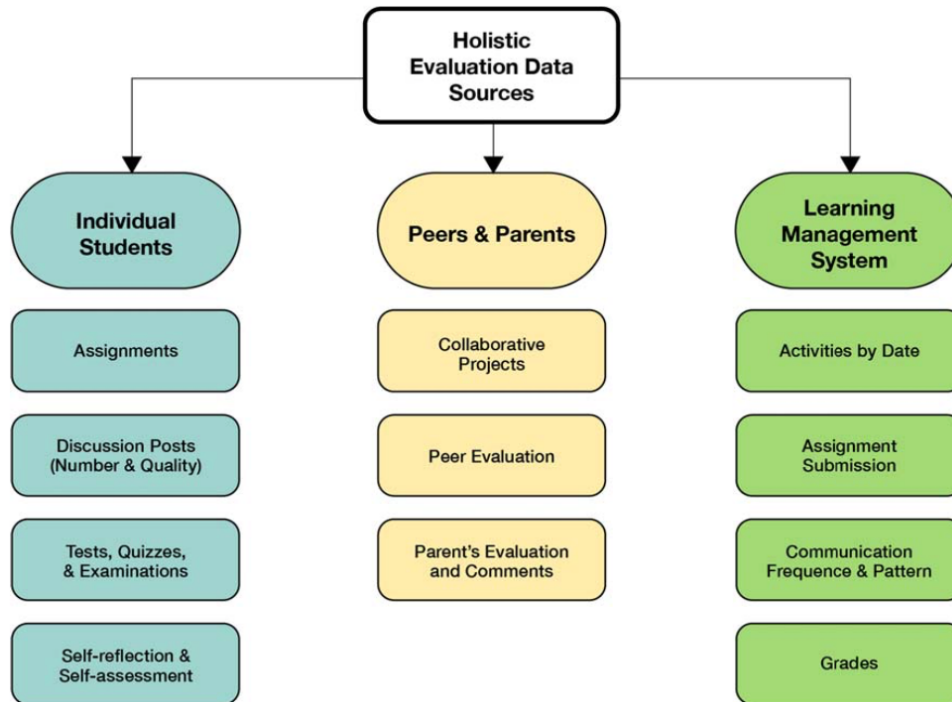


Fig. 5 Holistic Evaluation Data Sources

- Here are some considerations for holistic student evaluation: First, understand your LMS functions and use multiple ways to evaluate student learning. In addition to commonly used assessments such as testing, you can use their online performance data captured by your LMS to holistically evaluate student learning. These can be their contributions to class discussions, the number of times a student lead group projects, shared learning resources, or assisted others in learning (Wang, p. 8).
- Encourage peer evaluations for collaborative projects. Consider inviting parents to evaluate their children’s online learning at home (Wang, p. 8).
- Use assessments and evaluation as an instructional means to promote student learning. In addition to promoting content mastery, self-assessments by students in any format can be used to train students to become reflective learners with enhanced self-regulated online learning skills (Wang, p. 8).
- Here are some commonly-used functions in Canvas for presenting learning contents and activities:
 - Modules: Use it for displaying all of the learning content and links to the learning activities such as assignments, tests, and discussions in each module.
 - Pages: Use it to present learning instructions, and class announcements.
 - Assignments: Use it for both gradable and non-gradable assignments & individual and group assignments.

- Discussions: Use it for class and group discussions. Discussions can be graded.
- Quizzes: Use it for tests in multiple formats. It can be multiple choice questions, true-false answers, or short answer questions. It also provides immediate feedback to students.
- Conference: Use it for synchronous communication activities like class discussions, online meetings, group collaborations and project work (Wang, p. 9).

C. The ERTE Framework

Due to time constraints, I am listing the important points for this topic.

