The Shift to Online Education During and Beyond the COVID-19 Pandemic: Concerns and Recommendations for California

Right now, public-school leaders and educators across California and the nation are grappling with difficult decisions about how to proceed with the new school year; none of the options are ideal, and each has its own host of related risks and problems. In March 2020, schools almost universally closed campuses and converted to fully online and remote education, appearing in many ways like already existing virtual schools that use online platforms for both synchronous and asynchronous lessons as students and teachers interact and complete their tasks from home or wherever they can access the computer technology and internet. Half a year later, the COVID-19 pandemic continues to rage unabated, and as a result, many schools are not physically reopening for in-person (face-to-face) instruction this fall; of those that are, some are experimenting with partially reopen (for some students), hybrid (sometimes in-person and sometimes online), or blended (simultaneously in-person and online) formats. Although some Californians expected or hoped that communities would be safe enough for schools to reopen fully this fall and are eager to return to in-person classrooms, others have long pushed to expand online education and are seizing this opportunity to do so.

In this brief, we review the empirical research on the effectiveness of online K-12 education nationwide. We then turn to issues of inequities and injustices in online education, particularly here in California, as well as the push for and risks of technologizing education. Although we raise a number of concerns about online education, we do not recommend rushing to reopen schools because we believe that decisions about when and how to reopen should be guided by public-health and educational research. While schools are still unsafe to open, there are a number of ways that schools can better use online platforms. Therefore, we conclude with recommendations for policies and practices for engaging in online education in ways that place priority on remedying the inequities and injustices that are being worsened during the pandemic.

Research on the Effectiveness of Online Schooling

Early empirical research on the effectiveness of online education consisted primarily of small-scale studies and painted an optimistic picture. In 2010, the U.S. Department of Education produced a meta-analysis of 44 mostly small-scale experimental or quasi-experimental studies comparing fully online with in-person and hybrid/blended delivery formats. Five of the studies focused on the K-12 level; the rest focused on the university level. Of the five K-12 studies, one reported results that favored in-person; the other four favored online or hybrid/blended instruction by small effect sizes.[1] An earlier review and meta-analysis of 14 mostly small-scale studies of web-delivered distance education programs found no significant differences in learning outcomes between those who experienced online learning versus in-person learning.[2] These two meta-analyses of mostly small-scale studies suggested that shifting from in-person to online schooling does no harm to students.

Since then, six large-scale studies have soundly refuted such a claim. Three of these studies compared student learning in online charters with in-person charters, and in one case, with traditional public schools as well: One of these drew on seven years of data from Indiana's four online charters, which enrolled 10,984 students; a second study drew on four years of data of all students enrolled in Ohio's K-12 charters, during which time online student enrollment grew from 22,173 to 35,512; a third study compared data from 166 online charters with traditional charters and traditional public schools in 17 states and the District of Columbia.[3] A fourth study analyzed data from online and hybrid/blended schools in 35 states in 2014-2015, whether charter or not.[4] A fifth study reported a randomized experiment involving 1,228 ninth graders learning algebra in 17 Chicago public high schools.[5] The sixth study—by the National Education Policy Center (NEPC)—analyzed data from online schools nationwide.[6]

All six studies document lower achievement of students participating in online schooling than those in-person. The three charter-school studies found that students enrolled in online charters, with only a few exceptions,

performed much worse academically and had lower graduation rates than those enrolled in-person (charter or otherwise). The study of 166 online charters found that 2% of the online charters outperformed their comparison schools, 32% performed no differently, and 67% had weaker growth overall; in math, the percentage of online charters that had significantly weaker growth than their comparison rose to 88%. The study of online and hybrid/blended schools in 35 states concluded that only a small proportion of online or hybrid/blended schools exceeded state average achievement levels, but most did not, and most produced graduation rates that were about half the state average. Similarly, the Chicago study found students less likely to complete an algebra credit-recovery course online than those enrolled in-person.

According to the NEPC report, in 2017-18, 501 fully online schools enrolled 297,712 students, and 300 blended schools enrolled 132,960; these included both charter and district-operated schools. Many such schools did not have publicly available data on performance, but where available, 48.5% of fully online schools received acceptable performance ratings by the state (56.7% if district-operated, but only 40.8% if charter), and 44.6% for blended schools. Overall, the single lowest-performing category of all schools (online or not; charter or not) were online charters operated by for-profit companies. Although the average graduation rate nationally was 84%, that number fell to 61.5% for blended schools, and 50.1% for fully online schools.

