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Supporting students with special needs in virtual and hybrid inclusive classrooms:

Perceptions and practices from the U.S. during the COVID-19 pandemic

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The dissertation is dedicated to my mother, Benita. Her unparalleled perseverance and selflessness are my most steadfast source of inspiration. I am indebted to her, my partner, my sister, and the incomparable A-Team for their smiles, sagacity, and senses of humor that supported me through every step of this process.

Abstract

Throughout the COVID-19 pandemic, public school students with special needs in the United States were legally entitled to individualized support in the least restrictive environment deemed possible, which for some, meant inclusion in mainstream classrooms. Although the literature on inclusion in physical classrooms is extensive, research on inclusive digital education in virtual and hybrid spaces is lacking. This study investigates how teachers attempted to engage in inclusive pedagogical practice in digitally mediated classrooms. In doing so, it provides novel insights into the perceived academic and social impacts of these pedagogical changes on the educational experiences of students with special needs. Grounded in the theoretical framework of inclusive research, this mixed methods study elevates the voices of students with special needs, their teachers, and their parents through interviews and a survey to illustrate how inclusive education was interpreted and delivered over the course of pandemic. Situating the study at the nexus of digital equity and inclusive special education, the research discusses the multidimensional digital divide that disproportionately affects students with intersecting marginalized identities, such as those in this study's sample. Ultimately, the research addresses broader questions about the conflicting values in inclusion, the variability of inclusive practice, and the challenging considerations for designing and delivering inclusive special education in virtual and hybrid learning spaces.

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List of Abbreviations

AAVE	African American Vernacular English
ADHD	Attention deficit hyperactivity disorder
ELA	English Language Arts
GE	General Education
ICT	Information and communications technology
IDEA	Individuals with Disabilities Education Act
IEP	Individualized Education Plan
LRE	Least Restrictive Environment
NCES	National Center for Education Statistics
SE	Standard English
SPED	Special Education
UDL	Universal Design for Learning
UNESCO	The United Nations Educational, Scientific and Cultural Organization
UNICEF	The United Nations Children's Emergency Fund
USDE	United States Department of Education

1. Introduction

1.1 Special Education and COVID-19

Nearly 7 million students in the United States are diagnosed with disabilities, constituting 14 percent of the total population of public-school students (National Center for Education Statistics, 2021). The Individuals with Disabilities Education Act (IDEA) governs how these students receive Special Education (SPED) and related services in American public schools. The IDEA mandates that each student with special needs receive an annual Individualized Education Plan (IEP), a document that details a student's special services, personalized learning goals, and the Least Restrictive Environment (LRE) in which they can make sufficient progress toward these goals. For most students with minor and moderate disabilities—such as Specific Learning Disabilities (SLD),[1] developmental exceptionalities (e.g., Autism), or attention disorders (e.g., ADHD)—the most common LRE is the mainstream classroom. This practice is known as inclusion. In other words, inclusion is the integration of students with special education needs into general education (GE).

On March 11th, 2020, the World Health Organization declared COVID-19 a pandemic, triggering an abrupt halt of face-to-face instruction and transition to remote learning modalities in American public schools. The following day, The U.S. Department of Education (USDE, 2020) released a statement regarding the provision of SPED services during remote learning:

> If a child does not receive services during a closure, a child's IEP team [...] must make an individualized determination whether and to what extent compensatory services may be needed, consistent with applicable requirements, including to make up for any skills that may have been lost. (p. 1)

Jameson et al. (2020) write that this initial statement spurred much misinterpretation regarding the legal requirement to continue SPED services during distance learning. This confusion forced the USDE to issue another statement on March 21st clarifying that compliance with the IDEA was essential even during distance instruction. The misunderstanding was so widespread that many public school students were not receiving any SPED services at the beginning of the pandemic (Nadworny & Kamenetz, 2020). Secretary of Education Betsy DeVos announced that IDEA requirements would not be waived, including the Least Restrictive Environment (LRE) clause, for "learning must continue for all students during the COVID-19 national emergency" (USDE, 2020). However, beyond suggesting

[1] 33 percent of students receiving Special Education services qualify under Specific Learning Disabilities (SLD), making it the most common category of diagnosed disability (NCES, 2021).

"accessible reading materials" and "video conferencing" for service providers, specific guidance on exactly how schools could continue special education was not detailed. The complex realities of distance learning modes further obfuscated an already nebulous consensus (Armstrong et al., 2010) on what exactly 'inclusion' meant in the context of a virtual classroom.

In the absence of federal guidance, local school systems were left to experiment with variations of virtual instruction. Some schools opted for paper-based learning, others for asynchronous online learning, and many assembled online learning environments that attempted to mirror the structures of in-person school. The ensuing academic year was a roller coaster of remote, hybrid, and in-person learning environments. Consequently, a revisiting of the relationship between inclusion and digital technology is warranted in the context of these unprecedented educational spaces. Teachers and school leaders across America were forced to redefine the meaning of inclusion in digitally mediated classrooms, testing in real time whether digital technology could deliver inclusive education for learners with disabilities.

I was one such teacher for whom the complexities and uncertainties of virtual inclusion were brought into stark relief when the pandemic broke out. Before beginning this research, I was a special educator for two years with Teach For America in a low-resource public school in New Orleans, Louisiana, which served an almost entirely Black or Latinx student body from predominantly low-income families. My SPED students were bright, eccentric, creative young people who needed something slightly different than what general education (GE) could offer them to engage their mild or moderate exceptionalities. When COVID-19 school closures were announced, I could not envision what SPED inclusion would look like: How would I provide one-on-one support in the 'back' of a forty-person Google hangout? How would I do this for the fifty students on my caseload across three different grade levels with synchronous class schedules? How would I provide reading accommodations to a student with a single, dysfunctional cell phone to share with his five school-age siblings?

The term ended in May 2020, at which point our school had still not been able to contact over thirty percent of the student body, many of whom were students with special needs—those seriously at risk of being forgotten and falling further behind their peers. As many schools continue to offer distance learning programs for their students, as well as hybrid methods that combine in-person and virtual instruction, I want to play a part in documenting and sharing the experiences of SPED students, teachers, and families to ensure that their voices are heard, considered, and given due weight in the lessons learned from COVID-19 distance learning. This is the energy that drives my thesis.

1.2 Research Aims, Questions, and Outline

The aim of this research is to contribute to the nascent literature on virtual and hybrid inclusive special education experiences during COVID-19 with an empirical study. In doing so, I intend to give shape to important considerations when planning SPED spaces and supports in virtual and hybrid instructional modes. The terminology used to describe digitally mediated learning models contains distinctions that are critical to the clarity of this research. Given the topic of virtual and hybrid learning, this study will use the definitions outlined in the table below to denote these distinctions.

Table 1

Terminology of Learning Modalities

Digital Learning	The umbrella term to describe any method of learning mediated by digital technology. In this study, the term indicates virtual and/or hybrid learning.
Virtual Learning	This term signals learning that happened *fully online*. For schools that leveraged digital technology in their pandemic responses, 'virtual learning' was often used synonymously with distance or remote learning. Virtual learning can be *synchronous*, meaning students take online classes at the same time, or *asynchronous*, which allows students to complete classwork on their own time.
Hybrid Learning	Hybrid learning integrates virtual and in-person learning. Students have the option to connect to synchronous class instruction either in-person or remotely. For example, in a hybrid classroom, all students may log into a Google hangout to participate in class, whether they are in the school building or remote. For the three modes of hybrid learning identified in this study, see Figure 2.
Blended Learning	Conceptually, hybrid and blended learning are sisters but not identical twins; blended learning *supplements* in-person instruction through digital technology, while hybrid learning *replaces* components of face-to-face instruction with fully virtual learning environments (Bonderud, 2021). Blended learning could be, for example, the completion of coursework on a personalized literacy program during a portion of an in-person reading class.

This study will focus on the accounts of students, their parents, and their teachers by presenting the space for participants to speak for themselves about their digital learning experiences. To achieve my research aim, this thesis is driven by one overarching question and three sub-questions:

Research Question: Can digital technology deliver on the academic and social promises of inclusive special education?

> **Research Sub-Question 1**: How did inclusive pedagogy change during the COVID-19 pandemic through the use of digital technology?
>
> **Research Sub-Question 2**: How did virtual and hybrid inclusion practices impact the SPED student learning experience during the pandemic?
>
> **Research Sub-Question 3**: How did virtual and hybrid inclusion practices impact SPED students socially during the pandemic?

The organization of the thesis is as follows: the Literature Review (Chapter 2) investigates the many perspectives on inclusion, inclusive pedagogy, and digital divides, followed by a discussion of my theoretical framework, which culminates in a restatement of my contextualized research questions. Chapter 3 outlines the methodology, including design justifications, sampling methods, instruments, analytic approach, language and ethical considerations, and limitations. The chapter ends with a description and timeline of the learning modalities during the 2020-2021 academic year based on the study's sample. Chapter 4 discusses the three research sub-questions by presenting and analyzing questionnaire and interview data from teacher, student, and parent participants. Overall, the study investigates the interconnections between technology, inclusion, and special education. These three threads are interwoven throughout the thesis to assess the ability of technology to deliver on the academic and social promises of inclusion special education, the study's overarching research question.

Throughout the study, I privilege the use of the terms SPED and GE to differentiate between those students with IEPs and those without. There is much discourse in the literature regarding the ethical implications and power dynamics implicit in the labels of able/disabled or 'person with disabilities' and 'disabled person' (Florian, 2019; Meekosha, 2011; Naraian, 2021). This study preferences the terms SPED and GE because it centers the discussion around the placement of individuals in their respective educational tracks. The SPED/GE classification indicates the specific educational experiences students were likely to—and legally entitled to—receive in American public schools. The terms focus the discussion on the study's exploration of support services, classroom practices, and the use of space and technology across SPED and GE, rather than commenting on the ability levels of the student participants or defining them by their diagnoses.

2. Literature Review

This study investigates the intersection of digital technology and inclusive special education. Independently, these two topics have been widely researched, yet the nexus of the two remains largely unexplored. COVID-19 caused a collision of both concepts in pandemic learning contexts. This chapter will locate my study within the wider literature to situate the subsequent discussion of the findings. To do so, this chapter will explore the disparate understandings of two essential concepts that act as the pillars of the project: inclusion and the digital divide. Both terms are embedded in implicit binaries, and both are used to mean remarkably different things in the field of education research.

First, this chapter will explore the many interpretations of 'inclusion' in theory, placement, and practice. Then, it will review the discourse on the 'digital divide' and the potential of digital technology to foster inclusion or exacerbate exclusion, with a particular focus on the needs of low-income SPED students. Finally, the chapter will draw the two discussions together to examine what the literature says about the impact of digital technology on inclusive special education. The chapter concludes by describing the theoretical framework for the research approach and responding to recent calls for qualitative research on the relationship between disability, digital technology, and inclusive education during COVID-19.

2.1 Inclusion: Disparate Definitions

The lack of consensus on a common interpretation of the word 'inclusion' in education has been regularly acknowledged in the literature (Armstrong, 2005; Oliver & Barnes, 2010; Riitaoja et al., 2019). The obfuscation of the language of inclusion renders comparing research on inclusive practice across contexts a challenge, both nationally and internationally. D'Alessio et al. (2009) reveal inconsistencies in the term's frequent use in international education and development reports due to incompatibilities across languages. In the U.S., Slee (2013) argues that the term is so saturated in policy and SPED legal jargon that it is displaced from meaning entirely. Brave scholars in the field like Ainscow have valiantly embarked on the Hellenistic task of publishing comparative papers on inclusive education (Ainscow, 1997, 2005; Ainscow et al., 2003, 2006, 2004, 2013; Ainscow & Miles, 2008; Ainscow & Sandill, 2010). The mere existence of so many publications addressing the same essential question of how to develop an inclusive education system illustrates the necessity to regularly revisit the word's meaning in policy and practice, as it seems to frequently change shape. Indeed, Florian (2008) concludes that researchers demonstrate diverse epistemological assumptions about inclusion:

> The concept of inclusive education has come to mean many things: from the very specific—for example, the inclusion of children with disabilities in mainstream schools—to a very broad notion of social inclusion as used by governments and the international community as a way of responding to diversity among learners. (p. 206)

Generally, this study identifies three categories of the use of 'inclusion': in theory, in placement and in practice. In the broadest sense, 'inclusion' is used to describe an historic educational movement that situates mainstream schools as a battleground against the nefarious forces of social segregation and stratification. The theory of inclusion posits that integrating students with special needs into mainstream schools will incite inclusive societies that build bridges—not barriers—between the binary of able and disabled. However, whether this theory is successful in practice has been one of the most divisive topics in public education for decades (Ainscow & César, 2006; Fitch, 2003; Naraian, 2021).

Second, inclusive placement specifically relates to SPED students learning in the same classrooms as their non-disabled peers (Ainscow et al., 2003; Armstrong et al., 2010). In the U.S., 'inclusion' SPED students are those whose Least Restrictive Environment (LRE) for instruction is determined to be in the 'regular' or 'general' education (GE) setting, legally enforced by their IEP. Many studies from the U.S. explore the effects—both academic and social—of mandating the ideal LRE as inclusion in GE classrooms (Huber et al., 2001; Szumski et al., 2017). Inclusion is often contrasted with small group 'resource' instruction, in which SPED students are 'pulled out' of mainstream classrooms to a separate space for an entire class period (Ruijs & Peetsma, 2009). 'Resource' students are generally deemed to have higher needs and are 'pulled out' for their core subjects—most typically English Language Arts (ELA) and Math—but are included in GE classrooms for all other periods.

The third body of inclusion research concerns inclusive pedagogy, or the instructional practices and approaches that facilitate the inclusion of SPED students in mainstream education. Most scholarship seems to exist in this realm, comprising the substantial research that seeks to determine SPED best practices. In this domain, inclusive practice is commonly referred to as the Universal Design for Learning (UDL), or the idea that practices designed to support SPED learners actually support the diverse learning styles of every student in a classroom, disabled or not (Edyburn, 2010). Although much of this literature investigates SPED student outcomes, there is also a substantial focus on teacher training in inclusive practices and teacher attitudes toward inclusion (Avramidis & Norwich, 2002; Buell et al., 1999), which reveals a consensus that collaborative practices and spatial considerations are defining features of inclusive pedagogy.

2.1.1 Collaboration: Co-teaching, Culture of School Support, and Space

There is no single method of inclusion instruction. Debates on how best to design an inclusion classroom are diverse, disputed, and well-documented (Armstrong et al., 2010). However, one common feature of inclusion classrooms is the presence of more than one teacher, for co-teaching is understood internationally as "aligned with the concept of inclusion" (Carty & Marie Farrell, 2018, p. 102). Despite being defined as the "collaboration between general and special education teachers for all of the teaching responsibilities of all students assigned to a classroom" (Gately & Gately, 2001, p. 41), co-taught inclusion can lean heavily on the GE teacher, rather than being equally distributed between GE and co-teacher through collaboration. Oftentimes, the SPED co-teacher assumes solely a supportive role, accommodating materials, scaffolding classwork, or grouping SPED students in a specified classroom space for an intervention. However, the literature supports a consensus that collaboration is critical to the success of inclusion classrooms, not only between SPED and GE teachers, but also among all staff to support a school-wide culture of inclusive practice (Ainscow, 2005; Ainscow & Sandill, 2010). Co-teaching is often discussed as a singular method of teaching when, in fact, it comprises multiple methods and models (Carty & Marie Farrell, 2018). Importantly, hybrid and virtual learning environments have opened the door to new, hitherto unexplored methods and models of co-teaching that this study will explore.

2.1.2 Use of Space

Physical space is at the core of inclusive education policy and practice. The school-based conception of inclusion is that SPED students attend the same schools as other students, learn in the same classrooms, and follow the same curriculum at the same time (Ainscow et al., 2006). Developing insights about the physical positioning of SPED students in relation to their teachers and peers in instructional spaces is relevant to the ways in which inclusion is understood, the values it represents, and the instructional practices that are possible in a certain setting (Lim et al., 2012). A teacher's use of space through positioning and movement is a "significant semiotic resource for effective pedagogic discourse" (Lim et al., 2012, p. 238) that spurs certain pedagogical practices and classroom power dynamics. The paper describes four types of pedagogical space: (1) Authoritative Space, (2) Personal Space, (3) Supervisory Space and (4) Interactional Space. In a supervisory space, a "teacher may pace alongside the rows of students' desks as well as up and down the side of the classroom" (Lim et al., 2012, p. 238). This spatial configuration is often used during group and individual work to monitor student on-task behavior. Interactional space, or a "teacher standing alongside the students' desk or

between the rows of students' desks; personal consultation where the teacher offers guidance on the task" (Lim et al., 2012, p. 238) is the most common positioning for inclusion co-teachers, which is true for this study's teachers, who generally described their spatial use in physical co-taught classrooms as interactional.

Rapid reconstructions of classroom space are often necessary to service SPED students who may require, for example, one-on-one interventions, alternate pacing, or preferential seating. Understanding the use of space in physical inclusion classrooms is integral to understanding how space was used in virtual and hybrid inclusion classrooms. This study addresses a significant literature gap regarding how inclusive practices change in virtual and hybrid classrooms, in which digital technology warps space— shrinking and expanding it, compressing it and stretching it— creating a different learning experience for SPED students with every reconstruction.

