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The Educational Response to COVID-19 Across Two Countries:

A Critical Examination of Initial Digital Pedagogy Adoption

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Abstract

In spring 2020, K-12 schools adopted remote learning amidst the COVID-19 pandemic. Using activity theory, we examine the educational response to this global health crisis in the United States (U.S.) and the United Kingdom (U.K.). Data are drawn from 3-4 key news media publications in each country between February 1 - May 31, 2020. We critically examine the tensions and contradictions within and between interrelated systems (schooling, educational policy, homelearning). We consider how remote digital pedagogy was perceived and enacted by different stakeholders: teachers, parents, policymakers. Tensions arose between digital pedagogy, system rules, and teachers' digital skills, leading to different experiences for students. The division of labour shifted; parental responsibility for managing their children's learning increased. Digital equity issues prevailed in both countries (technology access, social support), disadvantaging students from low-income families. National educational policy system responses were more coordinated in the U.K. than in the U.S..

Introduction

On February 11, 2020 the World Health Organization (WHO) announced a coronavirus outbreak, first identified in Wuhan, China: *coronavirus disease 2019* (COVID-19). It has been detected in almost all countries. Its impact on public health, the economy, and education is unprecedented. In this article, we examine the educational response to this global public health crisis in the United States (U.S.) and the United Kingdom (U.K.), two of the top 20 most infected nations and among the top five in highest cumulative death totals (WHO, 2020). It is worthwhile examining, and then comparing, the U.S. and U.K's educational responses to the COVID-19 pandemic because the devolved responsibility of education in the U.K. is comparable to the federal and state approach in the U.S., as described in more detail below, and students in these countries perform similarly on large scale international assessments (e.g., Schleicher, 2018). Education shifted to remote learning for the majority of students in both nations.

In the U.S., education is primarily a state and local responsibility. States and communities, as well as public and private organizations, establish schools, develop curricula, and determine requirements for enrollment and graduation. The U.S. federal government also distributes funding to school districts that follow federal guidelines. The National Education Technology Plan (USDOE, 2017), revised periodically but not updated since 2017, is the flagship educational technology policy document for PK-12 education. It articulates a vision to make everywhere, all-the-time learning possible while acknowledging the continuing need to ensure equitable access to technology. The Plan focuses on providing high quality technology-enhanced learning experiences facilitated by infrastructure, teacher professional development, and leadership in schools. It does not fully address students' or teachers' remote, online learning

within out-of-school ICT infrastructures, nor preparedness for emergency remote education on a national scale (USDOE, 2017).

The four nations of the U.K. (England, Scotland, Wales, Northern Ireland) have devolved responsibility for education, each having its own funding stream, educational policies and curriculum, with educational technology embedded in each nation's strategy. For example, England (DfE, 2019) and Scotland (The Scottish Government, 2016) have policies to positively impact learning outcomes and to ensure access for all. However, as in the U.S., no policies make provision for online learning or emergency remote education. Policy initiatives in the mid-2000s promoted technology use with many schools establishing learning platforms. Indeed, three nations (although not England) created a national learning platform (e.g. Glow in Scotland), which provided guidance and resources for online learning for teachers, students, and parents in response to school closures.

As schools closed and shifted to operating remotely in spring 2020, frequently employing technology-enabled pedagogy, we investigated how education and related systems responded; how educational technology policy was enacted; and how remote online education emerged. We examine the educational response to the COVID-19 health crisis in the U.S. and U.K. as documented in prominent news media articles and through activity theory. Data are drawn from 3-4 key media publications in each country (e.g., *The New York Times, Education Week* in the U.S. and *The British Broadcasting Corporation* in the U.K.) between February 1 - May 31, 2020. This paper critically examines the tensions and contradictions within and between interrelated systems (schooling, educational policy, homelearning) arising from the radical educational response to the crisis. In particular, we consider how the shift to digital pedagogy was perceived and enacted by different stakeholders: teachers, parents, and policy makers. Digital equity and

increased parental responsibility created new tensions in the rapidly evolving schooling activity system. To start, we provide an overview of relevant literature and activity theory that informed our study before turning to an explanation of our methods and presentation of findings.

Related literature

We briefly summarize research relevant to this examination of the remote learning activity in response to the COVID-19 pandemic: online learning; digital equity; and parental engagement. Remote learning was supported online. Digital equity issues were foregrounded as many students did not have access to required technology or had to share it with their siblings/parents. Additionally, parents took on new roles and responsibilities shifting requirements for parental engagement.

Online learning

Research syntheses suggest that well-designed online learning can provide as good, or improved, student learning outcomes compared to traditional classroom-based instruction (EEF, 2020; Means et al., 2009; Protopsaltis & Baum, 2019). Through meta-analyses, Means and colleagues (2009) found that "on average, students in online learning conditions performed modestly better than those receiving face-to-face instruction" (p. ix); however, they acknowledge it is unclear whether their findings are wholly applicable to K-12 settings. In addition, online learning quality can vary dramatically (Bueno, 2020).

Designing frequent, direct, and meaningful *interaction* is critical (EEF, 2020; Protopsaltis & Baum, 2019; Tallent-Runnels et al., 2006). In online learning environments with little student-student, student-instructor, and student-content interaction, students are more likely to become disengaged and drop out (Protopsaltis & Baum, 2019; Tallent-Runnels et al., 2006). Fully online

courses with little high-quality interaction also contribute to attainment gaps across socio-economic groups (Protopsaltis & Baum, 2019).