These studies on the ineffectiveness of fully and partially online schools should raise red flags as school closures continue into fall 2020. Of course, online schools are not exactly comparable to the almost-universal online delivery of education that began in spring 2020 as schools closed their campuses. Schools that are online by design are more likely to have the infrastructure and expectations by teachers, students, and parents for fully online teaching and learning that most in-person schools lacked when the pandemic hit. In contrast, in-person schools were more likely to have given students and teachers opportunities to develop in-person interpersonal relationships before the pandemic hit that would create a different context, a different foundation for fully online interaction that most online schools cannot or do not provide.[7]

Nonetheless, the research was clear well before the pandemic that the panacea cannot be online education. This is true for students overall, but particularly for students who are already struggling: Students who are in poverty, have disabilities, or are English-language learners experienced less academic growth than their peers in online schools. Online schools also exacerbate racial segregation: White students are far more likely than students of color to choose online schools.

Even in traditional schools, the rhetoric that computer and online technologies will improve educational outcomes is not supported by research. A 2012 meta-analysis of 48 empirical studies on the impact of computer technology on learning found lower levels of improvement when compared with other research-based interventions; and a 2015 report by the international agency, Organization for Economic Co-operation and Development (OECD), found that students who engaged in heavy use of computers actually did worse than other students in most learning outcomes.

Research on Inequities & Injustices in Online Education

Technologies for online education can enhance teaching and learning, but the misuse of or overreliance on technology can exacerbate existing resource inequities. This has been called technology's "Law of Amplification:" Educational technologies tend to build on the resources of high-performing schools, whereas they tend to distract from the mission and compound the challenges of under-resourced schools.[9]

Some schools have resources to meet the needs for connectivity, including hardware (computers, laptops, tablets), internet access, technical support, and facilities, while others do not. Some students have homes with sufficient resources, while other students either live in under-resourced homes or are experiencing housing instability. Some teachers, students, and students' caregivers have familiarity with navigating technologies for online education, others do not, and some students may struggle to use or benefit from such technologies because of health, environmental, and learning challenges. Some schools and homes have mechanisms and resources—while some schools and homes do not—to protect students from the negative impact of extensive screen time on literacy development, mental health problems—like ADHD, screen addiction, aggression, depression, anxiety, and psychosis[10]—and physical health problems, like motor skill development, eye strain, muscle strain, and lethargy. So, too, with varying levels of protections from online bullying, sexual exploitation, and violations or intrusions of data and personal privacy.

On the latter point of data privacy: Federal laws and agencies are in place to protect copyright of online content and health data privacy (FERPA), and California state laws protect consumer data privacy, but protections for student users of technologies for online education are still an emerging legal field, and thus, far less specified and regulated. Demographic, health, identity, and behavioral data within schools that might have been confidential and secured under federal and state laws are being collected and archived on any number of cloud-based learning management systems like Blackboard and Canvas—not to mention the many other platforms (whether authorized by schools or not) on which teachers are interacting with students. Examples include video-

conferencing platforms like Zoom and Google Classroom, and social-media platforms like Facebook, all of which are hosted outside of schools, and therefore, more easily accessible by others for any number of uses, including for targeted marketing by corporations, censorship of free speech and expression, and even surveillance by, say, federal immigration agencies.

Across the country in spring 2020, access to hardware and the internet was already vastly inequitable, as was institutional capacity for online instruction, and these, in turn, widened existing inequities in student engagement and support. In 2018, about 30% of K-12 students lacked either high-speed internet or appropriate hardware, and this was disproportionately impacting students in poverty, of color, or in rural areas; not surprisingly, when schools went online in spring 2020, students in low-income households were nearly ten times more likely to have engaged in little or no remote schooling than students in more affluent households.[11]

In spring 2020, households that earned $100,000 annually or more almost universally had home broadband internet access, whereas households earning under $30,000 were less likely to have such internet access (namely, only 4 in 10 households) and also less likely to have home computers; school districts distributed millions of laptops or tablets and worked to expand Wi-Fi access, but millions of other students still remained without either; school districts in high-poverty areas were less likely to offer online instruction to all of their students, and when offered, the instruction was less likely to be synchronous; and students in high-poverty districts were more likely to be unreachable or not engaged online, and teachers frequently attributed these challenges to the lack of access to technology.[12]