2.1.3 Critical Inclusion Conversations

As noted by Norwich (2005), the literature is saturated with studies of 'what works' and 'best practices' in inclusive classrooms, yet a consensus on the overall positive effect of inclusive education on special needs students—and society at large—remains to be reached. Critical disability studies have shown that inclusion can be displaced from practical realizations, or more dangerously, can be a tool for the exacerbation of the able/disabled binary. Studies of the exclusionary effect of inclusion instruction converge around two themes: (1) the disempowerment of SPED students due to socially constructed social and spatial segregation within inclusion classrooms, and (2) reinforcement of able/disabled separation through parallel pedagogies for SPED and GE (Meekosha, 2011; Naraian, 2021; Norwich, 2005).

Recent pedagogical trends, such as UDL, attempt to counter this separation by suggesting that SPED pedagogy is best practice in general pedagogy (World Bank, 2020). In other words, by offering multiple forms of inclusive engagement in a classroom, one offers better, personalized learning experiences to all, including those with special needs. Digital technology has become the protagonist of the personalized learning project, triggering a plethora of policy documents to preach ed-tech's promise of the easy integration of UDL principles into classroom practice (Hall et al., 2015). Whether or not the use of digital pedagogies for *all* students is inclusive of the specific needs of SPED students is a concern of this study and necessitates a visiting of the literature on the digital divide.

2.2 Digital Divides

Like inclusion, the 'digital divide' is an elusive term, which some scholars have critiqued as a pawn in the policy-maker's pocketbook of meaningless platitudes (Dolan, 2016; Lee, 2008). Early research on the digital divide was often packaged into neat binaries of users and non-users, formal and informal learning, internet rich and internet poor, academic and non-academic (Eubanks, 2012; Gunkel, 2003). The focus on access alone in 'digital divide' discourse largely ignores the situated social complexities of ICT inequality (Eubanks, 2012). On an international scale, the literature strongly supports that the digital divide is drawn across racial (Fairlie, 2004; García & Weiss, 2020), socioeconomic (Dimaggio & Garip, 2012; Matuchniak & Warschauer, 2010), and disability lines (Goggin, 2017; Vicente & López, 2010). In their review of 55 articles published between 2006 and 2016 on individual ICT access and use, Fang et al. (2019) conclude that the 'digital divide' combines the wicked problem of access and the wicked problem of use into a complex system of inequity informed by sociocultural, situational realities. Fang et al.'s (2019) systematic review underscores the development of the consensus in the digital divide discourse that one's age, ability, educational attainment, geographic location, gender, race, and socioeconomic status all influence one's access, skills, and use of digital technology.

On an international scale, the pandemic exposed immense digital inequalities between low-income and high-income countries (Tomer, 2020; UNESCO, 2020b). The socioeconomic digital divide is salient even in nations as wealthy as the United States, where low-income communities, with higher proportions of disabled and non-white individuals, have less access to ICT (Brucker et al., 2015; Dobransky & Hargittai, 2006). The crisis forced students to become reliant on their home ICT capacity to engage in distance learning, forcibly reopening access gaps for marginalized students that had been closed in America's school buildings (Chandra et al., 2021).

All learning, including digital learning, is situated (Lave & Wenger, 1991). It is not contained within the walls of a classroom, but within multiple realms—both virtual and physical—that are mediated by parents, teachers, peers, community members, and technology. It has been argued that both school and digital technology can reproduce societal inequities rather than promote social justice (Eubanks, 2012; Gorski, 2008; Hargittai & Hsieh, 2013; Robinson, 2009; Robinson et al., 2015). Therefore, digital school is also the site of the potential perpetuation of the oppression of marginalized populations.

2.3 Digital Inclusion

Digital inclusion should be understood as a pluralistic concept; it is not enough to simply say that one is included or excluded, that one has access to ICT or does not. Sinclair and Bramley (2011) connect the discourses on the digital divide and inclusion, writing that, "There is no single digital divide, but different levels of relative ICT engagement and exclusion. Such multi-dimensionality is a feature which the concept shares with that of social inclusion" (p. 9). Engagement is a key factor in the literature that assesses the ability of digital technology to include SPED students in inclusion classrooms. However, such studies have investigated *assistive* technology use in physical classrooms, finding that it can increase the academic engagement and performance of SPED students (Bouck et al., 2012; Morrison, 2007), yet is under-utilized in the U.S. (Bouck & Flanagan, 2016; Malcolm & Roll, 2017). On an international scale, Alper and Goggin (2017) note the paucity of data on digital practices of children with disabilities, especially from qualitative or participatory studies. This study found no research on digital practices that foster engagement of SPED students in fully virtual or hybrid environments prior to COVID-19.

Inclusive pedagogy was not developed in conjunction with general pedagogy and is not a required part of most general teacher training curricula (Blanchett et al., 2009; Blanton et al., 2018). By extension, the use of assistive technology to support SPED students is not often taught to non-SPED teachers. This normative positioning of GE instruction as dominant strengthens the separation between SPED and GE and encourages rifts in co-teaching, collaboration, and inclusive classroom culture—all necessary components of successful inclusive education (Florian, 2019; Naraian, 2021). Too often, students with special needs are passively placed in inclusion classrooms with teachers who lack the practical skills—or digital skills in the case of pandemic learning—to *engage* their disability. Though they may be physically included, they are excluded from learning experiences that were normatively designed around students without disabilities (Erevelles et al., 2019).

Therefore, the literature suggests that if physical classrooms are not specifically designed—and their teachers trained—to practice inclusion or use digital technology, then neither teachers nor tech may inherently create inclusive educational experiences for SPED students (Graham & Slee, 2008). Worse, digital technology and inclusion SPED may even recreate societal segregation and disability stigma in poorly designed classrooms that microcosmically mirror societal divisions of the abled and disabled through spatial use (Meekosha, 2011). If this is true of physical inclusion classrooms, the same

may be true of virtual and hybrid inclusion classrooms that integrate SPED students without a critical and careful hand. This study intends to explore this uncharted educational space.

2.4 The COVID-19 Context

COVID-19 illuminated the multiplicity of meanings and interpretations of inclusion. As the international community erupted in reports insisting that remote schooling plans be 'inclusive' (Armitage & Nellums, 2020; OECD, 2020; UNESCO, 2020a), exactly what this meant or how to go about doing it remained unclear (Reich et al., 2020; Toquero, 2020). Like in a physical classroom, calling a virtual or hybrid learning space 'inclusive' simply because someone has access to it does not make it so. Reich et al. (2020) review U.S. State remote learning guidance to conclude that, despite "admirable emphasis" on the needs of special populations, concrete guidance is merely "nascent" (p. 13). Thus, the matches lit by critical inclusion scholars over the past few decades (Wagner et al., 2012) coalesced into a strong flame in 2020, heating up the contradictions within the concept of inclusion, and by extension, the values inclusive pedagogy claims to propagate.

If COVID-19 lit a flame under the fire of inclusive education literature, then it caused a veritable eruption of research on the 'digital divide' and the tech in/equity in education. A review of recent publications from international organizations, NGOs, Think Tanks, and news media on digital inclusive technology in education would be rich enough for an entire dissertation. To paint a portion of the picture, this study examined publications from the World Bank (2020), the United Nations (2020a), the OECD (2020), and the EdTech Hub (Lynch et al., 2021) to conclude that digital technology is generally positioned as a vehicle to enable inclusive education. While these reports raise awareness on the need to support students with disabilities, they lack qualitative, empirical data and specific guidance on how this translates to virtual and hybrid pedagogies. Toquero (2020) contends that there is a great need for peer-reviewed research and published data on the effectiveness of using digital learning technologies with special needs children, suggesting that:

> Future research should examine the experiences of children with disabilities in using digital media during the pandemic period and evaluate the effectiveness of assistive technologies to meet the learning needs of people with disabilities. (p. 172)

Furthermore, Lynch et al. (2021) identify teachers' digital training, skills, and attitudes towards using technology as three areas for further research on the use of ed-tech to support the learning of students with disabilities. Given these particular gaps in the literature, my own project centers the

voices of SPED students, teachers, and parents in a detailed study of digital inclusion experiences to examine the effectiveness of digital technology in supporting inclusive special education.

2.5 Theoretical Framework

My research adopts the theoretical framework of inclusive research, an approach that elevates the voices of SPED students in studies about their own education (Nind, 2014a; Nind & Vinha, 2012; Walmsey & Johnson, 2003). Born from the field of learning disability (Walmsey & Johnson, 2003), the inclusive research framework is fitting for my study, the aim of which is to illustrate the impact of COVID-19 digital inclusion on SPED students by raising awareness of the lived experiences of virtual/hybrid inclusion classrooms. The term 'inclusive research' is itself inclusive, for it combines the principles of emancipatory, participatory, and participatory action research, encompassing all of them fluidly in a word that is not recognized only by academics, but across contexts (Nind, 2014b), as depicted in the visualization in Appendix A.

Inclusive research embodies elements of participatory and participatory action research by actively engaging SPED students in the process of constructing knowledge from the expertise of their own experiences, positioning them as partners rather than subjects in a study. Emancipatory research elevates the knowledge of the marginalized, seeking the empowerment of the researched by exposing the systems of control that disadvantage them. Combining the two, inclusive research engages students with disabilities and shares their co-constructed in knowledge in actionable ways that serve them. To instantiate the theory of inclusive research, Nind (2014b, p. 90) proposes 13 reflexive questions to guide a study's authentic adherence to the core tenets of the theoretical approach (for the complete list of questions, see Appendix A); Chapter 3 discusses the application of these reflexive questions in the study's design in detail. In sum, this study implements the theory of inclusive research in practice by amplifying the accounts of SPED students and their teachers in the conversations on 'lessons learned' from COVID-19, or as Nind (2014b, p. 4) says, research *for* and *with* them rather than on them.

Given the study's pedagogical focus on the comparative practices of digital inclusion, teacher perceptions of the effects of their own practices on SPED students also took a central role, offering a diversity of voices to the study. That inclusion starts and stops with teachers is strongly supported by the literature (Ainscow, 2005; Ainscow et al., 2004; Black-Hawkins & Florian, 2012; Nind, 2005), and thus "it is them we need to hear more from" alongside the students themselves (Nind, 2005, p. 273). Research sub-question 1, which investigates how inclusive pedagogy changed during the COVID-19 pandemic

through digital technology, was motivated by this call for teacher perspectives on their own inclusive practices.

The theory of inclusive research is closely related to critical disability theory, for both are grounded in the idea that individuals are disabled *by* their environments rather than their actual impairments. Unlike much critical disability research, this study does not deeply investigate power within the social construct of disability (Meekosha, 2011), but rather critically and comparatively assesses digital inclusion environments and their disabling and/or enabling effects on SPED students. I examine digital technology through this critical inclusion philosophical standpoint that, at its core, is less concerned with uncovering a binary 'what works' and 'what doesn't' and more with understanding the plurality of lived experiences, rights, and values within digital inclusion (Norwich, 2005). Naraian (2021) seeks to free inclusion from its implicit binaries of inclusion/exclusion, able/disabled and urges inclusive researchers to do the same. I assume this call for research that embraces the plurality of values in inclusion by exploring the possibility that digital inclusive education can travel between binaries, inclusive to some SPED students while exacerbating the exclusionary experiences of others. Research sub-questions 2 and 3 address this multifaceted impact of inclusion by exploring the manifold social and academic impacts of virtual/hybrid inclusive education on SPED students.

The study was influenced by critical disability theory in its social justice commitment to uncovering whether virtual/hybrid inclusion practices produced actual—or purely rhetorical—inclusive pandemic education for the study's SPED students. It aims to actively contribute to narrative understandings of the experiences of SPED students, catalyzing critical conversations outside the realm of academia regarding future use of digital inclusive pedagogies. Inclusive research should, "further the interests of disabled people; non-disabled researchers should be on the side of people with learning disabilities" (Walmsey & Johnson, 2003, p. 64). This theoretical framework, which is melioristic in nature, is also a response to the many injustices I saw my students face in the public school system, and I am motivated by a strong will to project their voices—which are so often silenced—to fill the gaps in the research on *their* COVID-19 experiences. Bolstered by the reviewed research gaps and the inclusive theoretical framework, my overarching research question—to determine if digital technology can deliver on the academic and social promises of inclusive special education—assumes a new sense of justified purpose.

3. Methodology

3.1 Overview of Research Design

Employing methodological pragmatism, this mixed-method study used semi-structured interviews as its main research instrument, supported by a student questionnaire. Rather than binding research to the binary between qualitative and quantitative, pragmatism frees the researcher to determine which methods are best suited to answering research questions within a consistent theoretical framework (Cohen et al., 2017). Twenty interviews with students, teachers, and parents were conducted over a two-month period, and the questionnaire was disseminated to students by teacher interviewees during this time. Although both research instruments (See Appendix B for interview guidance and Appendix C for questionnaire) generated mostly qualitative data, the questionnaire also yielded quantitative data to present a more holistic picture of inclusion experiences from multiple perspectives, or as Greene (2007) puts it, "multiple ways of seeing and hearing" (p. 20). As I understand interviewing and coding to be inherently subjective processes (Clarke & Braun, 2013), I used reflexive data analysis to encourage recursive awareness of my own critical positionality while enabling themes to emerge from the data as organically as possible (Clarke & Braun, 2020).

Building on this commitment to reflexivity, I sought to extend my understanding of the methodological instantiation of the inclusive research framework by returning to Nind's (2014b) questions in relation to my own research (see Appendix A). I turned to these questions throughout each step of the research process, ensuring that the topic was "relevant" to SPED students (Question 1), that the design included "participants, communities and knowledge that other research could not reach" (Question 10), that information was communicated in a way all participants could understand (Question 4), and that participants were treated with respect, honesty, and transparency (Questions 3 and 5). In prompting participants to reflect critically on their experiences of digital technology during virtual/hybrid and their belief of its broader societal effects, the study adhered to Nind's (2014b) inclusive research principles to create "worthwhile knowledge" that is "genuine and meaningful" (p. 90) and of value to the participants (Questions 7, 12, and 13 in Appendix A). Overall, my study embraces the central credo of inclusive research: SPED students should be primary participants in the research process (Question 2).

3.2 Participant Sampling and Descriptions

Research cannot be separated from the researcher (Creswell & Plano Clark, 2017). In other words, every research design decision—from the aims and analysis to the choice of participants—is

imbued with the researcher's personal identity. Therefore, my past as a Special Education teacher in New Orleans with Teach For America enabled my access to in-depth interviews with the study's participants, for I was able to leverage my personal network of teachers, students, and families (see 3.3 for further detail). This pragmatic decision was also ethically driven, for it was important to me that each participant knew that my interest was earnest, my care genuine, and my investment personal given the sensitivity of the subject of SPED services.

3.2.1 Purposeful Sampling

A non-probability, purposeful sampling method was used to invite individuals with the requisite experiences of pandemic special education to interview. This sampling method was 'fit for purpose' (Clarke & Braun, 2013) given that the study sought not to generalize claims for use in other contexts (Cohen et al., 2007; Greene, 2007), but rather to analyze specific perceptions of digital inclusion. Additionally, the method allowed me to utilize my privileged position of access to qualifying participants through my teacher network.

To qualify for participation, experience with virtual/hybrid inclusion during the 2020-2021 school year was required. For teachers, this meant experience instructing students with and without IEPs in the same classroom. For students, having an IEP that mandated instruction in the GE setting was a prerequisite for participation. Students without IEPs were not interviewed, for the study's focus was on the effects of digital inclusion on students with disabilities, not those without. Qualifying parents needed to have a child with a diagnosed disability placed in GE classrooms.

3.2.2 Description of Student and Parent Interviewees

As shown in Table 2, each student interviewee was a minority, low-income individual with a diagnosed disability from one of the "worst connected US cities" (National Digital Inclusion Alliance, 2017), identities that undoubtedly shaped their experiences of digital inclusion during the pandemic. Both parents interviewed were Black, low-income working mothers.

Table 2

Student and Parent Interviewee Descriptors

Name	Gender	Race/Ethnicity	City	Age
Alicia	Female	Latina	New Orleans	16
Tracy	Female	Black	New Orleans	17
Jordan	Female	Black	New Orleans	15
Stephan	Male	Black	New Orleans	15
Arthur	Male	Black	New Orleans	15
Amanda	Female	Black	New Orleans	13
Britney	Female	Black	New Orleans	13
Sharon	Female	Black	New Orleans	Parent
Latoya	Female	Black	New Orleans	Parent

New Orleans, the leading site for this study with a majority Black population, reports that between 23% and 33% of households do not have Internet and roughly 21% do not have a home computer (Nola.gov, 2019). A recent study found a similar national rate of racial digital inequity, indicating that nearly one in five African American children did not have home internet access at the beginning of the pandemic (García & Weiss, 2020). My inclusive research framework embraces these intersectional identities, accepting Gorski's (2008) third challenge for research on digital inclusion:

> We must discuss digital inequities, not as individual phenomena, but as symptoms of larger systemic inequities. And we must challenge strategies for "closing" or "bridging" the digital divide that fail to consider digital inequities in this broader context. (p. 360)

3.2.3 Description of Teacher Interviewees

Teacher participants were from urban public schools; nine in New Orleans, and one each from New York, Philadelphia, Boston, and Detroit to shed light on a wider array of virtual/hybrid inclusion pedagogies during the pandemic year. Due to pragmatic limitations of digital interviewing, students from these cities were not interviewed (See Section 3.7). As seen in Table 3, they were a diverse group, representing multiple racial backgrounds, experience levels, school locations, instructional subjects, and grade levels.