Evidence suggests there is no difference between synchronous and asynchronous online teaching (EEF, 2020). Rather, teaching should be high quality and include explanations, scaffolding, and feedback. Research suggests that, to be most effective, learning environments should include asynchronous online elements enabling students to proceed at their own pace whenever convenient and have some choice over their learning (Means et al., 2009). Asynchronous elements should be combined with synchronous activities; students online should be interacting with other students, their teachers, and content, with interdependence in cooperative learning and continuous formative feedback (Means et al., 2009; Protopsaltis & Baum, 2019). Evidence suggests that "peer interactions can provide motivation and improve learning outcomes" (EEF, 2020, p. 4). To design and implement these quality online environments, teacher training and support are crucial (Tallent-Runnels, et al., 2006) but to date, such provisions have been limited (Moore-Adams et al., 2016).

Digital divide and digital equity

Even when online learning is well designed, students can experience it very differently. Students with extensive technology experience, strong academic backgrounds, and self-directed learning skills tend to do better in fully online learning situations, whereas students who are already vulnerable face greater challenges (Dynarski, 2017; Protopsaltis & Baum, 2019). Students who are disadvantaged (i.e., from low-income families; in the UK this also includes children in care or adopted from care) are more likely to have no or low-quality internet access (Livingstone & Helsper, 2007). Digital divides go beyond access to technology and other binaries and should be conceptualized in more sophisticated ways, on a continuum (Dolan, 2016;

Livingstone & Helsper, 2007). Even when disadvantaged students have digital access, they are more likely to have insufficient digital skills, make narrow uses of the internet and adopt fewer opportunities offered (Livingstone & Helsper, 2007; Wilkin et al., 2017). Policy initiatives have continually been established in the U.K. and U.S. to address these access issues (Becta, 2008; Federal Communications Commission, 2016). However, digital exclusion does not always align with boundaries of socioeconomic status or with digital competency; it can also be experienced by students from any background for a variety of reasons (Clarida et al, 2016; Longley & Singleton, 2009). Students with special educational needs, for example, also face accessibility issues, and teachers do not always consider inclusive digital pedagogies (Cranmer, 2020). Working under different socio-technical conditions (e.g., lack of social support) may also result in vastly different educational experiences (Hargittai & Walejko, 2008; Warschauer & Matuchniak, 2010; Warschauer & Tate, 2018).

Parental engagement

Goodall's (2020) literature review showed that parents' actions make a difference for students' home learning; even showing interest in their children's homework communicates the value of learning. Clausen et al. (2020) surveyed U.S. teachers during COVID-19, focusing on communication with students (aged 12-18) and parents. They found that teachers were unable to contact most of their students and that parents were often unaware of assignments. In contrast, Szente (2020), studying parents of toddlers and pre-school children, found that teachers were able to stay connected with parents through daily, synchronous online sessions. They described teachers' patience working with parents, from troubleshooting technological issues to understanding absences. Lewin and Luckin (2010) re-visited two projects where schools (students aged 5-11) provided educational technologies for parental engagement. They

concluded that parents require support and guidance to facilitate home learning through technology. Providing instructional videos for parents may be one solution (Smith and Colton, 2020).

However, barriers exist, including time constraints for both parents and teachers, lack of digital infrastructure, parents' concerns about children's online learning, family factors (e.g. divorce) and societal factors (e.g. racism) (Borup et al., 2015; Hornby & Blackwell, 2018; Kong, 2018). Kong (2018) recommended that parents should exercise agency in monitoring and supporting their children's online learning (e.g., establish rules for daily activity and technology use). Ultimately, successful remote online learning requires a partnership between schools and parents, as well as parental peer support (Kong, 2018).

Theoretical framework

Activity theory lends itself to studying educational technology (e.g., Hauge, 2014; Marwan & Sweeney, 2019) highlighting the tools used to mediate activity, accounting for collective endeavours, and revealing contradictions which can stimulate system development. Third-generation activity theory (Engeström, 1987, 2001), moving beyond a focus on single activity systems, provides a way of analyzing the interactions between multiple co-existing and overlapping education systems sharing the same object. Building on Vygotsky's (1978) theory of mediated object-oriented behavior, *rules* (explicit/implicit norms, values and expectations), the *community* sharing the object, and the *division of labor* between community participants are considered. This enables human activity to be explored, whilst accounting for the mediating role of tools and artefacts including digital technologies. Activity theory "draws attention to agentic humans inquisitively exploring and strategically instrumentalizing digital technologies to extend their native capacities for achieving goals" (Blayone, 2019, p. 452). Thus, the activities of

schools, teachers, learners, and parents can be understood in relation to the COVID-19 emergency response and continuing to educate young people, shaped by national, regional, and local policy guidance.

Contradictions are central to activity theory (Engeström 1987), being "historically accumulating structural tensions within and between activity systems" (Engeström, 2001, p. 137). An activity system is never considered to be a fixed entity but is always in a constant state of flux (Engeström, 2008), changing in response to tensions and contradictions (Engeström, 2008; Engeström & Sannino, 2010). The radical shift to remote learning in spring 2020 created numerous contradictions. Educational systems underwent rapid and 'expansive transformation' (Engeström 2001), with previously dominant practices necessarily, and immediately, dropped to address the need to socially distance. Pedagogic goals were enacted with fewer rules, an increasing reliance on new tools and artefacts, and significant changes to the division of labor. These rapid changes to schooling motives meant that schools had to constantly review and refine how they continued to deliver the curriculum (or not) to their students as new contradictions emerged. Cultural norms such as school attendance requirements, timetables, and assessment no longer constrained system changes as they had done previously (Engeström et al., 2002). In addition, the multivoiced nature of systems (Engeström, 1987; Engeström et al., 2015) meant that community members (including parents and students) understood the object of the new system differently, affecting levels of engagement in remote learning by all stakeholders.