In one such high-poverty district—Los Angeles— during the first weeks of schools closing, tens of thousands of students were either not regularly checking in online or not checking in at all. These trends reflected and exacerbated racial and linguistic inequities: By the ninth week of distance learning, there remained as much as a 20-percentage point differential between participation rates of Asian American and White students and their Black and Latinx peers. Similar trends impacted other groups of students, including: poor and working class students, who were 10% less likely to participate in online learning than their wealthier peers; students designated as English learners, 40% of whom participated in online learning less than once per week, a rate 20% lower than that of English-proficient students; students in foster care or experiencing homelessness; and students with disabilities, only half of whom were active at least once a week in the district's online learning platform.[13] Such trends should not be attributed to individuals opting out, but rather, to resource inequities. In a survey conducted during March and April 2020, only 24% of California

parents indicated that their school was providing instructional materials for students receiving special education services and only 31% for English learners.[14]

In March 2020, the U.S. Department of Education[15] released guidance on complying with requirements of the federal Americans with Disabilities Act (ADA) and Individuals with Disabilities Education Act (IDEA) related to making online education accessible to students with disabilities, but without adequate resources for doing so, it is not surprising that some schools and school systems were not ensuring that that happened. Court cases have already been filed in several states regarding the failure of public schools to adequately serve students with disabilities, including in Hawaiʻi, New York, and Pennsylvania.

Access is not the only problem, because even when students are able to access online education, their experiences are not always positive. An earlier survey of 124 African American students, mainly from low-income families, reported negative attitudes toward online learning; about two-thirds did not like using the computer for school; and while a little over half understood that computers can be useful in different ways, the great majority did not experience online learning and online tutoring as valuable.[16]

Not engaging online can have legal consequences. The racialized school-prison nexus applies not only to in-person schooling, but to online schooling as well. In May 2020, a judge in Michigan sent an African American student to juvenile detention for not completing her online coursework.[17] Protests erupted, but this was not an isolated case of criminalizing students and their families. Throughout the spring in Massachusetts, schools reported dozens of families to state social workers because the students repeatedly did not log into their online classes, and this trend was most common in high-poverty Black and Latinx districts.[18]

School achievement—test scores, grades—and attainment, such as graduation and postsecondary education, go down when students miss a significant amount of school. The educational gap between working-class and middle-class students widens over summer break because far more educational opportunities are available to middle-class students. The heavy reliance on homework also widens gaps between families in which parents have different levels of education, because parents with higher levels of education are better able to assist with homework. Not surprisingly, one of the trends to emerge in the spring and to gain traction as the fall begins is for parents to form "learning pods" or "microschools" in which groups of families pool resources to support one another's children while learning at home or to hire teachers to tutor or provide supplemental instruction—a trend that will only widen educational inequities for those families that lack the resources to participate.[19]

The Push for and Risks of Technologizing Education

In May 2020, a survey of K-12 superintendents nationwide found that they felt unprepared for the sudden shift to deliver instruction online, and therefore, were interested in finding educational technologies—cost-free or not—to meet such goals. However, they also expressed a resounding concern of being inundated with too-frequent, aggressive, even "unethical" sales tactics by educational technology companies.[20] Without increased funding for education, technology purchases would require cutting other expenses, such as instructional staff, support-services staff, and the arts.[21] As school districts were bracing themselves for anticipated, steep cuts to budgets, educational technology companies set their sights on the federal CARES Act that included over $13.5 billion for education. The CARES Act provided so much leeway in spending to states and districts as to raise concerns that, as schools struggle with the sudden need to provide distance or remote instruction, much of the funding would be funneled into technology and related services.

The billions of federal stimulus dollars and spring 2020 closing of campuses followed a years-long push by some to technologize education and provided a perfect storm to technologize, privatize, and profiteer.

For years, efforts have been underway to technologize education, sometimes by educational technology companies and sometimes by industry-related leaders, philanthropists, and advocacy organizations, resulting in the growth of online platforms for homeschooling, virtual schools and degree programs, and eventually, MOOCs (Massive Online Open Courses). Amplify Education, Inc., led by billionaires Rupert Murdoch and successively Laurene Powell Jobs, for example, injected hardware, software, platforms, and other resources and services into schools.[22] The goals of Amplify and others like them aligned with the dominant narrative among Republicans and Democrats alike that blamed low test scores on mediocre teachers; the goals also aligned with the recent trend of billionaire philanthropists foisting educational reform initiatives onto poorer communities of color that widened disparities but were nonetheless profitable to investors.[23] Technology companies and philanthropists pushed a narrative that proffered technology as a primary lever for change, not merely to enhance teaching, but to be the primary source of or platform for teaching—as well as a means for profit that is forecasted to continue growing exponentially.