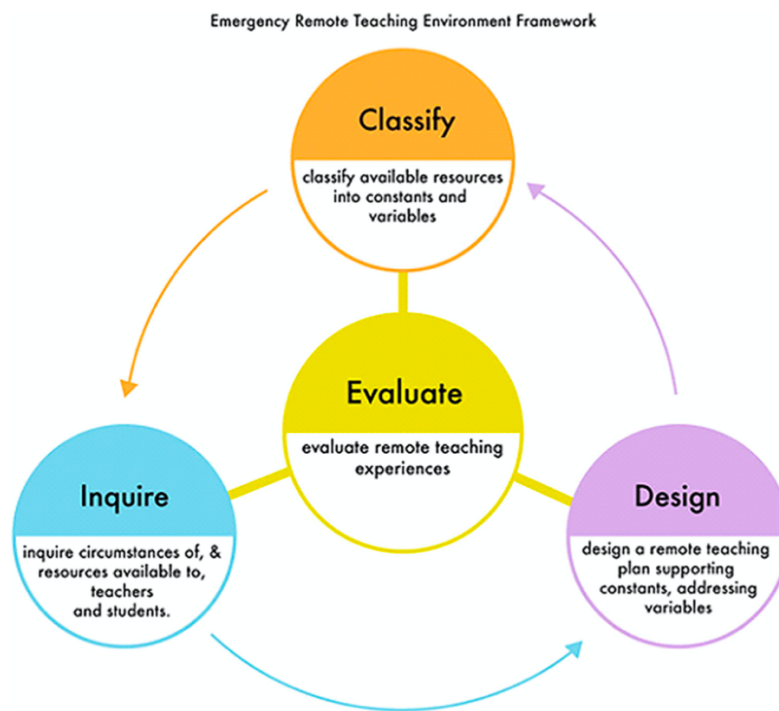


Figure 1. ERTE Framework

- Emergency remote teaching environment: a conceptual framework for responsive online teaching in crises (see tables and images): This study aims to provide an educational framework for not only the emerging COVID crisis but also future emergency remote teaching environments (ERTE) (Whittle, Tiwari, Yan, & Williams, 2020, p. 311).
- This work identifies thematic elements present across multiple subject areas, school districts, learner ages and socio-economic situations. Using these themes, as well as design solutions created by our participants, the authors propose the ERTE framework (Whittle et al., p. 311).
- Using a participatory design framework, we engage four teachers and five instructional designers in a design-centered conversation (Whittle et al., p. 312).

- Researchers iteratively synthesized the emergent themes with two frameworks – Sawyer’s (2005) framework for creating a learning environment and Garrison and Arbaugh’s (2007) community of inquiry framework for online learning – to generate the ERTE framework. Sørensen (2009) described this approach as methodological and argued that the theories served as a tool to participate in knowledge building (Whittle et al., p. 312-313).
- We argue this approach is well suited for this study for two reasons. First, this methodological approach balances the validity of existing frameworks with the emergent needs of participants. Second, this approach allowed us to acknowledge the novelty of the emergency remote teaching phenomenon rather than imposing an existing framework to make the data “fit” or purely collecting data to validate the theories (Whittle et al., p. 313).
- A powerful theme identified in our research was the inadvertent obfuscation of learning goals. During COVID-19, participants experienced a focus on the method of delivering instruction rather than the learning goals, leading to uncertainty around assessment for both teacher and student. The emergent theme of the instability of expectations highlights the importance of a step that is normally “assumed” in lesson design (Whittle et al., p. 315).
- If teachers identify a technology as a constant in the inquiry phase, they can consider effectively using that technology to interact with the coursework as a viable learning goal. Garrison and Arbaugh (2007) refer to this as the hidden curriculum, an emerging theme in our data. Teachers found the rapid introduction of multiple learning management tools disruptive rather than supportive, and participants describe their ERTEs as more successful when time is taken to teach required technologies (Whittle et al., p. 315).
- This echoes findings that indicate introducing new technologies without an adjustment and instruction period can disrupt learning (Whittle et al., p. 315).
- *Ratio of teacher to students.* Our data suggest that these ratios, though recognized by the participant teachers, were not initially considered. Only as the impact of teacher–student ratios, specific to online environments, became apparent through practice did participants reconsider lesson designs (Whittle et al., p. 316).
- *Communication method.* With learning goals in mind, the teacher must determine whether to use either synchronous or asynchronous learning strategies. ... Teachers and designers identified opportunities to explicitly engage learners in activities that could not be achieved in the classroom’s time-constrained environment. Examples include time-intensive consensus discussions and collaborative writing exercises, which allow a

teacher to respond to each student individually, improving teacher social presence. (Whittle, p. 316).