Methods

We turn now to the two questions guiding our inquiry: 1) What was the educational response to COVID-19 *within* each of our two nations (i.e., United States and United Kingdom); and 2) How did the educational response to COVID-19 compare *across* these two nations? To

answer these questions, we adopted a qualitative case study approach in the interpretivist paradigm (Glesne, 2016). Case study is an appropriate method for studying policy responses to educational crises because it allows for rich interrogation and cross-case comparisons (Yin, 2014). Cases were bound by country context. Furthermore, we employed document analysis, a qualitative research method particularly complementary to case studies of an event in time or single phenomenon (Bowen, 2009; Merriam, 1998). Document analysis entails a systematic procedure for reviewing or evaluating documents—printed or electronic—which can aid the researcher in understanding and developing insights (Bowen, 2009). It has been used in educational research to examine educational technology integration (Angers & Machtme, 2005; Wilder et al., 2009), public discourse on educational problems (Yettick, 2015) and other phenomena, events or cultures (Bowen, 2009). For instance, Yettick (2015) analyzed media publications to understand the incorporation of educational research was incorporated in news reports about education (Yettick, 2015). Advantages to document analysis are that it may provide better or more data than other approaches or may be the only means of studying certain problems (e.g., documents may be the only viable source of information when a situation is unfolding rapidly) (Merriam, 1998, p. 125). Concerns about the authenticity or accuracy of documents are risks to employing this approach (Bowen, 2009; Merriam, 1998).

Data collection

We drew samples from news media coverage in the U.S. and U.K., defined as print or online news media articles, opinion pieces, columns, and editorials about K-12 education, and referred to as "items" (Yettick, 2015). The news media outlets selected contained articles on education for all four devolved nations in the U.K. or all 50 U.S. states. All items appeared during February 1-May 31, 2020, enabling initial educational responses to the pandemic to be

explored in depth. The earliest U.S. article selected was dated February 27, 2020 and from the U.K was dated March 7, 2020. These preceded the WHO's characterization of COVID-19 as a pandemic on March 11, 2020 and the closure of all public and private Washington state K–12 schools on March 13, and all U.K. schools on March 20, 2020.

To understand the U.S. educational response, *The New York Times, The New York Times Learning Network, Education Week,* and *The Conversation* were searched. *The New York Times* is a widely subscribed, award-winning news outlet with objective reporting standards (according to its journalism guidelines), although characterized as left-leaning (Lischka, 2017). Its *Learning Network* supplement targets educational professionals. *Education Week* is an influential information source for K-12 educators, policymakers, academics, journalists, and others interested in education-related practice and policy (Swanson & Barlage, 2006). *The Conversation* is an independent news source and platform for public discussion grounded in academic research (according to its community standards).

To understand the U.K. educational response, the *Tes* (previously the *Times Educational Supplement*), *The British Broadcasting Corporation* (BBC) and *The Guardian* were searched. *Tes* targets educational professionals, the *BBC* offers independent and impartial news coverage (according to its editorial guidelines), and *The Guardian* is a highly regarded newsbrand (Bold, 2018) with good coverage of educational issues, although also left-leaning (Mayhew, 2017).

An initial 434 articles were identified using different search strategies and tools according to the publication, using keywords such as 'education', 'school', and 'online.' Articles were then screened for potential inclusion. Selection criteria were that articles had to address K-12 education and relate to home access to technology and connectivity or digital pedagogy (including asynchronous and synchronous communication), supporting learning in the home,

new educational support services, remote learning-related policy moves, e-safety issues, special needs and remote learning, or teachers' or parents' experiences of remote teaching and learning. Excluded articles concerned higher education, K-12 school closures/reopening, guidance on specific digital tool use, and general well-being (including food vouchers for disadvantaged students). A total of 255 articles were deemed relevant. Table 1 displays the number of items from each source selected for analysis.

Table 1. Items selected for analysis from each publication source

Publication	Number of items analyzed
The New York Times	41
The New York Times Learning Network	9
Education Week	44
The Conversation	12
Tes (previously *Times Educational Supplement*)	101
The British Broadcasting Corporation (BBC)	24
The Guardian	24

Data analysis

A coding schema was derived from a priori codes from activity theory together with open codes. Activity theory codes included tools (e.g. technology, pedagogy), rules (e.g. guidance on required study time), division of labor (e.g. parents as teachers), subjects (e.g. students, parents, teachers) and systems (e.g. school, home, policy). Open codes included article topic, type of article (e.g., opinion, research, actual practice), the author if other than journalist (e.g., teacher or parent), and descriptive codes of the article's main topic. Articles could fall into more than one category. To reduce bias we used both a priori and open coding, relied on more than one media

source, gathered documents from different points in time, and engaged in peer review, triangulating researchers' perspectives by comparing the coding of the first and second author to ensure that the analysis was not confined to one perspective (Saldana, 2016; Tracy, 2016; Yardley, 2015). Specifically, we held regular meetings to discuss emerging codes, identify potential themes, clarify or make modifications, to increase consistency and coherence of the analysis (Tracy, 2016; Yardley, 2015). Within U.S. media sources, the majority of articles addressed digital pedagogy (47) followed by policy issues (22), digital equity (16) and home learning (15). Within U.K. media sources, as for the U.S., the majority of articles addressed digital pedagogy (57) followed by digital equity (36), home learning (36) and policy (20).