As noted in the previous section, the empirical research is clear that technologies for online education overall have not improved education. But that does not mean that every product is necessarily ineffective, and therefore, some educational technology companies highlight in their marketing that their products are proven effective. Unfortunately, even there, the research does not justify such claims. Since 2002, schools have been required by federal law to spend federal dollars on only products that are research-based, but the federal government does not provide oversight over what constitutes that research. A recent review found dozens of companies presented "little or shoddy evidence" that was cultivated in self-designed or self-commissioned studies; the review warned that "This problem has only been exacerbated by the coronavirus, as widespread school closures have forced districts to turn to online learning. Many educators have been making quick decisions about what products to lean on as they try to provide remote learning options for students during school closures."[24]

The global online education market was valued at $188 billion in 2019, and as of February 2020, it was expected to grow to $319 billion by 2025.[25] That is now likely a vast under-projection, given how schools and universities were shuttered worldwide by March and have gone virtual. ***Here in the United States, school districts spent about $12 billion on educational technologies in 2019, and much of that went wasted***: In a study of 26 schools, districts, and networks reaching almost 70,000 students, nearly one-third of technology spending went towards licenses (to use products and services), of which over one-fourth reached 0% of usage goals, which translates to approximately $1 billion nationwide spent on licenses never used.[26]

Profits for education-related technology corporations have soared during the pandemic. For example, mainly because of increased subscriptions since the start of the pandemic, Zoom—which is quickly becoming one of the most popular video-conferencing platforms for schools—expects to triple its profits this year,[27] and Google (provider of Google Classroom, another popular platform), saw stock values climb through the spring despite drops in ad revenue.[28] By the summer, a number of technology industry leaders, including tech CEOs, increased their personal wealth by tens of billions of dollars each. In August 2020, Apple became the first-ever corporation to be valued at $2 trillion.

Not surprisingly, with the potential for lucrative profits comes opportunities for fraud and profiteering, including by online schools. In recent years in California, a number of scandals have hit the media, from large and well-known chains of online schools—like K12, Inc., which settled a $168.5 million lawsuit in 2016—to lesser-known operators, like the operators of schools in San Diego indicted last year for defrauding the state of $50 million.[29] Nationwide since the start of the pandemic, between $1-2 billion of federal COVID stimulus funding intended to support small businesses—and ineligible to traditional public schools—went to charter schools, including online charters, and a disproportionate amount of that—as high as half a billion—went to charters in California.[30]

Recommendations for California Schools

Given California's highly diverse student population and persistent gaps in opportunity for learning,[31] and given that the misuse of educational technologies can widen inequities and injustices, ***our overall recommendation is to resist technologizing education***. Although we raise a number of concerns about online education, we do not recommend rushing to reopen schools in the midst of the COVID-19 pandemic because we believe that decisions about when and how to reopen should be guided by public-health and educational research. While schools are still unsafe to open, there are a number of ways that schools can better use online platforms. Therefore, we recommend the following policies and practices for engaging in online education that place priority on remedying the inequities and injustices that are being worsened during the pandemic.

(1) For Policy Makers

(A) At the Federal Level: Ensure Adequate and Equitable Funding. According to the Center for Budget and Policy Priorities,[32] the pandemic has caused income and sales taxes to nosedive, sparking a revenue crisis at both the state and local levels—about $555 billion through 2022 at the state level nationally and far more when including the local level. To meet balanced-budget requirements, states are slashing budgets, and given that education averages about 26% of state budgets, it is a primary target. State funding typically reduces disparities between wealthier and poorer districts. Funding cuts widen those disparities, as happened following the Great Recession of 2008-09—particularly as federal aid to states ended two years in. In addition to lost revenue, schools face extraordinary costs related to pandemic recovery and school readiness to safely reopen. ***We recommend that the federal government provide funding to states that supplant all lost tax revenue and that offset the additional costs related to recovery and readiness; we also recommend that such funding be contingent on states addressing the inequities and injustices described in this brief and not reallocating towards privatization.***

(B) At the State Level: Ensure Fair Taxing. California is facing a $20 billion education deficit caused by the pandemic.[33] Yet, California is also home to Silicon Valley and to many of the technology corporations, investors, and leaders who have profited enormously during the pandemic—by many times the amount of the education deficit—and who pay proportionally little to no taxes. In August 2020, Assemblymember Bonta proposed the California Wealth Tax (A.B. 2088), the first of its kind in the nation, that would tax the very wealthy in order to generate billions more revenue a year. ***We recommend that the state legislature close tax loopholes, end subsidies for profitable corporations, and substantially increase taxes on the wealthy in order to adequately and equitably fund education by transitioning from our currently regressive state tax system to a progressive one.***