Table 3

Teacher Interviewee Descriptors

Name	City	SPED/GE	Race/Ethnicity	Gender	Years of Exp.	Age Taught	Subject Taught
Chris	New York City	SPED and GE	White	Male	4	16-18	Math
Betty	New Orleans	GE	Black	Female	2	10-12	ELA
Susan	New Orleans	SPED	Black	Female	3	10-14	ELA
Kelly	New Orleans	GE	White	Female	6	12-14	ELA
Ellie	Boston	GE	White	Female	4	10-11	ELA
Kelly	New Orleans	SPED	White	Female	3	10-14	ELA
Justine	New Orleans	GE	Black	Female	10+	13-15	ELA
Lily	New Orleans	SPED	White	Female	1	10-14	ELA
Nicole	New Orleans	GE	Black	Female	3	14-16	History
Eloise	New Orleans	SPED and GE	White	Female	3	7-8	Elementary
Valerie	Philadelphia	GE	Black	Female	5	8-9	ELA
Lucas	New Orleans	GE	White	Male	2	10-14	History
Olivia	Detroit	GE	White	Female	3	10-11	Elementary

3.3 Semi-Structured Interviews

Virtual interviews were conducted with 13 teachers, 7 students, and 2 parents between March and May 2021 for a total of twenty interview sessions, as parents were interviewed in the same session as their child. Per Oxford University's 2020-2021 research guidelines, all interviews were virtual, with 17 conducted over Microsoft Teams and 3 over mobile phone to accommodate participant schedules and personal preference.

I began by interviewing teachers for two reasons. First, their detailed descriptions of digital practices provided necessary background to reflections on the broader implications of digital inclusion. Second, I initially intended for teachers to recruit student interviewees. However, arranging student interviews through teachers proved ineffective due to busy end-of-year schedules and reluctance to relay contact information. I instead reached out directly to my previous students and their parents to ask if they were interested in participating in the research. My ability to frame my work within the inclusive research ideology was dependent on building trust between myself and the participants within a short research period. Given the potentially sensitive nature of reflecting on the often-negative experiences of pandemic learning, this trust was critical to establishing a comfortable, respectful report with each participant. As I was no longer their active teacher, conversations with former students and

colleagues could be freely critical if needed. Therefore, my prior relationship with each participant enabled me to enact the principles of honesty, transparency, respect, and reflection on "insider cultural knowledge" (see Appendix A) that are integral to quality inclusive research (Nind, 2014b).

Before each interview, I emailed the participant an information sheet (Appendix D for child-friendly, Appendix E for teen-friendly, Appendix F for parents, and Appendix G for teachers) and a consent to record form (Appendix H for teachers and Appendix I for parents/guardians). I acquired verbal consent to record at the beginning of each interview and reminded participants that, (1) they could request to stop the interview at any point, (2) non-participation in the study would not affect their relationships with school personnel or ability to participate in school activities, and (3) their names would be pseudonymized in the final report. Data from student interviews was not shared with teacher participants during the data collection process because I wanted to ensure that parents and children felt confident that their responses would in no way impact their standing at the school or with their teachers.

Interviews loosely followed an initial guidance document (Appendix B), but the semi-structured format allowed "latitude to ask further questions in response to what are seen as significant replies" (Bryman, 2016, p. 201), which led many interviews to divert from the guide. Overall, interviews mirrored the flow of the study's research questions, beginning with a discussion of the evolution of school practices throughout the year, followed by the participant's experience of inclusion, and culminating in a discussion of the ex/inclusionary effect of digital technology.

Interviews varied in length between students, parents, and teachers. Teacher interviews typically lasted an hour, and student and parent interviews ranged in length from 15 minutes to 45 minutes, for an average of about 25 minutes. Overall, student and parent interviews were intentionally kept shorter to respect parents' time and students who had attention challenges. All interviews were audio recorded and transcribed with permission to ensure authentic reporting of the voices of the participants in the study.

3.3.1 Language Representation

When using direct quotes, I have chosen to represent—to the best of my ability—the speech of my participants, many of whom speak with a local New Orleanian dialect. The representation of African American Vernacular English (AAVE) is an important, complex issue that has been widely debated across fields for decades, yet researchers tend to "steer clear" of addressing it in publications (Brown & Casanova, 2013, p. 212). As a white speaker of Standard English (SE), I want to acknowledge the

privilege and power implicit in representing an AAVE dialect that I do not speak and that is often used to evaluate and even subordinate People of Color. However, representing AAVE speech is also an act of veracity and empowerment, leading Brown & Casanova (2013) to conclude that "language framing" has non-binary implications, "seen to both facilitate and perpetuate inequality" (p. 212). Overall, my decision was made in the spirit of consistency and reflexivity by calling attention to power dynamics implicit in the researcher-researched relationship, as well as to the intersectional marginalization of some of my participants in relation to digital inequity. Therefore, in the process of transcribing, I maintained spoken verb tenses, but I altered punctuation for the purpose of phrasal comprehensibility across contexts.

3.3.2 Ethical Considerations

Full ethical approval for the study was obtained from the University of Oxford's Social Sciences and Humanities Interdivisional Research Ethics Committee (SSR IDREC). Approval for online interviews was granted (Appendix J) following the completion of a Data Protection Risk Assessment (DPA). Based on a Data Protection Impact Assessment (DPIA) screening assessment, no DPIA was found to be required, as potential harm to participants was deemed not likely. The process for obtaining ethical approval comprised the completion of a CUREC 2 application (Appendix K) because some of the students interviewed were classed as unable to give free and informed consent due to their age and disability diagnoses. Ethical considerations are of paramount importance to any study including students with special needs (Nind, 2014a), and I took steps throughout the data collection process to ensure the students' wellbeing and comfort.

Before beginning student interviews, I obtained parent and student permission for participation and completed Safeguarding training to recognize abuse and neglect, and what to do in the event a child discloses sensitive information. As a SPED teacher in a struggling public school, I worked with students who were homeless, victims of trauma, at risk of suicide, or juvenile offenders. These experiences taught me how to empathically communicate with vulnerable students and their families, and to maintain the confidentiality of SPED student information. I applied this to the realm of digital research by taking steps to ensure data privacy by pseudonymizing participant names and storing research data on my encrypted laptop hard drive, which was then backed up to the Oxford OneDrive Cloud Service (Eynon et al., 2016).

Two steps were taken to acquire authentic informed consent from student participants. First, I offered a 'read-aloud' scaffold for participation materials and second, I recognized lack of assent on the

part of the child. I verbally explained the project to each student participant before the interview, and I read aloud the privacy measures and consent to record form at the beginning of each formal session. I understood that some students may have felt unable to say 'No' to participation in a study, given my previous role as their teacher. For this reason, I looked for signs of unwillingness and gave extra care to communicating that there would be no consequences if they wished to withdraw from the interview or, indeed, the entire research process (Eynon et al., 2016). Although the students have diagnosed disabilities, they are still highly capable people, and I felt it important to recognize their own agency and ability to make informed decisions.

3.4 Questionnaire

An anonymous online questionnaire was disseminated between April and May 2021, accruing a total of 11 responses from students in grades 5 to 10 (10-16 years old). Teacher participants were asked to share the questionnaire with their inclusion students at the end of each interview. The method was chosen as a compliment to the semi-structured interviews because of three specific affordances of digital surveys. First, the digital format allowed for greater anonymity and flexibility in response time (Cohen et al., 2017). Second, it provided optionality for students who prefer expressing their opinions in writing, accounting for verbal shyness in interviews. Third, it facilitated a broader understanding of the range of experiences of virtual/hybrid inclusion, as teachers generally seemed more inclined to disseminate the survey than to arrange interviews with their students.

The questionnaire contained 18 closed-ended, multiple choice, and open-ended questions that produced both quantitative and qualitative data (see Appendix C for full questionnaire). The questions followed a similar thematic sequence as the interview, beginning with closed-answer and multiple-choice questions about ICT access and use, school schedule, and modality, and followed by open-ended questions that prompted reflections on their inclusion in virtual/hybrid learning.

3.5 Data analysis

The study used reflexive thematic analysis (TA) to analyze interview and questionnaire data. The method is widely used in experiential and critical qualitative research traditions (Clarke & Braun, 2013), demonstrating fitness of purpose to my study's aims and pluralistic approach to inclusive theory. The choice of reflexive TA demonstrates methodological integrity to pragmatism, for TA offers an array of methods that can be tailored to the purpose and theoretical underpinnings of a specific project (Clarke & Braun, 2013). Reflexive TA should be chosen over other qualitative analytic approaches for studies,

like mine, whose "analytic interest is on how personal experiences are located within wider socio-cultural contexts" (Clarke & Braun, 2020, p. 40).

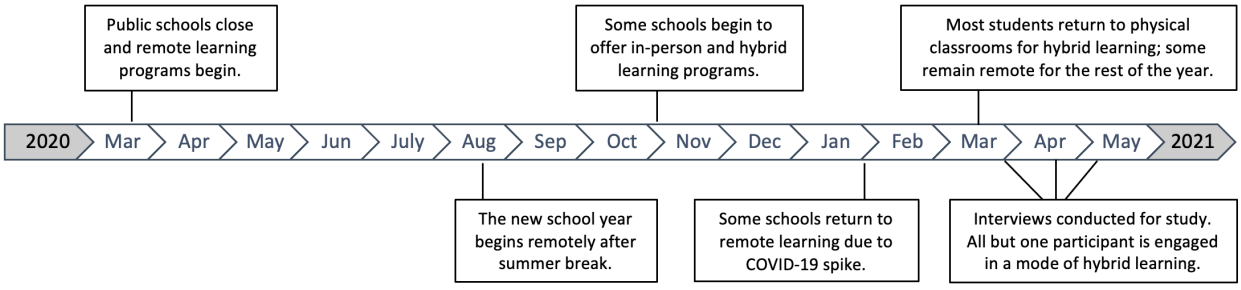
Employing an inductive approach to coding, themes organically emerged through the six reflexive TA phases offered as guidance by Clarke & Braun (2020, p. 39), which are (1) familiarization, (2) coding, (3) generating initial themes, (4) reviewing and developing themes, (5) refining, defining, and naming themes, and (6) writing up. Therefore, reflexive TA added to the overall design coherence of the research by allowing themes to take shape across the data set while thoughtfully and recursively acknowledging the researcher's subjective assumptions that influence the coding process itself.

3.6 Description of Participant Pandemic Learning Modalities

Participants were engaged in a variety of learning modalities during the 2020-2021 school year. To contextualize interview and questionnaire data, this section provides a general description and timeline of transitions between in-person, virtual, and hybrid schooling from the study's sample. 10 of 11 survey respondents were engaged in hybrid learning between April 18th and May 13th, 2021, specifying that they still had a weekly digital school component at the end of the academic year. At the time of interview, 19/20 interviewees were in hybrid schools with both in-person and virtual learning programs. Most teachers (n=9) taught in hybrid classrooms of combined virtual and in-person students during a portion of the 2020-21 school year. All 7 student interviewees had experience as virtual students in hybrid schools. While 4 returned to the physical classroom, 3 remained virtual students. They were often the only SPED student online in classrooms dominated by in-person students.

Figure 1

Timeline of Trends in Learning Modalities During the 2020-21 School Year from Study Sample



In this study, all schools began the year remotely, many with both synchronous and asynchronous online learning embedded into daily schedules. One school opened its doors to in-person

instruction at the start of the year, but only once a week for students who were below grade level or received SPED services to work face-to-face with staff, such as teachers, social workers, or speech/language therapists.

As early as October, a few schools began pilot programs for in-person learning as COVID-19 cases waned. A limited number of children were offered the choice to receive instruction in the school building, and many schools prioritized SPED students to return. From October to March, schools tried different combinations of in-person, virtual, and hybrid learning. In January, many in-person programs were brought to a halt when COVID-19 rates spiked, forcing a reversion back to fully virtual school. Most schools then turned to long-term hybrid schooling to respond to the fluctuations of an unpredictable pandemic and avoid oscillation between modalities.

March 2021 was a key turning point. Most teachers reported that 50% or more of their students were back in the building, and this proportion increased throughout the rest of the year. For three teachers in Northeastern cities, hybrid learning was not implemented until April, and one school remained fully remote for the entire year. In all other schools, parents were given the choice to send their children back to the school building, often on a trimester or quarterly basis. In some cases, if a parent or child requested to return to school mid-term, they were refused. One high school teacher from New Orleans noted that "*so many students with disabilities didn't opt into coming into the building*" (Nicole, history teacher). For these students, their first and only experience in the school building for the 2020-21 school year was during end-of-year standardized testing. Therefore, despite variability in the duration and composition of hybrid learning environments for the study's participants, hybrid experiences became a dominant topic in all interviews.

3.7 Limitations

Given the constraints to work remotely, access to technology to support a virtual interview was a requirement for participation. The study focused exclusively on students who had a disability *and* access to technology to better explore the lived experiences at the intersection of inclusion and digital methods. Students without any access could not be reached for this study, and thus claims about their experiences of ex/inclusion cannot be made. However, teacher interviewees were asked about children without access to remote learning to build a broader understanding of digital exclusion during the pandemic.

The digital method of interviewing posed some complications to accessing students for interviews. Teachers expressed hesitancy in sharing the contact details of their students, which meant

that I could only contact those students with whom I had existing relationships. However, as discussed in Section 3.3, these prior relationships enabled the trust and honesty that is critical to conducting quality inclusive research with SPED students (Nind, 2014b). Therefore, the student interview sample is less diverse than the teacher sample, for only New Orleanian students were interviewed. Although the student survey enabled the inclusion of students from other American cities, the number of respondents was small. This is likely due to the timing of data collection, which coincided with the end of the school year, during which most participants were busy preparing for state testing after a trying, tumultuous year of transitions between pandemic learning methods.

4. Findings and Discussion

The results of this study live at the intersection of digital technology and inclusive special education. To illustrate the impact of pandemic learning on students with special needs, this chapter presents and analyzes findings from interview and survey data. With reference to wider literature, the results are divided into three parts that address the study's sub-questions and overarching research question.

Part One investigates how teaching practices designed to support face-to-face inclusion adapted to—or broke down in—technology-mediated learning environments. Three concepts are central to this study's analysis of inclusive practices across in-person, virtual, and hybrid environments (see 2.1 for details): (1) co-teaching, (2) use of space, and (3) use of technology. The section will use each of these concepts to illustrate the changes in inclusion from physical to virtual/hybrid environments. Given the pedagogical focus, Part One elevates teacher perspectives on their practice. Parts Two and Three explore the social and academic implications of these pedagogical changes on students in virtual/hybrid inclusion classrooms. Part Four addresses the philosophical tension between designing for all and designing for SPED, a tension felt in both the research findings and the wider literature on inclusion (Norwich, 2005). The chapter concludes with critical considerations for the design and implementation of virtual/hybrid inclusion spaces based on the study's sample.

4.1 Part One: How Did Inclusive Pedagogy Change During the COVID-19 Pandemic Through the Use of Digital Technology?

To answer this research sub-question, a comparative analysis of in-person, virtual, and hybrid inclusion classroom practices was required. The three thematic areas discussed in the literature review of inclusion—co-teaching, use of space, and digital technology—provide the framework for the presentation and analysis of findings. The section is divided in two parts: virtual inclusion and hybrid inclusion. Each part discusses the role of co-teachers, space, and technology, and the intersections between them that emerge from the data. Reflections focus mostly, but not exclusively, on practices specific to SPED students. GE pedagogy is also SPED pedagogy in inclusion classrooms (see 2.1); therefore, both SPED and GE teachers provide relevant insights into the changes to inclusive pedagogy during the pandemic.

4.1.1 Virtual Inclusion: Space and Technology

> *There is no way to make inclusion 'inclusion' in a virtual space. People are trying the loophole of 'oh, I can use zoom and do a breakout room.' I said, 'No, that's resource. That's a pull out.' You literally just took them out of the whole room and put them somewhere else. That's not the same… I don't know any SPED teacher who has successfully implemented an inclusion class in a virtual space. I don't think it's possible.*
>
> (Susan, SPED teacher)

For many students, inclusion environments disappeared during the end of the 2020 school year when schools stopped in-person instruction. Many schools struggled to construct inclusive classrooms online and opted instead for small group instruction of SPED students in separate virtual spaces, forgoing legal compliance to the LRE clause or "*rewriting IEPs and putting a note in saying students would best be serviced with inclusion, but because of this limitation, they receive pull out minutes*" (Susan, SPED teacher). One teacher admitted that LRE decisions were made not because of student capability, but because of the perceived ineffectiveness of virtual inclusion:

> *There was no inclusion… They came to my resource block instead because the first few weeks, we tried to do inclusion and I just realized it was not working… I can't teach you effectively in an inclusion environment virtually. It makes more sense for you to stay in resource, it's just easier.*
>
> (Kate, SPED teacher)

In some schools where IEPs were amended to avoid the challenge of virtual inclusion, LREs were not changed back to inclusion when instruction resumed in the school building. Describing her in-person SPED students, one teacher said:

> *Even though they're technically supposed to have inclusion, all the kids that have an IEP or have inclusion or have accommodations, all of them get pulled out.*
>
> (Betty, ELA teacher)

In schools that did not officially change the instructional environment in IEPs, some SPED students lost their instructional minutes entirely. One virtual student was placed in a GE classroom without any support for the entire year, even though she had received small group pull-outs in person:

> *[Teachers] don't help. They just say, like, make up assignments that we haven't done…but the help I used to receive, I don't.*
>
> (Alicia, student)

Several teachers reported fewer IEP meetings and fewer evaluation referrals during the pandemic year—"*I have students that weren't evaluated this year that I've been providing services to*" (Valerie, Elementary teacher)—leaving many GE teachers alone to accommodate higher-needs students without professional classroom support. The loss of SPED services during COVID-19 is not specific to this study alone; such trends are widely reported within the US and the world at large (Klein, 2021; The World Bank, 2020; United Nations, 2020; United Nations Development Programme (UNDP), 2020).