Educational response to COVID-19

We now compare and contrast the two contexts. The U.S. began K-12 school closures at the state level on March 10, 2020, and within two weeks most states followed suit. By the end of April, many states had announced schools would remain closed until the academic year's end. Funds were made available for education at the end of March. No national or state initiatives were established to help teachers and parents transition to remote schooling.

In contrast, the four nations of the U.K. closed all schools on March 20th. Initiatives were created to support access to technology for disadvantaged students, teachers who were struggling to switch to digital pedagogies, and parents supporting their children's learning at home to a greater extent. Support structures were put in place through government funding but also grassroots responses from teachers and education-related organizations.

Four overarching tensions surfaced in the educational response to COVID-19, as reported in the news media. These relate to: 1) digital pedagogy; 2) parents-as-educators; 3) digital equity;

and 4) educational policy. We briefly summarize each theme in the sections below, commenting on the situation in the U.S., the U.K. and then comparing and contrasting the two contexts.

Digital pedagogy

U.S.: Tensions between tools, routines, and rules

U.S. teachers' rapid move to put curriculum online highlighted tensions with pre-COVID classroom tools, routines, and school system rules. Although most teachers (94%) moved to online teaching (Kurtz, 2020), in contrast to pre-COVID classrooms, these new instructional practices included little synchronous interaction between teachers and students, reduced emphasis on assessment, new attendance expectations, and a change in teacher workload. The lack of discussion in the U.S. news media on teacher preparedness or training for the rapid shift to remote and online education was notable, although one article mentioned school districts' varied "no one-size-fits-all approach" to professional development for educators trying to adjust to digital pedagogy (Rauf, 2020).

First, according to national surveys of K-12 educators, most U.S. teachers moved to online teaching with 42% offering a mix of online and printed material (Kurtz & Herold, 2020). Teachers put materials online rather than replicating routines, rules, and tools of in-person instruction. Unlike synchronous interactions that typically occur when teaching in-person, teachers interacted with classes mostly asynchronously. Most (86%) reported using email, posting online (69%), using instructional videos (46%) or text messaging (43%). The majority (58%) reported using online synchronous video-conferencing (e.g., Zoom; Kurtz, 2020), which raised a number of data security and privacy issues for districts without contracts or a coordinated technology integration plan (Lieberman, 2020). Interestingly, only 35% reported using a *learning management system* (Kurtz, 2020). The reported level of interaction increased

from March to April while the proportion of teachers reporting a lack of student engagement also increased (Edweek Research Center, 2020).

Second, the rapid shift to remote instruction was accompanied by confusion about whether and how to hold students accountable for their learning, and whether to teach new material (Daniels, 2020; Doyne & Gonchar, 2020; Goldstein, 2020). By the end of the school year, over 35% of teachers surveyed said that students' work performed during school closures would not count toward their final grades, an increase from a quarter of teachers reporting this at the start of the shutdown (Edweek Research Center, 2020).

Third, revised attendance rules, along with reduced teacher-student interaction and assessment, contributed to teachers' perceptions that students were less engaged in post-COVID classes. U.S. teachers reported that one fifth of students were "truant" during closures (i.e., not logging in, not making contact), and this was most pronounced for low-income students, with about one third not participating in remote learning, compared with 12 percent in more affluent districts (Kurtz, 2020). Some teachers grieved losing touch with their students: "I'm sorry I'm crying, but just to be with them, their little faces, every day, in person, I miss that so much," commented Shaw, a first grade teacher (Gewertz, 2020). Shaw holds evening "circle time" on Zoom but cannot get the kind of connection she is used to with each student when they are physically in her classroom.

Fourth, news media reported teachers' perceived change in their workload toward more technology trouble-shooting and parent communication as parent emails to teachers increased and parent involvement in the school system necessarily expanded (Goldstone & Shapiro, 2020). Teachers struggled with workload re-balancing, as one teacher reported: "I've been staring at a

computer for eight solid hours, my eyes are strained… and I have to keep reminding myself, all this is new…we are all learning, and it will get easier, I hope" (Gewertz, 2020).

U.K. Multiple tensions arise across all nations

Three key issues arose in the U.K. First, a well-established contradiction existed between the object of digital pedagogy and teachers' limited skills and experience. The rapid shift to remote learning highlighted this although research suggests teachers in the private sector and serving more advantaged children were better prepared (Speck, 2020b). Unsurprisingly, it was argued that teachers needed training (Bray, 2020) with the 'EdTech Demonstrator' schools, a pre-existing English policy initiative, refocusing from the classroom to remote learning (Lough, 2020b). However, in response to the overnight switch to remote teaching, teachers rapidly developed skills and adapted pedagogies (Enser 2020) with many perceiving a positive impact on future teaching (Speck, 2020c). Resistance was not an option and the contradiction forced a system change.

Second, the possibility of live, synchronous lessons for teaching online was in tension with safety issues. Concerns about 'zoombombing' or children's inappropriate behavior meant schools were more cautious about supporting live lessons (McDaid, 2020). External organizations (e.g. teachers' unions) advised against teachers live-streaming from home, recommended parental supervision, and suggested live lessons were inappropriate for children aged 5-11 (Gibbons, 2020d; Lough, 2020a).