- *Building agency.* Unexpectedly, participants explored the theme of learner agency in online education as teachers discussed the possibilities of learner-driven assignments with their designer partners. Participants expressed that students' ability to pursue learning in their own homes and at their own pace might allow teachers to engage learners in topics and approaches of particular interest (Whittle et al., p. 316).
- *Variables* identified during the inquiry phase can illuminate obstacles to implementing generalized learning approaches for students. However, allowing the learner some agency in how they approach those goals can serve to increase engagement with material (Whittle et al., p. 316).
- *Assessments.* Data suggest that assessment was deprioritized in initial planning in participant districts. During our focus group, participant teachers saw assessment expectations as unstable or unfair during a crisis (Whittle et al., p. 316).
 - Within the ERTE framework, the assessment must be prioritized in designing learning, but only after a proper inquiry has taken place. When assessment standards are determined by the administration, this framework suggests that the inquiry phase should incorporate a broadened perspective to identify assessment constants and design fair assessment standards aligned with these (Whittle et al., p. 317).
 - Furthermore, consideration should be given to measures that lower stakes and that help students maintain a healthy perspective on grades. Causing students to focus on grades or teachers to focus on student evaluations during emergency remote situations may make crisis management more difficult, or, as both designer and teacher participants indicated, put the goals of educators and administrators into conflict (Whittle et al., p. 317).
- *Social role of the instructor.* The social presence of the teacher in online learning is acknowledged to be beneficial to learning (Lehman and Conceição, 2010). However, some teachers indicated remote teaching initially hindered their social contact with learners, with initial interactions with students increasingly defined by the academic relationship (Whittle et al., p. 317).
- *Pedagogy and the student social role.* Given this and the unique variables and constants present in any ERTE application, this framework does not recommend a specific pedagogical approach. In general, we do advise using social-driven learning in the ERTE framework for two reasons. First, students with an engaged social presence in online learning report increased satisfaction with their experience (Richardson and Swan, 2003). Additionally, in our focus group, teachers observed a perceived negative impact

on students who experience a sudden loss of classroom social engagement because of emergency online learning (Whittle et al., p. 317).

- *Feedback.* The final design consideration in the ERTE framework is the strategy for providing learner feedback. The sustained communication necessary for a traditional assessment–feedback– assessment cycle is not always possible in an ERTE. Thus, alternative feedback strategies, not connected directly to assessment, may need to be explored. These strategies include peer feedback, self-feedback and non-graded formative feedback. (Whittle et al., p. 318).
- This echoes findings that indicate introducing new technologies without an adjustment and instruction period can disrupt learning (Whittle et al., p. 316).
- ...the students want to talk to their friends, they want to reconnect with their friends (Whittle et al., p. 318).
- Thus, socially driven learning approaches help address the concerns participant teachers expressed for their students' socio-emotional health (Whittle et al., p. 318).
- The final design consideration in the ERTE framework is the strategy for providing learner feedback. The sustained communication necessary for a traditional assessment–feedback– assessment cycle is not always possible in an ERTE. Thus, alternative feedback strategies, not connected directly to assessment, may need to be explored. These strategies include peer feedback, self-feedback and non-graded formative feedback (Whittle et al., p. 318).

D. Additional Worthwhile Ideas

Due to time constraints, I am listing the important points for this topic.

- The 356,000-student Miami-Dade County Public Schools has taken the former approach, leveraging its existing ed-tech infrastructure and invoking its emergency 'instructional continuity plan,' originally developed with an eye toward maintaining operations in the wake of a hurricane or other natural disaster. The district is planning to distribute tens of thousands of Chromebooks. Homebound children are already accessing the district's core curriculum via online learning programs such as iReady and Edgenuity. Teachers are expected to monitor their students' performance and communicate with them daily (Herold, p. 2).
- In the Boston suburbs, meanwhile, the 7,200-student Lexington, Mass., school district has taken the opposite tack. Last week, superintendent Julie Hackett rolled out a remote learning plan that stressed scaled-back expectations. Until school buildings re-open, Hackett urged Lexington families to anticipate that structured learning time will be

reduced by half. Teachers will scale their workdays back significantly. Students will receive feedback, not grades. The district's academic focus will be on reinforcing what's already been taught, then providing students with opportunities for independent work that doesn't require their parents to magically learn how to teach a child to read, or understand algebra, or pass the AP Physics exam (Herold, p. 2).