4.1.2 What Did Efforts Towards Virtual Inclusion Look Like?

According to interviewees, one of the primary challenges in the transition from in-person to virtual inclusion was how to "*simulate or recreate the types of in-person interactions we used to have with students*" (Chris, math teacher) within the GE classroom to engage SPED students individually. In the physical classroom, this could be accomplished by pointing to a line in a book, tapping on a desk, or moving to a separate part of the room for a small-group intervention. Virtually, many teachers described attempted redirections and interventions as ineffective, or even as 'harassment': "*It's usually call, text, Facetime. All that stuff. Call mom, call Dad, call Grandma, call someone"* (Kate, SPED teacher). In one virtual inclusion classroom, SPED interventions became "*a breakout room with the specialist,"* but that they "*intentionally moved away from that because it was starting to feel not so much like inclusion since kids were essentially having the bulk of their lesson in small group"* (Ellie, ELA teacher). Kate's virtual classroom created a separate SPED-specific space without removing her students from the GE classroom: "*we would have the big meet open and my meet open, so they can ask me questions specifically. And I could read aloud to them if they were confused."* Despite achieving the closest replication of in-person inclusion in the study's sample, Kate admitted that it was "*extremely chaotic"* because it required strong internet and multiple devices, as well as the ability to listen to multiple virtual speakers at once.

As exemplified by both Kate's and Ellie's accounts, one of the roles of co-teachers in physical inclusion classrooms is to provide small group interventions to SPED students (Ainscow et al., 2004). However, many of the sample's virtual classrooms did not have the space for two teachers to co-teach online. Without a "*strict: this is A, B, C, D that you will do as a virtual teacher*" (Lily, SPED teacher),

special educators felt less useful in the online space, with no clear way to perform the personalized practices that had been the bulk of their in-person classroom responsibility. In the absence of intuitive translations of these practices, many co-teachers "*just sat in a Google Meet*" (Susan, SPED teacher) doing nothing:

> *During virtual, I had this assistant teacher. She just basically sat there. Wonderful, but like she didn't have anything to do. She took behavioral marks like stars and checks.*
>
> (Eloise, Elementary teacher)

Some schools eliminated co-teaching entirely; for example, one school divided classrooms into multiple virtual breakout rooms comprised of one teacher with a small group of SPED and GE students combined called *"learning pods"* (Nicole, history teacher). On the other hand, a few teachers reported having more students and more co-teachers online than they would have had in-person, while others had larger classes, but less support staff than pre-pandemic. Lucas, for example, was the sole instructor in a *"super virtual"* inclusion classroom of over forty children with and without IEPs. Often, virtual instruction expanded both class size and class*room* size by extending learning space into students' homes through cameras.[2]

Reflecting back on Lim et al.'s (2012) spatial configurations (see 2.1.2), Supervisory Space and Interactional Space—once the spatial standards in inclusion classrooms—were replaced with Authoritative Space and Personal Space in virtual learning environments. Evoking authoritative spatial use, digital learning environments tend to allow for a single instructor to lead and control every aspect of a class: the conversation (e.g., one speaker at a time or the power to mute), the screen content (e.g., screen sharing), and even the student work (e.g., synchronous document editing). Students are positioned in Personal Space, sitting behind a personal device, separated from their peers. Therefore, the co-taught, collaborative methods that are seen as best practice for SPED differentiation (Armstrong et al., 2010) struggled to survive when Supervisory and Interactional Spaces were lost to the virtual realm of Authoritative and Personal Space.

4.1.3 How Was Technology Used in Virtual Inclusion?

Generally, the technology used to support SPED students in this study was simple and free, or, as one teacher called it, "*bare-bones*" (Lily, SPED teacher). This was likely because most of the sample's

[2] The challenges of home spaces becoming inclusion classrooms, particularly regarding privacy concerns, are themselves significant, but extend beyond the scope of this thesis.

schools were under-resourced, and all were pressured to provide learning continuity throughout the pandemic with little time to design their virtual schools. In the study's sample, the most common hardware was Google's Chromebooks and the most common software was the G-Suite (Google Docs, Google Meet, Google Classroom, Google Slides, etc.). However, some schools purchased additional software that was specifically leveraged to support SPED students through personalized learning, such as Khan Academy, IXL, Go Formative, and Lexia Learning.

Overall, the integration of technology into inclusion classrooms varied significantly among participants. Many teachers preferred paper-based practices in their pre-pandemic inclusion classrooms, leading some to feel challenged when translating their in-person methods to digital environments. As such, many inclusion pedagogies broke down in the transition to virtual learning, forcing teachers to restructure their online practices with new technological and spatial considerations at play. Most teachers noted very little staff collaboration or leadership support in adapting inclusion practices to virtual classrooms: "*we would ask questions like, well, what do we do if we're still virtual? And they'd be like, well, you'll figure it out!"* (Lily, SPED teacher). Lily, a first-year teacher, commented that during her school's summer training, *"there was not a ton of exposure to different platforms you could use for teaching. A lot of the practices were still modeled around in-person learning."*

The correlation between quality online instruction and teacher digital skills and training has received recent attention in the literature (Barreto & Haydar, 2016; Fernández-Cruz & Fernández-Díaz, 2016; Obradović et al., 2015). This link is well described by Obradović et al. (2015):

> As teachers are central to the creative–collaborative process and they are responsible for planning and realization of the creative, collaborative inclusive work in the classroom using different software, they should have very specific education in that field. (p. 294)

Thus, the literature suggests a potential negative impact on the quality of inclusion services during the pandemic for this study's teachers, the majority of whom received no specific training in effective digital instruction. Moreover, the literature supports that GE teachers generally do not often receive the same training as SPED teachers to support SPED students in inclusion (Blanton et al., 2018), particularly regarding the use of assistive technology (Wojcik et al., 2004). Therefore, if Lily, a SPED teacher, had no targeted technology training from her school, it is even less likely that the sample's GE teachers did.

4.1.4 Hybrid Inclusion: Space and Technology

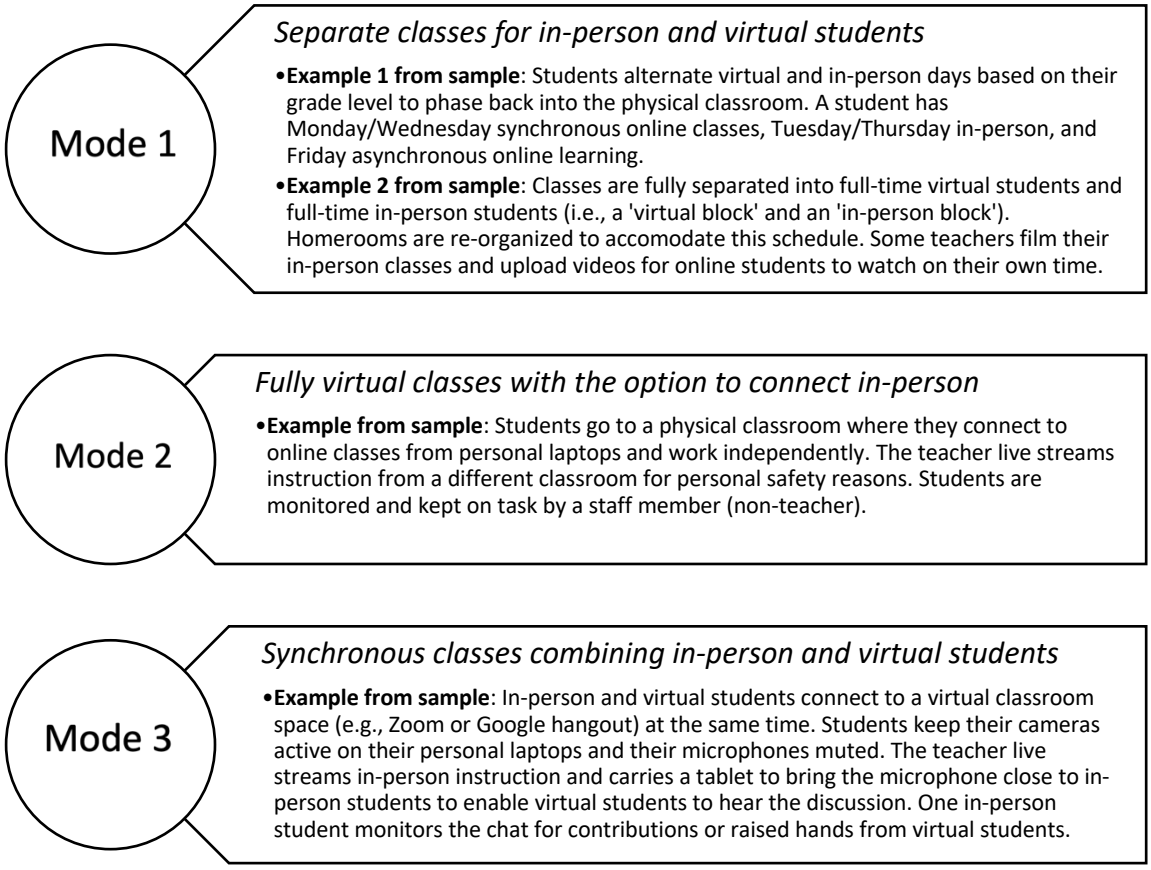
To say that hybrid is even a successful option in school is really toeing the line.

(Morgan, SPED teacher)

After many teachers had established virtual teaching practices, the reintroduction of in-person programming incited a transition to hybrid learning, a third mode of teaching (Xu, 2008) that integrates digital and face-to-face learning. Participants described three distinctive modes of hybrid learning, which are visualized below.

Figure 2

Modes of Hybrid Learning from Study Sample



The separation of in-person and virtual students was the most used mode (Mode 1) by participants during phased re-openings. However, as more students returned to the school building and vaccine rollout increased, several schools switched from separate virtual classes to combined hybrid classes (Mode 3), often to accommodate SPED service requirements. Mode 3 of hybrid learning, or the synchronous instruction of both in-person and virtual SPED and GE students, was the dominant learning mode of most participants at the time of their interview.

Overall, hybrid inclusion in Mode 3 presented numerous technological and instructional challenges for the study's participants. From the teacher perspective, teaching hybrid inclusion required immense multitasking ability, as evidenced by the following classroom description:

> *I'm one person with 28 kids on two different platforms. It is not easy … You would be on both the tablet and the computer, and you would turn on your camera and share your screen on your computer... You would have the camera off on the tablet—so that kids wouldn't get dizzy walking around—and you would have the sound on so they could hear you while you walk around the classroom.*
>
> (Eloise, Elementary teacher)

From the student perspective, hybrid inclusion looked different for online and in-person students. By April 2020, many SPED students had returned to the physical building according to the study's teachers; for schools that offered inclusion services in physical classrooms, pre-pandemic practices resumed, such as co-teaching and small-group interventions. However, for SPED students who continued to be virtual—like three of this study's interviewees—hybrid inclusion sometimes looked like nothing at all. One parent said that her child would log into her classes when she was supposed to and "*no one's on there. But then I'll get a call saying that [she] hasn't been to school in a week…*" (Sharon, parent).

Some of the study's schools did not "*have the Internet bandwidth to have everyone on zoom*" (Ellie, ELA teacher), so many virtual students lost the ability to hear or see their teachers and classmates in the building. One teacher admitted that as the year went on, she no longer would require her in-person students to log into the virtual google meet: "*I just have the meet open on my computer, I don't make everyone else join*" (Kate, SPED teacher). Overall, the findings suggest that virtual inclusion in hybrid classrooms provided a fraction of the instructional experience of in-person inclusion. There was a consensus from all participants that, "*inclusion students should never be in a hybrid setting. If they're a virtual kid, they should be in a virtual class where there's no in-person cause it's very, very challenging to do hybrid"* (Lily, SPED teacher).

4.1.5 Summary

This section described how teachers attempted to adapt in-person inclusion practices to virtual and hybrid inclusion classrooms during COVID-19, addressing the absence of detailed descriptions of co-teaching practices in the literature on inclusion, identified by Carty & Farrell (2018). Based on the study's findings, inclusive pedagogies from physical classrooms could not intuitively be changed to fit digital

environments. Practices that had been the pillars of inclusion in physical classrooms—such as co-teaching, the use of Interactive and Supervisory Space, and targeted assistive technology use—often broke down in virtual inclusion classrooms. In some schools, this meant that inclusion spaces disappeared, and students received individualized attention in separate virtual spaces. In other schools, inclusion-in-space reigned as the supreme value, spurring teachers to seek creative ways to differentiate instruction within virtual classrooms. However, teachers often were left to do this alone without guidance from leadership, sharing of knowledge from other staff, or specific school resources to support their training and use of digital technologies for SPED instruction. The findings demonstrate a distinction in the preparedness of SPED and GE teachers to adapt their inclusive practices. SPED teachers were generally afforded more freedom to experiment with variations of virtual/hybrid inclusive practices, while the ability of GE teachers to creatively adapt was reliant on support from staff, requirements from school leadership, and intentional collaboration time to plan and prepare lessons.

4.2 Part Two: How Did Virtual and Hybrid Inclusion Practices Impact the SPED Student Learning Experience During the Pandemic?

For virtual SPED students to be successful in inclusion classes, an analysis of interview data indicated four necessary steps. Students needed to:

1) access their virtual classes,

2) actively participate in their classes,

3) ask for help and receive it promptly, and

4) be aware of their progress.

This section supports each of these steps with evidence from interview and questionnaire data from all participants. The chapter concludes with the participant consensus that SPED students learn better in physical classrooms.

4.2.1 Accessing Classes

Access to digital technology was the first barrier to virtual/hybrid inclusion. Despite school efforts to deliver hot spots and Chromebooks to all students and teachers who needed them, nearly every participant identified attendance in virtual school as a persistent problem.

> *Attendance for special education students has been huge battle. I know for the bulk of the first window for us being virtual… I think I only saw two of my kids. I didn't meet most of my students until we came back in person...*
>
> (Susan, SPED teacher)

SPED students are more likely to come from lower-income families (The World Bank, 2020), and thus were likely to require school to provide internet and device support to connect to remote learning. Student survey results support this claim, as 8/11 surveyed students reported that their schools provided them with a device or Wi-Fi during the year, with the majority specifying a Chromebook. However, teachers agreed that the *"Chromebook doesn't necessarily solve all issues because you still may not be able get onto the network to get into class"* (Chris, math teacher). All but two students reported connectivity issues, with just over half the students (6) citing 1-2 problems a month, and three students reporting problems about once a week. One student interviewee said they continued to have internet issues until the very end of the year, but that their school never provided them with support. Interview data shows that the digital access problem peaked whenever there was a transition between in-person, virtual, or hybrid schooling, which *"knock[ed] out a wave of kids every single time*" due to the *"ever-revolving door of kids who, oh, 'I had Wi-Fi. But now I don't'"* (Susan, SPED teacher). Therefore, the access issue was never fully solved, as many virtual students had consistent internet issues throughout the year.

Although this study is concerned with those who *did* have regular access to their inclusion classes, it is important to note that some teachers spoke of "lost" children—both SPED and GE—who did not show up for the entire year. One teacher in a hybrid setting said that her in-person attendance was high, but "*for virtual, I will never get 27 out of 27 kids. Most days, I'll get 13-14 kids… and for a low day, I'll probably get five or six kids"* (Betty, ELA teacher). Another hybrid teacher said he had *"a lot of kids that never showed up. That more or less missed a year of learning entirely"* (Lucas, History teacher). Though some teachers pointed to the digital divide to explain attendance dips, others believed attendance was *"was not majorly affected by the pandemic"* (Olivia, Elementary teacher) and was a symptom of perceived pre-pandemic chronic absenteeism of SPED students.[3] One SPED teacher directly commented on the disproportionate rates of absenteeism among her inclusion students:

[3] In their logistic regression analysis of nearly 50,000 students with IEPs (for Specific Learning Disabilities), Locquiao et al. (2020) caution against making conclusive claims about the pattern of interaction between students with IEPs and chronic absenteeism.

> *We already had students who are chronically absent for reasons like feeling othered…or because they were uncomfortable with the work being put in front of them.*
>
> (Susan, SPED teacher)

A GE teacher acknowledged that absenteeism was a pre-pandemic problem for many students, but that virtual school exacerbated the problem for special needs students specifically:

> *Attendance was always an issue, but being virtual, the attendance has fallen way to the wayside …I would have students—especially inclusion students—who had less accountability 'cause there's 30 plus kids in the class… so maybe they're logged in but not present or they're like playing a video game.*
>
> (Nicole, History teacher)

This teacher's comment reflects a broader theme that emerged from the interview data regarding the difference between attendance and presence, to be further explored in the following section.