An alternative was pre-recorded lessons, but these were time-consuming to create, demanding skills such as screen-casting and video-editing. However, this approach was considered more manageable than live-streaming whilst maintaining some teacher presence, and students could access learning material anytime (Riches, 2020). The quality of teaching was

considered more important than the delivery mechanism (EEF, 2020); research evidence challenged the superiority of live lessons (Gibbons, 2020e) and the benefits of pre-recorded lessons were recognized (Enser, 2020). However, pre-recorded lessons did not offer potential for social interaction.

Third, there was a tension between replicating classroom interaction and safe-guarding rules, and also with students' unequal digital access. Many educational professionals recognized the importance of human presence and contact (Maclennan, 2020):

> ...where teachers take just a little time out to bring their class groups together over a *synchronous* video call, to read a story together, talk about life or share what they've been learning in real time, a little bit of magic happens (McIntosh, 2020).

Written communication does not offer non-verbal cues that students (Speck, 2020a) and teachers (Enser, 2020) receive in classroom contexts. One teacher, lamenting limited opportunities for interaction online, argued that the essential ingredient of teaching was missing (Brighouse, 2020). Indeed, students similarly found the lack of interaction frustrating:

> The pandemic has made me realise how much students take teachers for granted. Now, if I'm stuck on a piece of work, I can't just put up my hand and ask for help. [...] not being able to get an instant response has been one of the hardest challenges (Spoerry, 2020).

Some schools mandated live lessons to provide interaction (Seith, 2020) but this was not commonplace, particularly in state schools. Schools also limited opportunities for online interaction because of concerns about unequal access to technology and widening the knowledge gap (BBC, 2020). Thus, schools serving more disadvantaged students were less likely to deliver live lessons (Speck, 2020b); disadvantaged students experienced less interaction than their more advantaged peers.

Digital pedagogy across countries: interaction and engagement issues

In both countries, schools had freedom in how to respond to the emergency. Notably, levels of interaction dropped in many schools in both countries, for similar reasons. As schools and teachers developed remote learning provisions, technology-enabled interaction increased slightly. In the U.K., support for digital pedagogy was provided within and across the four nations (e.g., the Oak National Academy, national learning platforms). Live teaching, offering the most opportunities for interaction, was more commonplace in the U.S. (58%) than in the U.K. (24%, Lucas et al., 2020), reflecting different stances to safety and privacy issues (rules of the activity system).

Low student attendance was a concern shared in both countries. Teachers and parents in the U.K. noted the lack of engagement of students and its impact on learning habits and aspirations, particularly for boys (Petty, 2020; Sellgren, 2020). Disadvantaged students in both countries were noted to be less engaged than advantaged students (for various reasons including limited technology access), contributing to divide issues.

What were considered to be important issues and reported differed. Day-to-day assessment and accountability for remote learning was a key discussion topic in the U.S. but relatively absent in the U.K. where the removal of the high-stakes assessments for students aged 16 and 18 in 2020 was a bigger concern. However, there were no national expectations (rules) in the U.K. that schools should continue to assess students to provide accountability data nor any rules requiring students to engage with the work being set by their teachers. Similarly, U.S. articles discussed the changes in division of labor for teachers, with a shift towards trouble-shooting and parent communication, but such conversations were not explicitly highlighted in

the U.K. literature. Finally, a prominent U.K. topic: teachers' lack of digital skills was less prominent in the U.S., despite being a known challenge globally.

Parents-as-Educators

U.S.: Division of labor tensions

With school closures, the labor of educating students was shared with parents as schools and teachers relied on them to oversee educational activities at home. This division of labor redistribution in schooling and home systems was fraught with tensions. Reports noted parents trying to cope whilst working remotely (Bennett, 2020). As one parent remarked: "I'm making a good faith effort to do the work that's been sent home, but that does not come…anything near what would have been a school day. After accomplishing the bare minimum, the agenda is to survive and watch too much TV" (Weiner, 2020). Articles acknowledged that the new division of labor was uneven, as only some family members have the time or educational/knowledge expertise to fulfill the role. Research reported in the news media suggests that parents with higher education levels contribute more than parents with lower education levels to raising student performance, even in ordinary circumstances (Hill & Loeb, 2020).

Research on parents as educators offered some guidance (Hill & Loeb, 2020) as did practicing teachers (Hill, 2020) and parents who were home-schooling their children pre-pandemic (Daley, 2020), but this guidance was filled with contradictions. For instance, Hill and Loeb (2020) emphasized that teachers should provide simple scaffolds and more structure for parent-tutors; they recommended that parents use proven curriculum, such as Khan Academy, to meet their child's learning needs (Hill & Loeb, 2020; Oreopolis, 2020). Practicing teachers suggested designating a 'school area' and creating a schedule akin to the school day (Braff, 2020; Hill, 2020). Parents who home-schooled advised against replicating the school timetable or

utilizing pre-packaged curriculum, instead advocating flexibility, spending just 3.5 hours daily on home-learning, and hiring expert tutors (Daley, 2020).

UK.: New roles created new tensions

Parents nationwide took on new roles with more responsibility for managing learning resting with parents while teachers retained responsibility for pedagogy, planning the curriculum and developing learning resources. Schools responded differently in terms of expectations and support. Parents were portrayed as teachers and 'homeschoolers' (Gibbons, 2020b; Richardson, 2020) whilst also receiving messages to the contrary (Gibbons, 2020b). For example:

Banks [primary/elementary school teacher] [...] says it should be made clear that no parent is expected to take on the role of a teacher. (Hallahan, 2020a)

Research suggests that 42% of parents did not feel confident 'teaching' their children at home (Gibbons, 2020b) and found it difficult to undertake this new role (Tes Reporter, 2020b). Additionally, they were faced with competing demands from other activity systems (e.g., working from home) (Richardson, 2020; Weale, 2020).