- In Arkansas, for example, the local PBS stations will provide scheduled programming for students in grades K-2, 3-5, and 6-8, and each grade band gets 90 minutes of programming a day. The state also provides additional digital resources and proposed schedules for families to plan the rest of the day around the grade band television. By staggering programming families—especially those with television but no broadband—can get a reliable daily schedule and coordinate homeschooling, screen time, and other activities (Reich et al., p. 5-6).
- Case Lesson: Social Studies in San Antonio. The Texas Department of Education has shared a number of exemplar lessons from districts, including from the San Antonio Independent School District.²¹ The daily lessons are presented on two slides, one in English and one in Spanish (See Figure 2). The activities are estimated to take about three hours, about half of a typical school day. One 11th/12th grade Social Studies lesson caught our attention: a suggestion to interview a family member about an important historical event and write a thank-you note explaining what the student learned. While not clearly aligned with any particular standards, the lesson has several attractive features for learning during an extended school closure: instructions are short but the possibilities of extension are wide— one can imagine that the students who enjoy the exercise might continue to interview other family members. The assignment promotes social and familial connectedness and allows students to pursue their interests. Finally, it is easily translated in multiple languages, and would fit in one or two SMS messages for those with limited internet access. In many contexts, these kinds of simple-yet-rich, extensible, interest-driven, skills-based activities may prove to be the most valuable in a pandemic (Reich et al., p. 9).
- Even within the same school or district, teachers started the shutdowns with different technology comfort levels. 'The range is unbelievable,' said Laura Haddad, a high school English teacher and technology coach in Glastonbury, Conn. 'From people who are as good at technology as I am' or better 'to people who I think are just frightened to open their computer every day' (Schwartz, p. 2).
- Haddad is realizing that many teachers are less tech savvy than she and her district leaders had previously thought. Before the pandemic hit, administrators had suggested that teachers at the high school start uploading course material to Google Classroom. 'A lot of the administrators assumed people were using it, but then it turns out 'oh no, they're not,' she said. In her role as a tech coach, she's offered training on the platform, and other tools, during the building shutdowns (Schwartz, p. 2).

- The Los Angeles Unified school district is offering teachers and other staff a stipend to get the Future Ready Certification, a microcredential for developing lessons in a virtual or blended learning environment. This is on top of the initial training that the district offered at the beginning of the shutdowns to get teachers up to speed on Los Angeles' learning-management system, video-conferencing tools, and content resources, said Alison Yoshimoto-Towery, the chief academic officer (Schwartz, p. 2).
- And the Fresno Unified school district is building out a digital library of on-demand webinars and has tapped into a districtwide network of 500 educators with experience in personalized learning (Schwartz, p. 2).
- Many teachers have turned to each other for support and plan to continue relying on these networks. Legge, the 4th grade teacher in Tennessee, has used the Global Educator Collective, a 130,000-member Facebook group created for sharing online teaching tips during the pandemic (Schwartz, p. 2).
- Brittany Tinkler, a 3rd grade mentor teacher at Southport Elementary School in Indianapolis, has been experimenting with new ways to measure student progress, now that she can't give tests in the same way she used to. Students can still send her written work, but she's also accepted Flipgrid videos and digital art. She wants to incorporate alternative-assessment methods into her regular routine once she is back in the school building (Schwartz, p. 3).
- She's struggled to reach students with disabilities through Zoom meetings. 'It feels so inadequate compared to what they need,' she said. But even so, she's seen some positives in distance learning. Occupational therapists, speech-language pathologists, and teachers have collaborated more. The group does weekly check-ins with parents now 'much more engagement than the usual once-a-year meeting to discuss students' individualized education programs (Schwartz, p. 3).
- Other teachers, too, say they've cultivated new skills that have nothing to do with technology. Haddad, the English teacher in Connecticut, has started breaking work down into smaller steps, with more explicit directions (Schwartz, p. 3).
- Online teachers have to figure out how to help develop their students' agency as an independent learner, without a teacher constantly available. It matters less which specific tech skills teachers have picked up during this time and more that they've shown a willingness to try new things, tinker with new tools, and problem-solve, Chandy said (Schwartz, p. 3).

My own additions:

- Students need to be able to write on paper rather than engaging in continuous digitized learning. Research shows that writing information down helps with remembering and learning.
- Typing and notetaking skills are desperately needed if remote learning continues. At the start of the pandemic, the majority of students had never previously learned how to properly type. Furthermore, without the constant visual and oral reminders present in a physical classroom, students need to learn how to take effective notes in a range of settings. Ideally, this would have been taught prior to remote learning.
- There should be a student-teacher conference call option (telephone). This should be available for when students become disconnected due to internet, software, or equipment issues.