4.2.2 Active Participation

Virtual school forced a reconceptualization of class attendance. Despite efforts to extend access to all, every participant agreed that attendance was not the same as presence or engagement in remote school, and that students needed to be actively engaged in their classes for academic progress to be realized:

> *Attendance went up, it's been relatively high because kids have been logging into the zoom. But their work completion is down and grades are down overall.*
>
> (Chris, Math teacher)

Engagement was identified by all participants as one of *the "key issue(s) this year"* (Justine, ELA teacher) for all students, and especially for SPED students. Issues of attention and engagement were widely acknowledged as common challenges for SPED students by the study's participants and by the literature (McCoy & Banks, 2012; Wong et al., 2017). Therefore, the distractions of the online realm negatively impacted the academic engagement and progress of the SPED students in this study.

Students themselves identified engagement as a key challenge to their school performance. Demonstrating self-awareness, many students connected their academic underperformance in virtual inclusion classes with distractions at home:

> *I think I've done worse in virtual than in person because I was off-track, just laying there, I was just off-track you know because of the bed and being sleepy. My momma walked in and get me turn on all the lights and make me get on the computer and I'm like, "ma I'm tired, it's okay, I can always come back!"*
>
> (Arthur, student)

> *Now that I'm going into school, there's a lot less distraction. You know, my game isn't right next to me, so I get the focus.*
>
> (Stephan, student)

From the teacher perspective, student engagement was discussed as both a parental and pedagogical challenge in the virtual/hybrid realms, and inclusion practices to encourage participation proved only partially effective. Many teachers felt their efforts to engage could only go so far to support SPED students in virtual/hybrid inclusion:

> *I'll get in the Google meet to try to catch them up or send them links and like "make sure you're doing this" and then a lot of times they're just not responding. And I follow up with a parent and it's just like, how many days in a row do I hound this parent and just try to get this kid on track as much as I can?*
>
> (Lily, SPED teacher)

Overall, teachers believed that a virtual student's academic success was more directly tied to parental involvement and the student's own personal commitment than it was to instructional quality. In other words, even if a SPED student had the most experienced, digitally savvy, engaging co-teachers, if the student decided to watch a YouTube video in bed rather than actively participate in class, progress was impossible.

From the parent perspective, supporting their child's engagement in virtual school was a full-time job that required awareness of constantly shifting school schedules. The study's parents found this to be an insurmountable challenge—a challenge that the study's teachers understood:

> *[The teachers] was calling me trying to figure out if I could get them back on task and how I could get they grades up and stuff like that because they averages was going down. It was a lot…I wasn't used to doing this, and all the time I couldn't be home either…that's hard for a parent to be in two places at one time.*
>
> (Latoya, parent)

> *The issue with attendance has been extreme this year, and I think that does have to do with socioeconomic pieces because some parents are not home, they don't know if their kids are logging in, and so that's a piece that's been super challenging.*
>
> (Valerie, Elementary teacher)

As many of the study's student participants had working parents, they struggled to maintain engagement and keep track of their class schedules without adult supervision and support. Teachers indicated that parental involvement was a determining factor in student success during remote learning, which is backed by recent literature (di Pietro et al., 2020). All participants, therefore, agreed that in-person classes minimized distractions and increased investment, ultimately increasing SPED student learning.

4.2.3 Asking for Help and Receiving It

Apart from one student, all surveyed and interviewed students reported that being a virtual student was more difficult than being an in-person student. Many SPED students connected this difficulty to not having sufficient help in the virtual realm:

> *It was hard to stay awake and hard to do the work because it was not always easy to get help.*
>
> *(Student, survey)*
>
> *I think the work online is harder but I would rather do it in person because I can get more help.*
>
> *(Student, survey)*
>
> *Everything is harder on online because I barely could like understand, but in person you could get more help.*
>
> *(Student, survey)*

Evidence from both interview and survey data supports a consensus among students that asking for help was harder online than in person, with the exception of one student: *"I was able to private chat the teacher a question which was easier than raising my hand*" (student, survey).

Whether or not asking was perceived as easy, all students reported actually asking for help and receiving it less frequently in virtual/hybrid classes than in physical ones. Although 91% of surveyed students said that virtual school was harder, mainly due to work comprehension,[4] only one student reported regularly asking for help. Based on questionnaire responses, 5/11 of students surveyed

[4] 10/11 reported that online school is harder than in person due to: distractions (n=2), too much work (n=1), not enough help (n=3), trouble understanding the work because it is too hard (n=8), too tired (n=2).

received no extra help even in their online classes, despite having IEPs that legally required SPED services to continue throughout the pandemic.

For those who did receive additional support as virtual students, perceptions of its utility were mixed. Some students felt that their SPED teachers made extra efforts to help them, while others felt that the quality of their virtual pull-out instruction was worse than in-person pull-outs:

> *When I got pulled out [in person] they would actually try to make me understand, but now we on the computer, she'll just tell us sometimes to look up the answers, or she'll give us the answers. It was much better in person getting pulled out than online…[online] they didn't really teach step by step... I'm not gonna say she wasn't teaching us, but she, she kind of wasn't.*
>
> (Tracy, student)

Parent opinions were similarly mixed. One reported that SPED teacher support was very helpful during virtual learning: *"the special education program—they the only ones who have patience and take time out for kids like Jordan"* (Latoya, parent). The other parent, however, thought that her child's SPED support had stopped entirely due to the lack of communication from teachers:

> *They don't tell me nothing. She goes on there, no one's on there… There's no one to go through it with her… she had other accommodations where people supposed to, you know, talk to her one-on-one. And you know she has an IEP… It's very difficult. Because they're like "go on Google Docs and do this and do that." I don't understand none of it.*
>
> (Sharon, parent)

From the teacher perspective, identifying student support needs without active requests for help proved difficult online, as virtual communication could be ineffective even in those classes with established real-time work monitoring practices:

> *When a kid has ADHD and they stayed virtual, their grades… a great example would be Tyron. He was awful virtual. He had all F's. He tried his best but he just—and he would log but like getting him to get through an assignment or a reading was really hard. But when we came back in the building, he's rocking it out. He's somebody who I'm like, if you looked at him just as a virtual student, you'd be like can this kid even read? And then when he comes in, you're like, oh he's so capable! This format didn't work for him.*
>
> (Lily, SPED teacher)

This was especially true in hybrid inclusion classrooms, in which the simultaneous—and often single-handed—instruction of both in-person and virtual GE and SPED students seemed an impossible feat to teacher participants:

> *I think it's impossible. Humans are not multitaskers…I can't be present for students who are virtual and in a classroom simultaneously. As somebody who wants to be fully present, that's an impossible task. I honestly don't like the model. I think it's kind of what we're working with right now.*
>
> (Valerie, Elementary teacher)

> *I only had my one computer, and so trying to put kids in groups when they were virtual, and trying to have them participate, it became a big logistics problem. And then on some days, I felt like I was neglecting my virtual students.*
>
> (Olivia, Elementary teacher)

> *It's a hard way to teach… cause you're trying to meet all their needs at the same time and keep them engaged.*
>
> (Justine, ELA teacher)

Overall, teachers reported significant challenges not only in identifying the needs of virtual SPED students, but also in meeting those needs in both virtual and hybrid classrooms. In hybrid classrooms, teachers struggled to support their students, both with and without IEPs, due to the overwhelming number of tasks and platforms they had to navigate simultaneously. Findings from interviews suggest that virtual SPED students in Mode 3 of hybrid learning had the most difficult time asking for and receiving help, further supported by evidence from Section 4.1.4 regarding the instructional challenges of Mode 3.

4.2.4 Awareness of Progress and Accommodations

For all students and parents, academic success was strongly tied to letter-grades. Based on student and teacher reports, all students who returned to physical classrooms saw an improvement in their grades. As parents realized this, they believed that communication about their children's virtual performance was too little, too late: *"by the time they was failing that's when he was telling me that they wasn't completin' this and wasn't completin' that. I feel like that was late to be telling me"* (Latoya, parent). This awareness had strong implications on decisions to send their children back to the school building. Both parents interviewed said that when they were told that their children were not

progressing, they believed that sending them back to in-person inclusion classrooms would improve their grades.

One exception was a student with a hearing impairment who believed he did better in virtual/hybrid learning than in-person. For this student, being an in-person student in a hybrid classroom was the ideal placement because it minimized home distractions while also improving his hearing and handwriting accommodations:

> *Hearing [used to be] 50/50. Like either I'm gonna get a teacher that talk loud enough and I can hear perfectly fine, or be a little bit soft spoken and I can't hear that well. Now, if I don't hear something, I could put it on mute or if I need to hit that thing louder.*
>
> (Stephan, student)

Generally, participants had mixed opinions on whether or not technology improved the effectiveness of SPED support through accommodations and interventions. While some teachers believed that technology "*offers the potential to have stronger accommodations, more efficient implementation of those accommodations*" (Ellie, ELA teacher), others thought technology slowed down the process of one-on-one interventions and accommodations:

> *You can't pull kids aside individually, virtually. In person, I can talk to you individually. On zoom, I couldn't do that at all. It became—I don't want to use the word impossible—but it became very, very difficult to assist students with IEPs.*
>
> (Nicole, history teacher)

For one teacher, a computer was every accommodation: *"It is your calculator, it is your read aloud, it is your worksheet, it is your bigger font, your smaller font, like the computer is the accommodation"* (Susan, SPED teacher). However, she continued to comment that not every student was aware of how to leverage computers for accommodations without direct instruction, saying *"Don't expect them to be able to do it themselves. That's why we're providing them for them."* Some teachers noted that training students in tech accommodations (e.g., PDF readers, highlight tools, etc.) did not guarantee regular student use, as many SPED students benefit from repeated instruction to internalize an understanding (NJER, 2020; Widodo et al., 2020), yet there was *"no way to tell if a kid is using their accommodations when you're not in the room with them"* (Kate, SPED teacher). This was true for one student who said that, despite using it the previous year, *"I forgot how to do read aloud on the computer. So I always have to read by myself out loud"* (Alicia, student).

Facing the four factors identified in this section's analysis to make virtual instruction successful, all participants agreed that being in a physical classroom with in-person instruction should be prioritized for the improved learning outcomes of SPED students: *"The kids who were virtual who are back in person, like all their grades have increased. No one has gone lower from coming back in the building"* (Lily, SPED teacher).

4.3 Part Three: How Did Virtual/Hybrid Inclusion Practices Impact SPED Students Socially During the Pandemic?

The practice of SPED inclusion is bolstered by both academic and social promises, one of which is the building of inclusive societies (see 2.1). Inclusion seeks the societal normalization of disability, encouraging friendships between students with and without special needs by placing them in the same classrooms. As the previous section explored the impact of virtual/hybrid inclusion on SPED student learning experiences, this section will report on social implications based on participant interview and survey data. Discussions centered around two themes: (1) relationship building, and (2) the (in)visibility of difference and disability in virtual/hybrid classrooms.

4.3.1 Relationship Building

Not a single student reported new friendships from virtual school. Nevertheless, student opinions on the social impact of virtual/hybrid learning were mixed. These opinions reflect different prioritizations of the academic and social purposes of school. Some saw in-person school as the only way to build genuine friendships because,

> *In person, you get to actually understand more about that person and who they is than hiding behind the internet or something. You can't really connect with that person if you not in person…you can't even talk to that person when you online. The only time you can talk to them if we got broke up into this Google Meet to do a project together.*
>
> (Tracy, student)

While most students acknowledged the anti-social nature of virtual learning, not all of them saw this as negative. Despite recognizing that home distractions negatively impacted their learning, many students liked being alone in their own rooms, and one even preferred the social isolation of virtual school*: "I already made my own bubble"* (Amanda, student). Amanda's mother believed that virtual learning in hybrid classrooms *"forced [Amanda] to de-socialize"* which distressed her because *"now [Amanda's] into not being social"* and *"likes to be excluded…she don't have no communication with anybody at school"* (Sharon, parent).

Like Sharon, teachers seemed particularly concerned with the impact of social isolation of virtual/hybrid learning on SPED students:

> *In terms of social development and social needs, I don't think those are being met at all when kids are virtual... regardless of if they prefer it or if they don't, I think they're missing a lot, because really school is gaining the social skills… There's a big part that's academic, but really, it's social for the students.*
>
> (Valerie, ELA teacher)

For many of the study's teachers, creating celebratory and inclusive social spaces for SPED students was a higher priority than academic growth:

> *One of the things that all students benefit from, but specifically students with special needs, is human interaction… When you're virtual, and you get a problem correct, you're just sitting alone, and you don't have anyone to share that with. I think those kids deserve and need practice at showing off their successes as well. It's harder to build authentic joy.*
>
> (Chris, Math teacher)

Chris continued*, "When you're not in person, it's just harder to make personal connections, which [SPED students] benefit from the most."* This supports the study's finding that teachers, overall, felt closer to their in-person students than their virtual ones. Many mentioned the challenge of relationship building with virtual students because *"unstructured time is where you get to know kids"* (Olivia, Elementary teacher), such as lunch, recess, or class transitions. When schools were fully virtual, some teachers planned informal virtual hangouts, like one teacher's 'lunch bunch'—an optional virtual *"space to just be silly and goofy and be kids"*—that did not *"replace in any way shape or form being actually with your peers"* (Valerie, ELA teacher). Other teachers who set up similar virtual hangouts said that these spaces fizzled out when classrooms hybridized, replaced by their real-life equivalents, exacerbating the social exclusion of virtual SPED students.

Therefore, the findings suggest that SPED students who experienced the most social isolation were those that remained virtual in hybrid environments. This was true for Arthur, whose desire to return to the school building intensified throughout the year as he witnessed more of his in-person peers building friendships without him:

> *In person is more fun and I can see some of my friends and I can personally engage them, have fun, play games, talk, catch up a little bit, and eat snacks with them and everything. Virtually you*

> *can't really do that except just look over the screen and just talk. They started having a lot of events in person.*
>
> (Arthur, student)

Amanda (student) noted this too, saying that *"Teachers communicate with the other kids that are in front of them, not the kids that are on the computer*." For virtual students like Amanda and Arthur in hybrid classrooms, opportunities to socialize were lost as teachers struggled to engage with virtual students, leading Lily (SPED teacher) to say, "*It rarely happens—when in person and virtual kids work together."* Most virtual spaces were designed around instructional periods alone, and in many hybrid models, student movement was contained within a single classroom, eliminating many unstructured transition moments. Therefore, virtual students tended to have less time for socializing with their teachers and peers in both virtual and hybrid classrooms.

4.3.2 Disability (In)visibility and Differentiation

The (in)visibility of SPED students and services in virtual/hybrid inclusion was one of the primary themes that arose from interview data related to social impact. Invisibility was perceived as both positive and negative by the study's participants. From the teacher perspective, the invisibility of disability could be a force for inclusion through hidden differentiation. Some teachers noted that the Othering of SPED students "*happens inherently when I walk into that classroom, and I walk up to that student to support them*" (Susan, SPED teacher). Digital technology has long been used as a tool to differentiate instruction for SPED students in physical classrooms, but in digital environments, this differentiated support became invisible to other students in class, and sometimes even to the SPED students themselves. Susan claimed that this could combat any internalized inferiority associated with being a SPED student in a GE classroom, which has been noted as a negative effect of in-person inclusion (Meekosha, 2011).

Other teachers connected the invisibility of virtual SPED students with the neglect of their special needs:

> *I feel as a teacher like I'm neglecting them a little bit. There's a lot to set up and it's just your inclination to call on the kids in front of you.*
>
> (Ellie, ELA teacher)

> *As an assistant teacher, your focus is literally with the students in front of you physically and you don't want students on the computer feeling like they are neglected or left behind.*
>
> (Susan, SPED ELA teacher)

One teacher's account of hybrid inclusion suggests a double separation of virtual SPED students from their GE peers that sounds much like what the disability laws—intended to protect the rights of students with special needs—were designed to prevent. Kelly's virtual inclusion students were the only SPED *and* only virtual students in a hybrid classroom, which was made hybrid because they were legally required to receive inclusion services from a co-teacher, who was only available during that in-person class period. Ironically, this 'inclusion' placement directly caused their exclusion from inclusive instruction:

> *It's out of sight, out of mind, which kills me. The amount of times that I've gone back to my computer at the end of the class, and been like, oh yeah, [Amanda] left 45 minutes ago...and I haven't looked at her work…it makes it easier for me to put those challenges out of sight out of mind. Cause they literally are out of sight. They're not there.*
>
> (Kelly, ELA teacher)

As one of the only virtual students in a largely in-person classroom, Amanda's special needs could be ignored—unseen and unacknowledged—ironically perpetuating the precise exclusion from mainstream education that inclusion was designed to end. Amanda herself, however, saw her invisibility as liberating: *"I can eat whenever I like, wear whatever I like, and I don't have to show up at school"* (Amanda, student). Her mother acknowledged that "*the only thing that's positive about virtual is that it cuts down on the bullying… [you] don't have to worry about someone judging on the way you look"* but that she would *"rather you go to school and get bullied than be dumb"* (Sharon, parent).