"I had rather naively hoped that I could get the younger two to work through a page or two of their home-learning packs with minimal supervision, allowing me to read or reply to a few work emails," she said. "The reality has been somewhat different" (Richardson, 2020).

One benefit of increased parental involvement was the increasing respect for teachers and schools as parents got a deeper insight into schooling (Trafford, 2020; Weale, 2020).

Both nations experienced shifts in the division of labor but manifested differently

In both countries, there was a significant change in the division of labor with parents becoming more responsible for managing their children's learning, and those with younger

children taking on more of a teaching role. This shift was not easy for parents; many struggled with limited knowledge of how to approach it and with other activities (e.g., working from home) demanding their time.

Articles presented advice and guidance for parents in both countries and guidance for schools on supporting parents, with notable inconsistencies in the U.S. In contrast, the U.K. presented a more coordinated response for supporting parents with many organisations providing advice, guidance and resources. For example, the BBC (amongst many other education-related systems) provided various resources specifically targeting parents, a national helpline for parents was established in April 2020, and a "national home learning support service" was launched (Adams, 2020).

Digital equity

U.S. Tensions between technology access, use and instructional supports

The pandemic exposed and deepened inequities that have plagued U.S. education (USDOE, 2017). Two surveys of more than 2,600 teachers and school district leaders, administered online by the Edweek Research Center in March and April, along with other news articles, revealed various digital equity issues. First, students' lack of technology access was a major challenge, as reported by 64% of school district leaders in low SES districts compared to only 21% of leaders in affluent school districts (Herold, 2020). Two of the biggest hurdles were an inadequate number of digital devices for students and families' lack of high-speed internet (Rauf, 2020). Many schools distributed devices to students who needed them, but this was hindered by a supply backlog, especially Chromebooks (Goldstein, Popescu & Hannah-Jones, 2020). Although numerous districts partnered with internet service providers to expand access to free or low-cost connections, solving connectivity issues was not easy (McCabe, 2020). Others

called for a more systematic effort to close the digital divide: a Federal Communications Commissioner said "We have the authority right now to extend the reach of broadband and close the 'Homework Gap' so we connect millions of children who desperately need to get online for school" (Herold, 2020).

Second, when schools closed, there were disparities between low and high SES school districts relating to teachers engaging in instruction, the proportion of students showing up, the type of instruction students encountered, and the approach to distributing schoolwork. When schools closed in March 2020, 89% of teachers in wealthy districts reportedly engaged in instruction, compared to only 67% of teachers in schools serving more disadvantaged students (Herold, 2020). Moreover, teachers in the highest-poverty schools reported that a third of their students were not engaging, a percentage three times higher than that of teachers in affluent schools (Herold, 2020; McCabe, 2020). In addition, teachers in affluent schools (29%) were more likely to offer live, online synchronous instruction than teachers in high-poverty schools (14%) were (Herold, 2020), exacerbating differences in the type of digital pedagogy (Means et al., 2009; Protopsaltis & Baum, 2019). There were also big differences relating to schoolwork distribution. Teachers in districts with high-poverty schools were equally likely to report collecting/returning work online and distributing work packs in person. In wealthy districts on the other hand, most teachers (69%) reported distributing work online, while just 14% said they did so in person (Herold, 2020). Access to internet and digital devices in students' and teachers' homes played a role in these different experiences of emergency remote schooling (Will, 2020). Additional digital equity issues reported in the U.S. news media addressed language barriers and special education students (Levine, 2020; Mitchell, 2020; Rani, 2020).

U.K.: Greater emphasis on digital technology tools in tension with nationwide digital poverty

Teachers reported that 15% of disadvantaged students would not have access to appropriate digital technology (Greenwood, 2020). A program to provide 200,000 disadvantaged students with access to laptops and connectivity was launched in England (Coughlan, 2020) targeting those aged 14-15. However, there were calls to extend the scheme with an estimated 700,000 students not having home access (Greenwood, 2020). Similar schemes were set up in the other nations. In Wales (BBC, 2020) it was recognised that 'digital exclusion,' including lack of connectivity, applied to many families, not just those classed as disadvantaged. Laptop provision was also offered by charities (Meredith, 2020) and individual schools (Riches, 2020).

Furthermore, providing technology to address digital poverty did not resolve the problem. Students needed parents/caregivers with time, skills and willingness to provide home learning support. Students from disadvantaged backgrounds were less likely than their more advantaged peers: to receive such support (Gibbons, 2020b), have access to educational resources (Gibbons, 2020b), have their own study space (Adams & Stewart, 2020) or to spend as much time learning as those from advantaged backgrounds (Tes Reporter, 2020b). Significant concerns were continually raised that the gap between disadvantaged and advantaged students would widen during the COVID-19 crisis (Lough, 2020d).

Similar digital equity issues

Both nations experienced tensions between increased reliance on digital technology tools and digital equity issues; these tensions manifested similarly but produced different responses. Lack of internet and device access affected students in high-poverty and rural-area schools within both countries. News articles in both countries acknowledged that digital inequalities also arose from the lack of social support for educational technology use, which privileged students' with available, tech-savvy caregivers with higher education levels, while disadvantaging students

without them.

Moreover, both countries reported the tension between digital pedagogy best practices, with its emphasis on frequent interaction, and enacted pedagogy, with a higher proportion of students from low-income/disadvantaged families in both countries less likely to experience live, synchronous online lessons, due in part to technology access and support issues. In both countries the educational response to COVID-19 was perceived to exacerbate existing educational inequities and widen the knowledge gap between advantaged and disadvantaged students.