References

- Arnett, T., & Waite, C. (2020). A new road map for schools. *The Learning Professional*, 41(3), 38-41.
- Carter Jr, R. A., Rice, M., Yang, S., & Jackson, H. A. (2020). Self-regulated learning in online learning environments: Strategies for remote learning. *Information and Learning Sciences*, 121(5/6), 321-329.
- Darling-Hammond, L., Schachner, A., & Edgerton, A. K. (with Badrinarayan, A., Cardichon, J., Cookson, P. W., Jr., Griffith, M., Klevan, S., Maier, A., Martinez, M., Melnick, H., Truong, N., Wojcikiewicz, S.). (2020). *Restarting and reinventing school: Learning in the time of COVID and beyond*. Palo Alto, CA: Learning Policy Institute.
- Dorn, E., Hancock, B., Sarakatsannis, J., & Viruleg, E. (2020). COVID-19 and student learning in the United States: The hurt could last a lifetime. *McKinsey & Company*.
- Garbe, A., Ogurlu, U., Logan, N., & Cook, P. (2020). Parents' experiences with remote education during COVID-19 school closures. *American Journal of Qualitative Research*, 4(3), 45-65.
- Herold, B. (2020). The scramble to move America's schools online. *Education Week*, 39(28), 14. (Alternately, visit <https://www.edweek.org/ew/articles/2020/03/26/the-scramble-to-move-americas-schools-online.html?r=1079700032&mkey=D4FAE9CF-10C6-494F-BD91-DB7F7A5B0860>)
- Kaden, U. (2020). COVID-19 school closure-related changes to the professional life of a K–12 teacher. *Education Sciences*, 10(6), 165.
- Lieberman, M. (2020). Many districts won't be ready for remote learning if coronavirus closes schools. *Education Week*, 39(25), 1. (Alternately, visit <https://www.edweek.org/ew/articles/2020/03/05/many-districts-wont-be-ready-for-remote.html>)
- MacMahon, S., Leggett, J., & Carroll, A. (2020). Promoting individual and group regulation through social connection: strategies for remote learning. *Information and Learning Sciences*, 121(5/6), 353-363. (For all 10 strategies, see <https://education.uq.edu.au/slrc>)
- McLaughlin, R., & Resta, P. (2020, 10). On systemic digital equity, systemic inclusion, and the teacher librarian in the pandemic era, part 1. *Teacher Librarian*, 48(1), 8-14.
- Pazur, S. (2020). From crisis to continuity: The role of the LMS in the future of learning. *English Leadership Quarterly*, 43(2), 2-4.

- Reich, J., Buttimer, C. J., Fang, A., Hillaire, G., Hirsch, K., Larke, L. R., Littenberg-Tobias, J., Moussapour, R., Napier, A., Thompson, M., & Slama, R. (2020). Remote learning guidance from state education agencies during the covid-19 pandemic: A first look. *arXiv 2020*. Retrieved from osf.io/k6zxy/
- Sawchuk, S. (2020). When schools shut down, we all lose. *Education Week*, 39(27), 1. (Alternately, visit <https://www.edweek.org/ew/articles/2020/03/20/when-americas-schools-shut-down-we-all.html>)
- Schwartz, S. (2020). It was a bumpy ride, but virtual schooling during the coronavirus boosted teachers' tech skills. *Education Week*, 39(34), 8. (Alternately, visit <https://www.edweek.org/ew/articles/2020/06/03/it-was-a-bumpy-ride-but-virtual.html>)
- Stenhoff, D. M., Pennington, R. C., & Tapp, M. C. (2020). Distance education support for students with autism spectrum disorder and complex needs during COVID-19 and school closures [Special Series COVID-19]. *Rural Special Education Quarterly*, 00(0).
- Stern, E. (2020). Benefits of in-person learning outweigh the risks. *University Wire, Carlsbad*. Retrieved from <https://proxying.lib.ncsu.edu/index.php/login?url=https://www-proquest-com.prox.lib.ncsu.edu/docview/2438597128?accountid=12725>
- Wang, C. X. (2020). CAFE: An Instructional Design Model to Assist K-12 Teachers to Teach Remotely during and beyond the Covid-19 Pandemic. *TechTrends*, 1-9. Retrieved from <https://link.springer.com/article/10.1007%2Fs11528-020-00555-8>
- Whittle, C., Tiwari, S., Yan, S., & Williams, J. (2020). Emergency remote teaching environment: A conceptual framework for responsive online teaching in crises. *Information and Learning Sciences*, 121(5/6), 311-319.
- Zuckerman, S. (2020, November 13). We polled kids and asked them the best (and worst) things about distance learning. Retrieved from <https://www.purewow.com/family/kids-thoughts-about-distance-learning>