Some students connected this invisibility of difference with inclusion and others with exclusion. For example, one student said, *"I don't really feel included because I don't think they see me more on my Google Classroom than in person"* (Tracy, student). One teacher noted the positive effect of virtual learning on student confidence: *"I feel like on the computer it's easier for them to chat stuff, like everyone's got a little more confidence behind the keyboard"* (Lily, SPED teacher). Another student saw the virtual realm as an eliminator of visual difference, and thus a minimizer of bullying or social division:

> *Some people can look at school and be like, school is a place you go to get judged and that's it… If I saw you, and you have a gang tattoo on your face…and your pants are hanging from your knees, I'm gonna stay away from you, you know? But if you in front of a screen and you have your camera off, and we like the same subjects, and we both like the same TV shows and games, I'm gonna be cool with you! … I think it illuminates the judging part.*
>
> (Stephan, student)

Overall, results from the survey support Stephan's account, as students did not report feeling judged in their online classes. One exception was a student who felt like they were treated differently because they would get in trouble when other students wouldn't. However, some students felt that behavioral challenges were largely invisible online:

> *Virtual kids are calm…For the in-person kids, they're just the same, they're playful, make a lot of noise, they got the class clown, the smart people. The class clown didn't exist online. Everyone was realizing that virtual is boring and people started going back to school before it got too late.*
>
> (Arthur, student)

Another student thought positively of this 'virtual calm,' believing that *"if you brought those kids into the building, I'm pretty sure they would act a fool or disrupt the class…and that's gonna affect other people. But at least in distance learning, it's only affecting one person"* (Stephan, student). He connected his opinion to a higher-level conflict within the purpose of inclusion regarding tensions between individualized and universal learning design, saying:

> *It depends on what your school code is. If your code is no one left behind, then if one person passes, we're going to do everything in our power to make the other person pass too. But it depends if that person wants it or not. Are we gonna leave this kid behind and just say forget about him, let's focus on the kids that want it? … Not everyone is gonna be happy with your decision. We can't save everyone and that's the hard truth.*
>
> (Stephan, student)

This mentality is particularly relevant to the social inclusion of students with behavioral exceptionalities. In the context of hybrid classrooms, multiple teachers commented that suspensions of SPED students from in-person school increased because they could connect to classes virtually from home. However, teachers had mixed opinions on whether this had a positive or negative effect. Two teachers praised hybrid schools, saying that *"if you suspend somebody, they can still be at school learning"* (Susan, SPED teacher) because *"they can log into the virtual classroom, so they can still come to school"* (Betty, ELA teacher). However, another teacher felt this was dangerous for the safety, learning, and inclusion of SPED students, many of whom come from families that cannot actively monitor their child's remote schooling during a suspension. In fact, this teacher blamed hybrid learning for a suspended student's death, as he did not connect to remote classes during his suspension and was shot and killed when he would otherwise have been in the school building.

These findings demonstrate mixed results regarding the perception of the social inclusion of SPED students in virtual and hybrid classrooms. The clearest exclusionary social experience was for virtual SPED students in hybrid schools, neglected and excluded by peers and teachers alike. When all students were virtual, however, some students and teachers felt that the invisibility of their disabilities increased their self-confidence and decreased peer judgment in their inclusion classes. Others felt that this invisibility led to social isolation, boredom, and the loss of celebrating difference.

4.4 The Academic and Social Promises of Virtual/Hybrid Inclusive Special Education

> *I really get very upset with my in-person kids. I had a talk with them on Friday because I was like, you know your five friends who are online? They don't get what you guys get. They don't get the social dynamic. They don't get to go to lunch together. They don't get to talk to each other. They don't get recess…they don't even get the same help that you get. So that's why when I'm helping them…this is the moment in which they can maybe get just a smidgen of what you get…you need to understand that your peers need a little more love right now because they don't get it all the time from me.*
>
> (Eloise, Elementary teacher)

Although Eloise's account illustrates the inequitable experience of being a virtual student in a hybrid inclusion classroom, she—like most participants—seemed to understand both inclusion and digital technology as non-binary issues. Eloise herself later argued that technology was central to inclusive hybrid learning, for it enabled blended learning, or the tech-mediated instruction in physical classrooms:

> *I think once they're in person and they have access to a computer, it has helped… Best case scenario is that they have someone in there who's helping giving them differentiated instruction, but without, IXL [5] is definitely letting me do that.*
>
> (Eloise, Elementary teacher)

When asked if digital technology fosters inclusion or exacerbates exclusion for SPED students, she and many other teachers argued that it worsened divisions in their own inclusion classrooms—"*it exacerbates both social and academic inequality*" (Chris, Math teacher)—but rejected the binary in broader contexts, with statements such as "*there's two sides to it*" (Eloise, Elementary teacher) and "*I don't think it's one or the other*" (Justine, ELA teacher). These opinions reflect the literature that

[5] IXL: an international K-12 personalized learning program that uses real-time analytics to guide instruction across subject areas at a cost of $299 for a 1 year classroom license (https://www.ixl.com/)

positions the digital divide in education as a non-binary challenge, dependent on both access to and use of technology (see 0).

Eloise's description of IXL indicates the potential positive impact of blended learning (Malcolm & Roll, 2017; Morrison, 2007) and represents a counterexample of how digital technology can prove effective for supporting SPED students, especially when a tool is developed and designed for specific disabilities, which is the case for assistive technology (Biegun et al., 2020). However, when technology transforms from the assistant into the entire school universe—as it did in virtual classrooms—then the specific needs of SPED students were not sufficiently considered in the 'universal design' for digital learning:

> *I think it's more than just technology. Innovative technology is good. Our kids need to know how to use technology. They need to have access to it. But we have to think beyond just the technology and how that technology is used to educate them … Do we have to reconsider the structures that we have in place? Can school look the same way virtually as it did in-person? Can we realistically say that virtual is effective? No, the answer is no.*
>
> (Justine, ELA teacher)

Justine's comment speaks to the insufficient conceptualization of the design of virtual/hybrid learning spaces to be inclusive of virtual SPED students. Practices that the support a culture of classroom inclusion, such as the "sharing of expertise amongst staff members" (Ainscow et al., 2013, p. 23) and specific in-person engagement strategies were largely lost when designing digital inclusion models. Absent too was any top-down encouragement to collaboratively reimagine these practices remotely. The onus was entirely on teachers, who felt siloed in their virtual classrooms:

> *Our traditional understanding of what inclusion looks like and feels like feels like a thing of the past, especially if it is a fully virtual setting. Kids are included. Are they supported in being included? Are their needs being met? Those are the questions that leave it to teacher planning.*
>
> (Susan, SPED teacher)

Despite evidence that "organisational conditions" and "distributed leadership" (Ainscow et al., 2013, p. 18) are important catalysts for inclusive physical classrooms, the findings show that school leadership largely did not provide the space, neither face-to-face nor virtually, to conceptualize inclusive practices that could meet the needs of virtual SPED students in virtual/hybrid classrooms. As such, some teachers attributed the loss-in-translation of inclusive practices and learning spaces to poor school leadership that failed to encourage knowledge sharing and collaborative planning.

Moreover, teachers noted that leaders ultimately decided the balance of values and rights to uphold in inclusion. Often, this meant that the *legal* value of inclusion was privileged above all else:

> *With a hybrid or virtual situation, that [IEP] plan, that requirement of having another teacher in class is detrimental… They have the fundamental right to be put in the correct class to get the services from you. But if I do that, I think they also the fundamental right to get the bare minimum.*
>
> (Kelly, ELA teacher)

Norwich (2005) argues that these "potentially contrary rights and values need to be balanced and that there needs to be an acceptance that some values and rights will not be met. There is some loss; something has to be given up" (p. 54). Kelly felt that her leaders chose the wrong value to give up.

Although school leaders may have contributed to exclusion caused by classroom design, just considering the design of a space does not go far enough to ensure inclusion. Students with disabilities must be seen as a heterogenous population (Alper & Goggin, 2017). Digital technologies may enhance the learning experiences of some while impeding the progress of others. Consider the conflicting accounts of Alicia and Stephan from the same mode of hybrid classroom design (Mode 2). Their exceptionalities influenced their experience of inclusion in very different ways. Both identified as self-motivated, hard-working students who cared about their academic success. Despite one teacher's claim that *"you have to be an independent learner and be self-motivated for those programs to be successful"* (Olivia, Elementary teacher), even this was not enough for Alicia, who felt invisible, deterred from speaking into the abyss of the digital realm without an embodied teacher to turn to:

> *I just don't ask because I feel like they probably get it or I'm gonna take time. [GE students] are learning fast… I personally take a lot of time in doing my work… and then the work that I wasn't finishing, it was just staying there. Sometimes I be crying and my sister will be like it's okay.*
>
> (Alicia, student)

Alicia's fear of slowing down the class and shame in admitting she needed help reflects a larger trend from student interviewees of remaining quiet even if feeling lost in virtual/hybrid school. Generally, this pushed the class pace to normalize around students who were actively participating and comprehending material, frequently leaving SPED students to fall behind without a teacher noticing. One parent's comments reflect the literature that critiques inclusion classrooms for normatively preferencing non-disabled learners (Erevelles et al., 2019; Florian, 2019; Naraian, 2021):

> *They just expected them to just know and catch on…They don't learn the same. They don't pick up everything the same. So they just went off with the kids who are advanced or the ones who was catching it so quick, but the ones who was behind, it's like they just was complaining. They was impatient about these kids.*
>
> (Latoya, parent)

Stephan, on the other hand, felt more included online than in-person, finally able to hear his teachers and peers without needing specified classroom seating.

These two accounts challenge the idea of digital technology delivering a 'universal' design for inclusive learning that supports all SPED learners. This tension reflects the "potentially conflicting values—the values of inclusion and individuality" (Norwich, 2005, p. 51) in inclusive special education. The World Bank (2020) acknowledges this tension by promoting a "twin-track" approach to digital special education, or "ensuring that mainstream education programs are designed for all learners" while at the same time "developing targeted support to address the specific needs of children with disabilities" (p. 16). Although this guidance for virtual learning encourages the plural values of inclusion, its application to hybrid education programs is missing, as are practical examples of balancing universal design with SPED-specific design in virtual/hybrid spaces. As the study's sample shows, this balance is near impossible to implement in practice, and that "something has to be given up" (Norwich, 2005, p. 54). In this study, it was the SPED students who were given up, their inclusion classrooms designed for all learners, which, by default, was for the non-disabled.

Chris, both a GE math teacher and SPED co-teacher, was the only teacher in the study whose school remained virtual the entire year. He incorporated real-time feedback strategies into his inclusion classrooms—such as synchronous work on a Google Doc—that simulated "*nudging*" or "*walking around the room*" to monitor SPED student work. He attributed the success of his virtual inclusion practice—despite using rather simple and free software—to having a consistent instructional model for virtual SPED services, which was put in place by supportive school leaders, including an active SPED coordinator. The virtual inclusion model at Chris's school was co-produced, adapted, and developed throughout the year as knowledge on what worked best was shared and leveraged at weekly planning meetings with colleagues from both GE and SPED, reflecting the "collaboration and problem-solving amongst staff" acknowledged as an enabler of successful inclusive pedagogy (Ainscow et al., 2013, p. 23).

Teachers had mixed opinions on the effectiveness of these technologies in enabling quality inclusive practices. Teachers whose schools purchased subscription programs generally believed that technology had the potential to put UDL into practice:

> *There are certain things you can do that I feel make it easier to accommodate or to incorporate more like universally designed learning aspects…you can use this tool to highlight or you can draw your answer instead of writing it.*
>
> (Ellie, ELA teacher)

> *[Go Formative][6] does it all. In terms of being able to accommodate folks, you can record a video of yourself and post it into the onto the worksheet…You can create, I think, 30 different ways a kid can answer a question—so it could be multiple choice, it could be short response, it could be written, it could be a picture… It has changed the game.*
>
> (Susan, SPED teacher)

However, Susan later acknowledged that the creative and targeted use of technology in hybrid classrooms was limited by financial constraints:

> *I don't think the issue is the screen…our school doesn't have the funding to be able to do it successfully. Hybrid can be successful. We don't have the means yet and I don't know how long it would take for us to get to that point where we would get the reward of doing it.*
>
> (Susan, SPED teacher)

Inadequate funding for the subscription programs and staff that could support the innovative use of technology for SPED virtual/hybrid instruction was referenced by multiple teacher participants:

> *If you have unlimited resources, there's a lot of really cool programs you can use, but almost all of them cost money though, which is really frustrating… there was a free trial and I downloaded it and like that was one of the best lessons.*
>
> (Lily, SPED teacher)

> *You have to have enough people hired to be able to accommodate all these things. Coverage is such an issue that it became inhibitive of helping out IEP students.*
>
> (Lucas, History teacher)

[6] Go Formative: a digital platform that allows teachers to collaboratively create assignments and assessments that they can monitor and analyze in real time for $68/month per team of 4 teachers (https://goformative.com/)

These accounts demonstrate that teachers believed in a non-binary effect of virtual/hybrid inclusion. Overall, teacher opinions on the viability of virtual/hybrid inclusion depended on the staff, classroom set up, and specific digital activities of the classroom. Thus, the legal requirement to deliver inclusive education for IEP compliance seems to have had similarly pluralistic effects. In some virtual/hybrid classrooms, inclusion exacerbated social and spatial segregation through split pedagogies that reinforced the able/disabled binary (see 2.1.3). In others, it secured co-taught instruction that harnessed technology to merge the often-parallel practices of SPED and GE, creating a design for learning that was universal *because* it differentiated with specific SPED student needs in mind.

Analysis has made clear the call for a reconceptualization of digital inclusive special education, due to incompatibilities of in-person inclusive practices in the virtual/hybrid realms that rendered inclusion—as practiced—an ineffective instructional model for many students with special needs. This is especially true for those with intersecting marginalized identities, for "the child living with a disability is always already intersectional, especially in the rich, yet often problematic, relationship with the digital" (Alper & Goggin, 2017, p. 735). For the low-income students of color in this study, digital technology alone did not one-dimensionally determine their inclusion or exclusion in COVID-19 schooling. Instead, findings show that it wove a layered web of situated learning whose success was determined by student personality and attitude, family support capacity, school culture of inclusion, teacher staffing and skills, and digital program capabilities.

Like Selwyn (2019), who calls for critical engagement with digital learning, I do not believe in the intrinsic "techno-idealism" of digital technology that "marginalizes any consideration for broader social contexts and structural inequalities" (p. 15). Nor do I believe that digital technology solely exacerbates or reproduces existing social divisions (Robinson, 2009). I believe in a democratic discussion (Williamson et al., 2020) of how to balance the often-conflicting values represented in inclusive special education to determine what kind of society our schools should strive to support (see 2.1.3). SPED students themselves should take a leading role in the discussions of virtual and hybrid learning design, directing the formation of inclusive practices that provide the long-term benefits they value.

5. Conclusion

5.1 Of Inclusion, Individuality, and Invisibility

This study explored the use and effects of digital technology in delivering inclusive special education during the COVID-19 pandemic in urban public schools in the United States. Grounded in a theoretical framework of inclusive research, the analysis situated those who experienced digital special education at the center of the work to explore perceptions of educational inclusion and exclusion. A review of the literature revealed the plurality of potential effects of both inclusive practice and digital education on SPED students. Methodological choices aligned with my belief that an evaluation of the social justice potential of digital technology in special education should be situated in the lived experiences of those at the nexus of the two.

Together, my analysis of semi-structured interviews with SPED students, teachers, and parents and student questionnaire responses found a complex story of tensions within the philosophy of inclusive practice itself. These tensions emerged between academic and social priorities and between the values of integration and individualism in SPED instruction (Norwich, 2005). Virtual and hybrid spaces brought these tensions into sharp relief, for parents seemed to prioritize academic progress, while teachers felt that social development and inclusion were of primary importance. SPED students fell in between, with evidence indicating that some believed that the point of school was predominantly academic while others saw it as a space for social entertainment and forming friendships.

Analysis supports two main takeaways regarding the academic impact of virtual/hybrid inclusion:

(1) All participants believed that SPED students learned better in person, even in virtual/hybrid inclusion classrooms that successfully implemented inclusive practices and accommodations through digital technology.

(2) Digital engagement practices were a key academic and social challenge for teachers, impacting the effectiveness of virtual/hybrid inclusion classes for SPED students. The superiority of in-person SPED support and the absence of distractions emerged from the analysis as two primary factors that make in-person learning academically more suitable for SPED students. Significantly, perceptions of the ability of digital technology to provide academic accommodations were mixed among participants, although generally there was consensus that these tools alone were not enough to provide the support students needed to be successful. One important exception

was the belief that specific online programs could yield better differentiated interventions and accommodations to SPED students than human teachers.

Findings suggest that the purported social benefits of in-person inclusion are diluted or destroyed for virtual students due to the isolating and independent nature of virtual learning. Participants agreed that virtual and hybrid learning contributed to the invisibility of difference and disability, and, in some cases, of SPED students entirely, which implicates the compatibility of virtual and hybrid classrooms with the goal of celebrating difference through inclusive education. These are novel findings for the literature on inclusion, through which we can begin to more broadly question whether virtual/hybrid inclusion is performing its intended philosophical function of fostering inclusive societies. Findings from this study suggest that it may not, creating multilayered exclusion rather than social and academic inclusion due to the intersectional nature of the digital divide (see 0). Instead of accommodating exceptionalities in digital—and especially hybrid—inclusion classrooms, the needs of many virtual SPED students were pushed *out of sight, out of mind.*

My analysis, bolstered by the body of research on in-person inclusion, suggests that three factors could enable the practice of the plural values of personalization and social cohesion promised by digital inclusion (see 2.1.3). First, the literature on physical inclusion supports the need for sufficient staffing for co-teaching, which my findings suggest is imperative in hybrid inclusion classrooms, especially in Mode 3 (see Figure 2) where the demands on teachers to multitask are multiplied. Second, with the proper resources and training provided to them, teachers can differentiate learning for SPED students through targeted digital interventions using specialized learning programs such as Go Formative or IXL over generic, multipurpose platforms like Google Docs (see 4.4). Third, with allocated collaborative planning time, teachers can leverage technology to personalize their lessons and design spaces for formal and informal peer socialization between in-person and virtual students in hybrid classrooms (see 4.4). However, my findings repeatedly show that bringing these factors to fruition remains an immense challenge.