Educational Policy

U.S.Policy tensions: A very uneven picture

The U.S. localized approach to addressing the public health crisis impacted education. Decentralized decision-making in the educational policy system led to variation in school responses (Barry, 2020). For instance, a "cascade" of public school closings preceded the federal government's advice (Green, 2020a). The U.S. Centers for Disease Control and Prevention advised schools on March 13 that eight weeks' closure might contain the coronavirus. The USDOE announced that it would relieve school systems of some responsibilities, including waivers for state-administered tests and measures of school effectiveness, such as chronic absenteeism.

Facing parental pressure, conflicting messages from experts, and silence from the federal government, school district leaders moved on their own, but an analysis of 50 states revealed that most had few requirements for how districts should develop online learning (Schwartz, 2020). As limits on public gatherings were decided by individual states and counties, and school closures differed by individual school districts, there was confusion and frustration as this parent

voiced: "We've got a wildfire on our hands...the job should be done by the federal government...That's one of the reasons we have a federal government...this is an emergency...The most confusing thing to my kids is, why is the N.B.A. canceling, and Disneyland, but my school is still open? It doesn't make sense" (Barry, 2020).

At March's end, the U.S. federal government allocated $13.2 billion to K-12 schools. This amount was distributed to states (with more for those with more high-poverty schools) which then distributed it to school districts to help address COVID-19's impact. Schools were to use funds to continue providing educational services (e.g., remote and online learning), target needs such as digital access, and develop and implement plans for returning to normal.

Tensions between educational policy and schooling systems also surfaced in March and April as schools were writing policies for transitioning to remote learning. Only 17 states recommended a length of time that students should be engaged in remote learning; guidelines varied, but were generally progressive through the grade levels, starting with about 30 minutes a day for preschoolers and up to four hours for high school students. Only half of states required school districts to submit their continuous learning plans for review - documents outlining platform and resource usage, special population considerations, monitoring engagement or attendance, and assessment strategies (Schwartz, 2020).

U.K. Interactions with external education related systems

The four national education policy systems responded in similar ways, but notably England had not established a national learning platform pre-pandemic. The other three nations built on existing national learning infrastructures. For example, the Welsh national learning platform was extended to provide remote learning resources, guidance for parents and caregivers, and guidance for school staff (e.g., on live-streaming lessons; Hallahan, 2020b).

Each nation funded laptops and internet access for disadvantaged and vulnerable children as noted above. An online school was launched in April (Oak National Academy) providing resources created by teachers (in England, but freely accessible to anyone), including for children with special needs and disabilities (Gibbons, 2020c; Lough, 2020c). Each lesson included teacher-led video explanations, worksheets and quizzes. While the resources were critiqued for their limited interaction (Gibbons, 2020c), they were welcomed, particularly by primary schools.

Similarly, the BBC launched a 'comprehensive package' of educational material from April 2020 involving celebrities, established presenters and over 200 teachers (Gibbons, 2020a; Milne, 2020). This included daily releases of 20-minute TV programs, online content, podcasts and guidance targeting both students and parents. In addition, existing resources were curated and made more accessible. However, some questioned the likely uptake:

> the public broadcaster may find that some homeschooling habits have already set in by the time the programmes launch, a month into the lockdown. Many parents have turned to existing online learning resources, while some schools are still providing material to pupils, and there has been a boom in educational material on YouTube. (Materson, 2020).

Nevertheless, it was noted that providing educational resources via TV channels was a step toward addressing digital poverty issues (Tes Reporter, 2020a).

Divergent policy solutions

Although both nations prioritized providing technology access to students who needed it, the U.K. did so at national level. In contrast, the U.S. adopted a decentralized approach, leaving it to state educational agencies, local school districts, and internet service providers to help resolve digital inequities. Overall, the national educational policy system response was more

prominent, coordinated, and influential in the U.K. than it was in the U.S. where federal, state, and local policies were unfolding simultaneously and not always aligned

Discussion

We now consider what we can learn when the object of the interconnected educational systems shifts from in-person education to remote online education. Identifying tensions in and between activity systems reveals challenges that need to be addressed in order to improve potential learning outcomes. In comparing and contrasting the responses in both countries, we have identified four key themes: digital pedagogy, changes in the division of labor, digital equity issues and educational policy.

Firstly, digital pedagogy adoption varied across both countries, and notably between schools serving advantaged and disadvantaged communities (in relation to household income). Email was the most commonplace tool that was used to communicate with pupils in both countries (86% in both the U.S., Kurtz & Herold, 2020, and U.K., Lucas et al., 2020). Use of pre-recorded instructional videos and live teaching varied between the two countries. In the U.S. live teaching (58%) was more commonplace than pre-recorded instructional videos (46%) (Kurtz & Herold, 2020). In contrast, teachers in the U.K. reported using pre-recorded instructional videos (64%) more often than live lessons (24%) (Lucas et al., 2020). Teachers of younger children rarely used live lessons in the U.K. (Moss et al., 2020) and initially only 34% of students were reported as engaging in any form of online lesson (live or recorded) (Cullinane & Montacute, 2020). This perhaps reflects greater concerns in the U.K. about safety issues. Interaction in digital pedagogy is critical (EEF, 2020; Protopsaltis & Baum, 2019; Tallent-Runnels et al., 2006). Research conducted during the pandemic suggests that high levels of interaction are associated with high levels of engagement (Lucas et al., 2020). Interaction in the

first three months of school closures dropped rapidly as schools and teachers struggled to develop new skills, account for safety requirements and facilitate access to technology or the internet. As schools continue to offer either remote or blended learning, more opportunities for students to interact with their teachers and their peers are required. This can happen synchronously through video-conferencing, online break-out rooms for groupwork, teachers polling students for their understanding in real-time, via social media, and more (Greenhow, Galvin, Brandon & Askari, 2020). Where there is reluctance for 'live' interaction due to privacy concerns, asynchronous online collaboration tools facilitate interaction.

Secondly, there were significant changes to the division of labor with parental engagement increasing, which presented challenges. At least half of the parents in the U.K. reported that they found it difficult to support their children's learning at home (Lucas et al., 2020). Successful parental engagement needs support and guidance from schools and teachers (Lewin & Luckin, 2010) through close partnerships (Kong, 2018). Schools were not necessarily able to prioritize such support initially, but many recognized the need to do so as time progressed. The response in the U.K. was more coordinated, reflecting the importance of external education-related systems to address the contradictions between parents' expertise, and their new role in remote learning. In the U.S., there was little support for parents; parents were left to work things out for themselves, not easy when grappling with competing demands such as the need to work.

One notable absence from the media articles was mention of the change in students' roles, with increased responsibility for self-management of learning and increased engagement in activities such as self-assessment. Prior research suggests that students need effective support from their teachers and self-management skills to become independent remote learners whilst

remaining motivated (Lewin et al., 2008; Means et al., 2009; Protopsaltis & Baum, 2019). Moreover, given the lack of research on younger students' experiences of online learning, exploring how they could be supported to achieve greater independence, and rely to a lesser extent on their parents is crucial.

Thirdly, we have contributed to the literature on digital divides by providing a more nuanced understanding of a rapidly changing system. In the last decade, debates in this field have moved beyond access to technology to a more complex narrative (Livingstone & Helsper, 2007). However, basic access to digital technology became critical in both countries, despite being less prominent in recent literature. Some students did not have sufficient access to technology or connectivity. It should be noted that 10% of the highest income families report not having a computer or tablet to access schoolwork (Andrew et al., 2020). That is, the digital divide does not align totally with family income (Clarida et al, 2016; Longley & Singleton, 2009).

Some students did not have access to an appropriate place to study or a wide range of educational resources. Just as important as the technology itself, parents offered social support to varying degrees, from technical knowledge and trouble-shooting, to metacognitive skills such as planning and reflection, and specific help with complex concepts. Parents with higher education levels can provide more social support for learning online.

This study offers insights on current debates about new divides resulting from the pandemic-induced switch to remote learning. Schools made decisions individually about what digital pedagogy to offer, based on local circumstances and concern about the potential to widen attainment gaps between the advantaged and disadvantaged. Accordingly, disadvantaged students had less exposure to live remote lessons, online conversations with teachers, and facilities to submit work online (Andrew et al., 2020; Cullinane & Montacute, 2020; Lucas et al.,

2020). In contrast, disadvantaged students had more exposure to offline resources such as printed workbooks and worksheets.

The combination of access issues, social support and schools' digital pedagogy choices has resulted in disadvantaged students being less engaged. Disadvantaged students are less likely to share the object of remote learning for various reasons. More disadvantaged students than advantaged students spent less than an hour a day on school related work (Green, 2020). By the end of May, 47% of teachers in the most disadvantaged schools for children aged 5-11 felt that the pupils were doing no work at home compared with 20% of teachers in the most advantaged schools (Moss et al., 2020). Similarly, in a study of pupil engagement (as measured by students returning work to their teachers), 30% of students from the most deprived schools returned work as compared to 49% of students in the least deprived schools (Lucas et al., 2020).

Finally, we consider the role of policy makers in supporting needed change. The U.K. provided a more coordinated educational response, with policy-makers and other education-related activity systems springing into action. With decentralized responsibility for education in the U.S., there was little leadership at federal or state level, leaving schools to determine courses of action. Educational technology policies in both countries were school-focused. Both countries were not prepared for the shift to remote learning from home. Yet, remote learning has placed an emphasis on the home both in relation to access and supporting infrastructure; this became important for teachers as well as students and their parents. In addition, teacher training for online learning is essential but teachers were unprepared, despite recommendations to address this over a decade ago (Lewin et al., 2008). Student training is also an essential piece of this complex puzzle and more needs to be done to build this into future policies in tandem with teacher training.

Limitations and directions for future research

This study reflects on the educational response to COVID-19 in two countries at the beginning of pandemic-induced school closures. A more complete picture of the educational response might have emerged if data collection had continued through to the school year's end in the U.S. and the U.K. Also, our inquiry relies on various news media: a mix of factual reporting, opinion, excerpted interpretations of research and anecdotes, and therefore, necessarily subjective. In addition, two news sources, although highly regarded with broad readership, are left-leaning publications which may have unduly biased our interpretations toward more liberal perspectives. Finally, because the news media are focused on what sells and often narrowly oriented toward 'moral panics,' there is less emphasis on the complexities of the educational responses as they are unfolding. Our aim in providing this snapshot of the emergency educational response in two countries was to identify productive areas for future research that can help illuminate these complexities. With the continued presence of COVID-19, we need in-depth exploratory research complemented by large-scale studies on the remote learning activity system, from the perspective of various stakeholders, to further document and troubleshoot the tensions identified here.

Declaration of Interest Statement

No potential conflict of interest was reported by the authors.

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