Chapter Two presented the research consensus that *physical* classrooms require careful and collaborative planning, training, and delivery to simultaneously meet the special needs of SPED students *and* implement holistically inclusive practices (see 0). Coupling this consensus with my analysis of the complexity of virtual/hybrid inclusion classrooms, it can be reasonably concluded that realizing these three enabling factors in virtual/hybrid classrooms is no simple feat. Consequently, the study of specific

strategies to stimulate these enablers of inclusive digital education stands as the worthy subject for further research.

5.2 Considerations for Future Research

Recent publications from international organizations promote the promise of digital learning as potential harbingers of educational equity (Bonderud, 2021; The World Bank, 2020; UNESCO, 2020a). My analysis illuminates some of the pedagogical implications and potential pitfalls of digital inclusive education for students with special needs, particularly those with marginalized identities. Findings make it clear that the design of virtual and hybrid learning spaces during COVID-19 lacked the specific conceptualization to appropriately include SPED students. I acknowledge that school leaders and teachers were forced to speedily design solutions to sustain learning throughout the pandemic. However, such a reality is in direct conflict with the careful construction of classrooms needed to actuate meaningful inclusion, well documented by decades of research on in-person inclusion. However, going forward, this crisis context can no longer be an excuse for complacency in inclusive education design.

Perceptions from student and parent participants spotlight the plurality of potential effects of the expansion of digitally mediated educational models in the sample's under-resourced, urban contexts in the U.S. Though small in scale, my study also provided clear insights from teachers about what they need to implement virtual/hybrid inclusive practices that serve both SPED and GE students. Future research should delve into optimal designs of digital inclusion classrooms, the suitability of recognized in-person inclusive practices and approaches to the digital realm, and how to implement a digital 'twin-track' approach (The World Bank, 2020) that not only creates an inclusive baseline digital environment, but also enables the use of targeted digital intervention tools within the same space.

While providing prescriptive guidelines on designing and implementing inclusive digital classrooms is beyond the scope of this study, my findings illuminate the path forward through previously unexplored territory in the literature. Given the variability in hybrid inclusion in my own study, there is a clear need for research to address the present paucity of research on hybrid models of teaching. If we see inclusion as an international "movement to identify and eliminate the inequities and injustices that plague our schools, societies, and world," (Gorski, 2008, p. 348), then future studies should share the stories of SPED students, families, and teachers from a wide range of localities. Only then can we forge a multifaceted understanding of the heterogenous experiences of digital special education. My study diverts future studies from flying blind into virtual and hybrid inclusion classrooms, steering them

toward a direction of travel whose target is the development of digital tools and spaces that inclusively serve students with disabilities.

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Appendix A: Inclusive Research Theoretical Framework

Figure 3

A Family of Overlapping Approaches

Source: Nind (2014b, p. 10)

Table 4

Questions to Ask Yourself When Judging the Quality of Inclusive Research with People with Learning Disabilities

Source: Nind (2014b, p. 90)

Appendix B: Initial Guidance Document for Interviews

Initial outline for interviews with students and parents:

For this study, I will be conducting semi-structured interviews with students, teachers, and parents, meaning I will use the following questionnaire as a guideline for the interview, but may ask additional questions or eliminate some depending on the participant's responses. If the parent opts to be present for their child's interview, then two interviews will flow from one into the other, beginning with the student and ending with the parent.

The purpose of the interview is to investigate student, parent, and teacher experiences with the inclusion model of special education during the pandemic.

The student interview is broken down into 2 key parts: the first is the student's reflections on their experiences before COVID-19 school closures and the role that technology played in their in-person schooling. The second part of the interview is focused on their current experiences during COVID-19 remote learning and will focus on the role of technology in their learning experiences.

Draft introductory script

Hi, xxxx, thank you so much for talking to me today. This conversation will help me understand more about what has happened during distance learning and how your school has given you support while you've been out of the school building.

Before we start, I just want to reiterate a few important things to remember. As you read in the information sheet, I am a student at the University of Oxford. I will not share your responses with anyone other than my research supervisor, unless I believe there is a risk to someone's safety. Anything I write that includes stories you tell me will use a fake name, or pseudonym, so that nobody will know that I'm talking about you. I will check all quotes that I want to use with you first, so if you say something that you don't want me to use in my research, that is totally fine and I will remove it.

If at any stage, you want to end the interview, please let me know and we can end it, this is absolutely fine. It shouldn't take more than a half an hour.

Also, if at any time, someone enters where you are and you feel your privacy has been disrupted, how would you like to let me know?

Thanks! This is not a super formal interview. I have some questions prepared, but I'm really mainly interested in learning your stories and opinions about the distance learning experience. The opinions you share may turn into research that could help schools better support other kids around the country during this weird time, so thank you so much for talking to me.

If, after the interview, you want to get in touch, you have my email address and you are welcome to contact me if you have any questions or concerns at all.

Before we start, do you have any questions?

The following questions are subject to change.

Interviews with Students.

1. **Pre-COVID-19**
    1. I'm sure you've been using a lot of technology lately to engage in school, but before we talk about what's happening now, I'm interested in hearing about how you used technology before the pandemic. Did you ever use technology in your classes?
        1. If so, for what classes?
        2. What kinds of things did you do with this technology?
    2. What was your favorite use of classroom technology when you were at school in person?
    3. During a normal day pre-COVID when you were in the building, did you ever have classes where there were 2 teachers in the room?
    4. What were those classes? What subject?
    5. How did the teachers give you attention?
        1. For example, was one of them working closely with you in a specific part of the room?
        2. If so, do you remember how long that teacher would give you extra help during the class?
    6. Did you ever feel you needed extra help with anything in those classes? (I.e. with reading/writing/math/extra time on assignments)
    7. Do you remember if there were other kids in the class getting extra help from another teacher?
        1. If so, what did their extra help look like?
2. **During COVID-19 Remote Learning**
    1. Are there ever two teachers teaching in online class X?
    2. In online class X, do you still get any special attention from a teacher?
        1. If not, do you ever get phone calls outside of the class to help you with your work?
        2. If so, how long are these phone calls?
    3. Can you tell / do you know if any other kids are getting extra help with online school?
    4. Remember back to how you were using technology when you were at school in person. Are any of the things you did the same in remote school? For example, are you using any of the same programs?
    5. Do you use the technology yourself at home? Do you need help with it?
3. **General Perceptions**
    1. What do you like about online classes?

2. Do you feel as invested in online school as you were in person? Do you think online school is more or less engaging than in-person school?
3. Is there anything you find harder about online school than in-person school?
4. The things you said you struggled with in person in class X—do you get any help with this online?
    1. If so, do you think this help is useful?
5. In general, do you think your teachers give you enough specific support?
6. If you had a choice, would you continue the special help or end it?
7. Some students have said that they don't want extra help during online school; what do you feel about that?
8. How do you think you're doing at online school?
    1. Potential follow-up question: if student identifies that they don't think they're doing well and that they don't want extra help, ask why they don't want this extra help.
9. What did you really like about school before?
10. What would you change about school before?
11. If you could continue something from COVID, what would it be?

Interviews with Parents

1. Mom/dad/guardian, what do you think about how (child's name) is doing in online school?
    1. do you agree with their self-assessment of their performance?
2. Has your child had an IEP meeting this year?
3. Do you have a copy their most recent IEP?
4. According to the IEP, what services is (child's name) receiving?
5. Do you know the name of his/her case manager or SPED teacher?
6. Does this teacher ever reach out to you with updates on (child's name)'s progress?
7. How is X teacher reaching out? Phone? Face-time? During class? Outside of class hours?
8. How much communication has (child) been receiving from teacher X?
9. What do you think of the support (child) has been getting?
10. In general, how satisfied are you with the support school has provided?

Interviews with Teachers

1. How was technology used in your classroom pre-COVID-19?
2. How are you using technology right now in your remote learning? Describe the platform, the programs you use, etc.

3. Is there any technology you used pre-COVID-19 that you are still using online?
4. Are there any technologies you would you want to take back to the physical classroom?
5. Do you have students with IEP's in your class?
6. Are you aware of their specific exceptionalities and their accommodations?
7. Are your students with IEP's regularly connecting to their classes?
8. Have you attended any IEP meetings this year?
9. What kind of extra support are you offering to these students?
10. How do you engage with your special needs students online?
11. How is school supporting you in offering this extra support?
12. Do you collaborate with another teacher to support students with IEP's?
13. How do you think school is doing in supporting its special needs students?
14. What do you think could be done differently to make remote school an inclusive space?

Appendix C: Student Questionnaire

[redacted]

Direct Line: [redacted]

E-Mail: [redacted]

Overview: This questionnaire contains 20 questions (multiple choice and short answer) and will take approximately 15-20 minutes to fill out.

Goals of Research:

- We are interested in what school during COVID-19 has been like for you.
- We want to learn about how you have used technology in school.
- Sharing your stories will help your school and others know how to better support **all** students in digital education.

Privacy and Consent:

- We will keep *all* of your information private.
- We will not include your name in the research.
- I will ask for your permission to use direct quotes, which will be used under a pseudonym.
- You can stop the survey at any time.
- Data will be stored securely for 3 years after publication or public release of the work of the research.

<u>Your thoughts on distance learning</u>

1. What grade are you currently in at school?

2. Please indicate that you have read the goals and privacy terms for this project.

3. What device(s) do you use to connect to remote school (check all that apply)?

- phone
- tablet
- laptop
- desktop computer
- Other (please describe)

4. Do you ever use more than one device at the same time during school?
- Yes
- No

5. Has your school provided you with either a device or internet connection during this time?
- Yes
- No

6. How frequently does your device have trouble connecting to the internet?

- Never; I can always connect without any issues
- Rarely; I have connection issues once or twice a month
- Sometimes; I have connection issues about once a week
- Often; I have connection issues a few days a week
- Always; I have connection issues every day

7. During a typical week, do you have any in person schooling?

- Yes
- No

8. During a typical week, do you still connect to online school?

- Yes
- No

9. When your school was fully remote, how many online classes did you have a day?

- 0
- 1-2
- 3-4
- 5-6
- 7-8

10. How long were your online classes generally?

- Less than 30 minutes per class
- Around 40-50 minutes per class
- About an hour per class
- Between an hour and 1.5 hours per class
- Over 1.5 hours long per class

11. How frequently did you ask for support from your teachers to help you be successful in your online classes?

- I regularly asked for support
- I sometimes asked for support
- I rarely asked for support
- I never asked for support

12. Did you ever receive extra help in your online classes? (For example, did you ever receive phone calls from teachers outside of school hours to offer you extra help?)

- Yes (If you answered 'yes', please describe the extra help you have received in your online classes.)
- No

13. How included did you feel in your online classes?

- I felt very included
- I felt somewhat included
- I felt neither included nor excluded
- I felt somewhat excluded
- I felt entirely excluded

14. Can you think of a time when technology made you feel more included in online classes? Tell me about that time and describe the particular technology.

15. Did you ever feel like you were treated differently than other students in your online classes?

- Tell me about a time you singled out or treated differently.

16. If you could continue anything from remote school into in-person school, what would it be?

17. If you would like to talk to me in a short follow-up interview (virtually!), please enter your email address below. I would be so grateful to hear more about your experiences this year and share your important stories!

Thank you so much for taking the time to complete this questionnaire!

I hope you enjoyed reflecting on your school experiences during the pandemic. Sharing your stories will help everyone better understand how students have been affected by remote and hybrid learning.

The findings will be published in my masters thesis with **Oxford University**. I also hope to publish the findings in an online blog forum, which I will email to you and all participants.

If you have any questions or would like to talk about the research further, don't hesitate to reach out to:

[redacted]

Appendix D: Child-Friendly Participant Information Sheet

Ethics Approval Reference: [redacted]

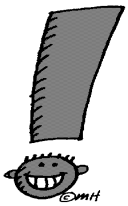
Research Information Form:
Distance Learning During COVID-19

What is a research study?

Research studies help us learn things. We learn these things by talking to people and listening to their stories. First, we ask a question. My question is this: how has the COVID-19 pandemic changed the way you receive extra help in class?

This form talks about my research and the choice that you have to take part in it. I want you to ask me any questions that you have. You can ask questions any time.

Important things to know…
You get to decide if you want to take part.
You can say 'No' or you can say 'Yes'.
If you say 'Yes', you can always say 'No' later.
You can say 'No' at *any* time.
We won't be upset at all if you say no.



Who is the researcher?

My name is [redacted] and I am a student at Oxford University, which is in England. I am studying Education and I was a teacher for three years before doing this research project. Outside of studying, I love to sing, play computer games, and run outside.

What is this research about?

I am doing this research because I am interested in hearing about what online school has been like for you. I want to see how different schools in different cities have moved their classes online. I want to learn about how you have used learning technology during this time.

Why me?

I am asking you to participate because you are between 10 and 15 years old and you receive special education services. 20 other students like you will also be participating. I will be interviewing students, teachers, and parents about their experiences with special education during the pandemic.

What would happen if I join this research?

If you decide to be in the research, I would ask you to do two things:

Interview: I will ask you some questions about your online education experience.
The interview will take about 30-45 minutes in an online video call
It will happen sometime between March and May
Afterwards, I will interview your parent

Survey: After the interview, I will send you a link to a survey with some simple questions about what your distance learning experience has been like

I will be recording the interviews so that I make sure I accurately represent what you said. All of the information will be kept safe and private. If I want to quote you, I will make sure I ask if that's okay with you first and I will use a fake name, or a pseudonym.

What are the good and bad things about doing this?

The good thing is that you will be a part of an important and interesting piece of research! I want to make sure your voice is heard and is a part of the conversation about making special education better for you.

The bad thing is that I am asking you to give up around an hour of your time for the interview and survey completion.

Will anyone else know that I'm doing this?

We will keep *all* of your information private. This means we will only tell people who have a need or right to know, such as the research team and your parent/guardian. We will only share information that has removed your name and address.

What if there is a problem or I change my mind?

If you don't want to be in the study, you don't have to be.

It is also OK to say yes and change your mind later. You can stop being in the research at any time. If you want to stop, please tell me, your teacher, or your parent/guardian.

Please tell us if you are worried about any part of this study, by contacting me at [redacted]. You can also talk to your teacher/parent/guardian who will let me know. If you are still unhappy or wish to make a complaint, either you or your teacher/parent/guardian can contact the chair of the Research Ethics Committee at the University of Oxford:

Name: Jackie Bridges Email: student.curec@education.ox.ac.uk

Is there anything else?

If you want to discuss this with me beforehand (or if you have questions at any time), you can reach me here:

[redacted]
Department of Education
Tel: [redacted]
Email: [redacted]

Data Protection
The University of Oxford is the data controller with respect to your personal data and, as such, will determine how your personal data is used in the study. The University will process your personal data for the purpose of the research outlined above. Research is a task that we perform in the public interest.

More information about your rights with respect to your personal data is available from https://compliance.web.ox.ac.uk/individual-rights.

Thank you for reading this – please ask any questions if you need to.

I hope that you enjoy taking part in this research project and I am excited to work with you!

Appendix E: Teen-Friendly Participant Information Sheet

Research Study Information Form:

Distance Learning During COVID-19

Ethics Approval Reference: [redacted]

What is a research study?

Research studies help us learn things. We learn these things by talking to people and listening to their stories.

First, we ask a question. My question is this: *how has the COVID-19 pandemic changed the way you receive extra help in class?*

This form talks about my research and the choice that you have to take part in it. I want you to ask me any questions that you have. You can ask questions any time.

Important things to know…

You get to decide if you want to take part.
You can say 'No' or you can say 'Yes'.
If you say 'Yes', you can always say 'No' later.
You can say 'No' at *any* time.
We won't be upset at all if you say no.

Who is the researcher?

My name is [redacted] and I am a student at Oxford University, which is in England. I am studying Education and I was a teacher for three years before doing this research project. Outside of studying, I love to sing, play computer games, and run outside!

What is this research about?

I am doing this research because I am interested in hearing about what online school has been like for you. I want to see how different schools in different cities have moved their classes online. I want to learn about how you have used learning technology during this time.

Why me?

I am asking you to participate because you are between 10 and 15 years old and you receive special education services.

20 other students like you will also be participating. I will be interviewing students, teachers, and parents about their experiences with special education during the pandemic.

What would happen if I join this research?

If you decide to be in the research, I would ask you to do two things:

Interview: I will ask you some questions about your online education experience.
The interview will take about 30-45 minutes in an online video call
It will happen sometime between March and May
Afterwards, I will interview your parent

Survey: After the interview, I will send you a link to a survey with some simple questions about what your distance learning experience has been like

I will be recording the interviews so that I make sure I accurately represent what you said. All of the information will be kept safe and private.

If I want to quote you, I will make sure I ask if that's okay with you first and I will use a fake name, or a pseudonym.

What are the good and bad things about doing this?

The good thing is that you will be a part of an important and interesting piece of research! I want to make sure your voice is heard and is a part of the conversation about making special education better for you.

You will also get an email from me with a blog post with the research results at the end of the project!

The bad thing is that I am asking you to give up around an hour of your time for the interview and survey completion.

Will anyone else know that I'm doing this?

We will keep *all* of your information private. This means we will only tell people who have a need or right to know, such as the research team and your parent/guardian.

We will only share information that has removed your name and address.

Your teacher will know that you are participating, but they will not have access to your responses in the interview or survey. They will only read the anonymous final version of the project.

What if there is a problem or I change my mind?

If you don't want to be in the study, you don't have to be.

It is also OK to say yes and change your mind later. You can stop being in the research at any time. If you want to stop, please tell me, your teacher, or your parent/guardian.

No one will be upset with you for not participating! If you choose to not participate, or to stop at any point, it will not negatively affect your relationship with your teacher or your school.

Please tell us if you are worried about any part of this study, by contacting me at [redacted] You can also talk to your teacher/parent/guardian who will let me know. If you are still unhappy or wish to make a complaint, either you or your teacher/parent/guardian can contact the chair of the Research Ethics Committee at the University of Oxford:

Name: Jackie Bridges Email: student.curec@education.ox.ac.uk

Is there anything else?

If you want to discuss this with me beforehand (or if you have questions at any time), you can reach me here:

[redacted]
Department of Education
Tel: [redacted]
Email: [redacted]

Data Protection
The University of Oxford is the data controller with respect to your personal data and, as such, will determine how your personal data is used in the study. The University will process your personal data for the purpose of the research outlined above. Research is a task that we perform in the public interest.

More information about your rights with respect to your personal data is available from https://compliance.web.ox.ac.uk/individual-rights.

Thank you for reading this – please ask any questions if you need to.

I hope that you enjoy taking part in this research project and I am excited to work with you!

Appendix F: Parent Participant Information Sheet

Digital Inclusion: Perspectives on special education practice during COVID-19 distance learning

PARTICIPANT INFORMATION SHEET

Ethics Approval Reference: [redacted]

1. Why is this research being conducted?

I am interested in how the COVID-19 pandemic has changed Special Education.

My main research question is: how have children who normally get extra help in the large gen-ed classroom been getting help from a special education teacher online during distance learning classes?

Here is what I'll be doing:

1. I will interview students, teachers, and parents about their experiences with special education during the pandemic
2. I will see how different schools are handling co-teaching and 'inclusion' practices in online learning
3. I will learn about the successes and challenges of the inclusion model of special education during distance learning
4. I will tell these stories in the hope that students with special needs are always considered in planning for the future of education as the pandemic continues to change school environments

2. Why am I being invited to participate?

You are invited because…

- You are the parent/guardian of a student aged 10-15 years old
- Your child receives special education services for a diagnosed learning exceptionality

We are inviting around 20 young people and their parents/guardians to participate.

3. Do I have to take part?

No — It is absolutely up to you. If you do not participate, it will not affect your relationship with school personnel or your ability to participate in school activities. This project is my personal research overseen Oxford University and is not affiliated with your school.

If you do agree to participate, *here is what will happen:*

1. I will ask you to sign a form saying that you agree to take part (a consent form)
2. I will give you:
    - a copy of this information sheet
    - a child-friendly version for your child
    - your signed form to keep

- You are free to stop taking part at any time during the research—just tell me! You do not need to give me a reason.

- If you decide to stop, I will ask you whether I can or cannot use the information we have already collected from you. It is completely okay if you say no.

- There will be no consequences with your school or with the researcher if you choose to stop participating.

4. What will happen to me if I agree to take part in the research?

If you agree to participate, I will ask you to take part in an interview to talk about your and your child's experiences during distance learning.

- **Interview Information**
    - **Time commitment**: 45 minutes to an hour
    - **How:** Remotely via video call
    - **When:** Sometime between March and May
        - I will contact you before the interview to agree on a time and date with you
    - **What:** I will record the audio of the interview only (no video recording)
        - The audio will be stored in a password protected folder on a password protected device
        - Before I publish any findings, I will send you any direct quotes that I am considering using
        - I will ask for your permission to anonymize your quotes to use them
    - **Who**: I will also interview with your child and his/her teacher(s)
        - Nothing you will say will be shared with your school or child's teachers under your name. It will only be shared using a pseudonym when the project is completed and the study is published.
    - **Why:** It is very important to me that the voices and experiences of parents are heard alongside the voices of students and teachers, and so your contribution will be very valuable.

5. Are there any potential risks in taking part?

— Some sensitive information about challenges during COVID-19 may arise during the interview

— No information will be shared with your school or your child's teachers until I have received permission to use any quotes from our interview, and then anonymized your contributions

6. Are there any benefits in taking part?

— There will not be a direct benefit to you for taking part

— But, it will (hopefully) become a published study that helps improve how digital learning technology can be used to support special needs students in the future

— Also, it will help people understand how special needs students, their families, and their teachers have been affected by the pandemic by hearing their stories

— I hope that it will be an enjoyable and interesting process to take part in!

7. What happens to the data provided?

There are two types of data:

1. **Research data:** this is the information you provide during the study
    — I will ask for your permission to use direct quotes, which will be used under a **pseudonym**
    — Myself [redacted] will have access to the research data
    — Responsible members of the University of Oxford may be given access to data for monitoring and/or audit of the research
    — Will be stored for 3 years after publication or public release of the work of the research

2. **Personal data:** Any research data that identifies you, for example, your name, your child's school, audio interview recordings
    — Will be stored in a password protected folder on a password protected device for the duration of the study and will then be deleted when the study ends in August 2021.

5. Will the research be published?

Yes! It will be published in the following ways:

— **Student thesis:** This is the main product of my project for my master's thesis. After successful submission of the thesis, it may be put both in print and online in the Oxford University archives to facilitate its use in future research. Online, easy access for researchers to the full text of freely available theses increased the impact and use of that research.

— **Journal Article:** I hope to publish the study's findings in an academic journal, but this may be two to three years from the end of the study.

— **Online blog:** I will publish the findings in an online blog forum. I will email this to you and all participants.

Remember: I will ask for your permission to use any direct quotes, which will only be published under a pseudonym.

6. Who has reviewed this study?

This study has been reviewed by, and received ethics clearance through, the University of Oxford Central University Research Ethics Committee (Reference number: xxx).

7. Who do I contact if I have a concern about the study or I wish to complain?

If you have a concern about any aspect of this study, please contact:

— [redacted] OR
[redacted]

We will do our best to answer your question. We will acknowledge your concern within 10 working days and let you know how it will be handled.

If you are still unhappy or wish to make a formal complaint, please contact the Chair of the Research Ethics Committee at the University of Oxford who will seek to resolve the matter as soon as possible:

— **Name**: Jackie Bridges
— **Email**: student.curec@education.ox.ac.uk

8. Data Protection

— The University of Oxford is the data controller with respect to your personal data, and as such will determine how your personal data is used in the study.

— The University will process your personal data for the purpose of the research outlined above. Research is a task that is performed in the public interest.

— Further information about your rights with respect to your personal data is available from http://www.admin.ox.ac.uk/councilsec/compliance/gdpr/individualrights/.

9. Further Information and Contact Details

If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact:

[redacted]
Department of Education
University of Oxford
15 Norham Gardens
Oxford, OX2 6PY
Email: [redacted]

Appendix G: Teacher Participant Information Sheet

Digital Inclusion: Perspectives on special education practice during COVID-19 distance learning

PARTICIPANT INFORMATION SHEET

Ethics Approval Reference: [redacted]

10. Why is this research being conducted?

I am interested in how the COVID-19 pandemic has changed Special Education.

My main research question is: how have children who normally get extra help in the large general education classroom been receiving services online during distance learning classes?

Here is what I'll be doing:

5. I will interview students, teachers, and parents about their experiences with special education during the pandemic
6. I will see how different schools are handling co-teaching and 'inclusion' practices in online learning
7. I will learn about the successes and challenges of the inclusion model of special education during distance learning
8. I will tell these stories in the hope that students with special needs are always considered in planning for the future of education as the pandemic continues to change school environments

11. Why have I been invited to take part?

We are inviting you to take part because you are the teacher of students who receive special education services for a diagnosed learning exceptionality.

We are inviting around 5 teachers, 20 young people and their parents to take part.

12. Do I have to take part?

No - It is up to you.

We will ask you to sign a form to say that you agree to take part (a consent form). We will give you a copy of this information sheet and your signed form to keep. You are free to stop taking part at any time during the research without giving a reason, by telling the researcher. If you decide to stop, we will ask you whether we can or cannot use the information we have already collected from you.

13. What will happen to me if I take part in the research?

If you agree to participate, I will ask you to take part in an interview to talk about your and your child's

experiences during distance learning.

- **Interview Information**
    - **Time commitment**: 45 minutes to an hour
    - **How:** Remotely via video call
    - **When:** Sometime between March and May
        - I will contact you before the interview to agree on a time and date with you
    - **What:** I will record the audio of the interview only (no video recording)
        - The audio will be stored in a password protected folder on a password protected device
        - Before I publish any findings, I will send you any direct quotes that I am considering using
        - I will ask for your permission to anonymize your quotes to use them
    - **Who**: I will also interview with your child and his/her teacher(s)
        - Nothing you will say will be shared with your school or child's teachers under your name. It will only be shared using a pseudonym when the project is completed and the study is published.
    - **Why:** It is very important to me that the voices and experiences of parents are heard alongside the voices of students and teachers, and so your contribution will be very valuable.

5. Are there any potential risks in taking part?
The topics that we discuss are not, in themselves, sensitive, however, all data will be **pseudonymised**. Before submitting I will send any direct quotes that I intend to use to you and you will have the opportunity to have them removed or adapted.

6. Are there any benefits in taking part?
- There will not be a direct benefit to you for taking part
- But, it will (hopefully) become a published study that helps improve how digital learning technology can be used to support special needs students in the future
- Also, it will help people understand how special needs students, their families, and their teachers have been affected by the pandemic by hearing their stories
- I hope that it will be an enjoyable and interesting process to take part in!

7. What happens to the data provided?
There are two types of data:

3. **Research data:** this is the information you provide during the study

- I will ask for your permission to use direct quotes, which will be used under a **pseudonym**
- Myself ([redacted]) and my supervisor ([redacted]) will have access to the research data
- Responsible members of the University of Oxford may be given access to data for monitoring and/or audit of the research
- Will be stored for 3 years after publication or public release of the work of the research

4. **Personal data:** Any research data that identifies you, for example, your name, your child's school, audio interview recordings
   - Will be stored in a password protected folder on a password protected device for the duration of the study and will then be deleted when the study ends in August 2021.

14. Will the research be published?

Yes! It will be published in the following ways:

- **Student thesis:** This is the main product of my project for my master's thesis. After successful submission of the thesis, it may be put both in print and online in the Oxford University archives to facilitate its use in future research. Online, easy access for researchers to the full text of freely available theses increased the impact and use of that research.

- **Journal Article:** I hope to publish the study's findings in an academic journal, but this may be two to three years from the end of the study.

- **Online blog:** I will publish the findings in an online blog forum. I will email this to you and all participants.

Remember: I will ask for your permission to use any direct quotes, which will only be published under a pseudonym.

15. Who has reviewed this study?

This study has been reviewed by, and received ethics clearance through, the University of Oxford Central University Research Ethics Committee.

16. Who do I contact if I have a concern about the study or I wish to complain?

If you have a concern about any aspect of this study, please contact:

- [redacted] OR [redacted]

We will do our best to answer your question. We will acknowledge your concern within 10 working days and let you know how it will be handled.

If you are still unhappy or wish to make a formal complaint, please contact the Chair of the Research Ethics Committee at the University of Oxford who will seek to resolve the matter as soon as possible:

- **Name**: Jackie Bridges
- **Email**: student.curec@education.ox.ac.uk

17. Data Protection

The University of Oxford is the data controller with respect to your personal data, and as such will determine how your personal data is used in the study.

The University will process your personal data for the purpose of the research outlined above. Research is a task that is performed in the public interest.

Further information about your rights with respect to your personal data is available from http://www.admin.ox.ac.uk/councilsec/compliance/gdpr/individualrights/.

18. Further Information and Contact Details

If you would like to discuss the research with someone beforehand (or if you have questions afterwards), please contact:

[redacted]
Department of Education
University of Oxford
15 Norham Gardens
Oxford, OX2 6PY
Email: [redacted]

Appendix H: Teacher Consent to Record Form

<u>TEACHER</u> CONSENT FORM

Ethics Approval Reference: [redacted]

Digital Inclusion: Perspectives on special education practice during COVID-19 distance learning

By signing, you agree to take part in a study run by Oxford University looking at digital special education during the COVID-19 pandemic.

If you take part, you will be asked to participate in a remote interview and to help identify eligible students.

To find out more about the study, please read the attached information sheet. You can also e-mail us at [redacted] or call [redacted] on [redacted] if you have any questions.

If you are <u>happy</u> to take part, please fill in the form below and return it as soon as possible.

- -

Name of school: ____________________

I have read and understood the details of the above study, and have had the opportunity to ask questions and discuss the study with others. I have received satisfactory answers to my questions. I understand that the project has received ethics clearance through the University of Oxford's ethical approval process for research involving human participants, and I understand who will have access to the data, how it will be stored and what will happen to the data at the end of the study. I understand that participation is voluntary and that I am free to withdraw at any time, without giving any reason. I understand how to raise a concern or make a complaint.

Name of teacher: ____

Signature: ___________________________ **Date:** _______________

Appendix I: Parent/Guardian Consent to Record Form

<u>PARENT/GUARDIAN</u> CONSENT FORM

Ethics Approval Reference: [redacted]

Digital Inclusion in COVID-19 Distance Learning

- Your child's school has agreed to take part in a study run by Oxford University looking at digital special education during the COVID-19 pandemic
- If your child takes part, they would be asked to participate in a remote interview, followed by a survey
- **If you are <u>happy</u> for your child to take part, please fill in the form below and return it to the researcher or your child's teacher as soon as possible**
- To find out more about the study, please read the attached information sheet. You can also e-mail us at [redacted] or call [redacted] on [redacted] if you have any questions.

- -

Name of child: ______________________________ ______________________

First Name Last Name

Name of school: ____________________

I have read and understood the details of the above study, and have had the opportunity to ask questions and discuss the study with others. I have received satisfactory answers to my questions. I understand that the project has received ethics clearance through the University of Oxford's ethical approval process for research involving human participants, and I understand who will have access to the data, how it will be stored and what will happen to the data at the end of the study. I understand that participation is voluntary and that my child and I are free to withdraw at any time, without giving any reason and without my child's education being affected in any way. I understand how to raise a concern or make a complaint.

<u>I agree for my child to be audio recorded</u>	<u>Yes</u>	☐	<u>No</u>	☐
<u>I agree for my child to be video recorded</u>	<u>Yes</u>	☐	<u>No</u>	☐
<u>I agree for photos that my child submits to be used</u>	<u>Yes</u>	☐	<u>No</u>	☐
<u>I understand how audio recordings will be used in research outputs</u>	<u>Yes</u>	☐	<u>No</u>	☐

I give permission for my child to take part in the above study.

Name of parent/guardian: ____

Signature: _____ Date: _____

If you would like to receive the final report and a blog post about the research at the end of the study, please write your email address below:

_____

Appendix J: Data Protection Assessment Form (DPA) and DPIA Screening Assessment Form

Dear [redacted] and [redacted],

Thank you for submitting the DPIA screening assessment and DPA form. I have reviewed and approved both forms. Please see attached. I have made one minor amendment to the DPA form to specify the lawful basis for processing data (public interest task, which is one of the six lawful basis of GDPR).

I assume on the basis of the responses that CUREC approval has already been obtained.

In terms of next steps, you now need to request access to the MS Teams recording facility. The university requires that recording request forms are completed: https://help.it.ox.ac.uk/record-a-meeting-in-teams#collapse2355471 At the moment there is not a separate form for students. I have been advised that you can tick the 'staff' box, this has been agreed with the University Compliance team and central IT as an acceptable action once you have had your DPIA screening and DPA approved.

If you experience any difficulties, or have any further queries, please let me know.

I wish you all the best with your research.

Best wishes,
Lisa.

Dr Lisa Holmes
Associate Professor
Rees Centre, Dept of Education
University of Oxford
15 Norham Gardens

Appendix K: CUREC2 Approval Email

From: Social Sciences & Humanities IDREC <ethics@socsci.ox.ac.uk>
Date: Thursday, March 25, 2021 at 2:07 PM
[redacted]
Subject: CUREC 2 "Digital Inclusion in COVID-19 Distance Learning" - [redacted] - ethics approval, [redacted]

Dear [redacted]
Thank you for responding to the Committee's previous comments. On the basis of the information provided to the SSH IDREC, I'm pleased to let you know that your application has now been approved. Please could you send us clean copies of all your documents for our records? Please remove any comments and tracked changes and add in the ethics approval reference, which is [redacted]. Once you send us back the full set of finalised documents we will then issue the formal approval letter.
Best wishes
Jennifer

Jennifer Blaikie
Research Ethics Manager | Research Services
University of Oxford
Wellington Square, Oxford, OX1 2JD
T: +44 (0)1865 (6)16578 **E:** jennifer.blaikie@admin.ox.ac.uk
https://researchsupport.admin.ox.ac.uk/governance/ethics