(C) At All Levels: Develop Public Industries. Even when schools negotiate discounted rates for hardware, internet access, and educational platforms, and even when tax dollars subsidize expenses for students, technology companies are still profiting, and education is still being privatized. If all 50 million K-12 students, as well as millions of K-12 educators and higher education students and educators, need hardware, then hardware should be considered a necessity and a right, and it should be produced and provided by the public sector. High-speed internet access should also be considered a right and could be provided via "municipal broadband" as a public utility, which is already happening in some places and could be happening more widespread were it not banned by 22 states in municipalities where corporate providers exist. Software and educational platforms should also be in the public domain, and models already exist of countries like Italy working with open-source software or platform developers to develop systems specifically for their school systems. ***We recommend that federal, state, and local governments develop technologies for online education—hardware, internet access, software and platforms—as public industries.***

(2) For Educators and School Leaders

(A) Build Humanizing Relationships with Students and Communities. The relationships teachers build with their students affect students' academic achievement.[34] Having a warm, caring relationship with the teacher is particularly important to struggling students. The fear of "falling behind" and subsequent emphasis on content delivery and continued testing can actually detract from what some students most need at this time in order to be healthy, safe, and able to study and learn—including social and emotional support, and education that is relevant to the challenges of this moment. Online schooling does not preclude building community, but it does require proactive effort to do so. Teachers may need to reach out to students through multiple formats, including phone calls, to increase personal interactions with students. Teachers may also need to provide multiple opportunities for students to share something of themselves, such as images and stories, and to engage and interact with each other online in personally meaningful ways.[35]

During the pandemic, schools can and must function as community schools. Community schools work in solidarity with communities and draw on local resources to educate the whole child while also helping to build the capacity of those communities, such as by providing wrap-around services to support the many needs of students and their families—nutrition, physical and mental health, social-emotional learning, parenting, employment, and so on. Examples include those

described in "Reimagining Remote Learning" by the Logan Square Neighborhood Association in Illinois,[36] and as modeled by RISE After School's Student Learning Centers here in California.[37]

Such examples of blended community schools and programs can be partially or fully in-person for students with acute needs that cannot be adequately addressed if fully online, and California has authorized schools to provide such accommodation for instruction, assessment, and other support.[38] A coalition of organizations in California have highlighted the gross neglect of one of the populations most disadvantaged by the move towards online education—including through unilateral changes to IEPs/IFSPs and failure to provide appropriate adaptations of online delivery of instruction, assessment, and support—and offered guidance for how to reopen schools this fall.[39] In addition, community schools recognize that education works best when seen as part of a well-functioning system, which requires that schools have strong relationships with communities, and that students have strong relationships with teachers. ***We recommend that all schools support teachers in building humanizing relationships with students and communities; that all schools function as community schools, whether in-person or online; and that they receive adequate and equitable funding and support to do so.***

(B) Teach a Just Curriculum, whether Online, Blended, or In-Person. CARE-ED published a 2018 research brief in which we described how curriculum is never racially neutral, and how advancing democracy in schools and society requires ethnic studies and critical multicultural education throughout K-12 curriculum.[40] In the current moment of racialized rhetoric about the pandemic, increasing visibility of white nationalism and supremacy, demonizing of immigrants, persecution of Indigenous peoples, and global uprisings against anti-Black racism—such curriculum is even more imperative, and is no less doable simply because of the temporary restrictions to in-person instruction.

The New York University Metro Center suggests a framework for "culturally sustaining distance learning" that makes education accessible to all students; is co-constructed by students, families, community, and schools; affirms racial and cultural identities to foster positive academic outcomes; develops students' abilities to connect across cultures; empowers students as agents in their own teaching and learning; anticipates and designs the education experience around and in response to particular social and cultural differences; and contributes to an individual's engagement, learning, growth, and achievement through the cultivation of meaningfully relevant conversations, activities, and engagements.[41] Such student-centered, locally relevant, problem-posing, project-based curricula can be academically rigorous and standards-aligned;[42] and as explained in the 2016 CARE-ED brief on assessment,

such a just curriculum also aligns with more authentic, holistic, and research-based assessment of student learning, and demands a retreat from standardized, high-stakes testing—online or not.[43]

We recommend that all schools provide the resources and support needed—including partnerships with teacher unions, district personnel, community and youth educators, parents and families, professional associations, and colleges of education—to develop and engage such curriculum online; and that they receive adequate and equitable funding and support to do so.

(C) Avoid Over-reliance on and Deference to Technology. With a shift to remote schooling comes the temptation to over-use—and the tendency to misuse—technologies for online education. Educators and school leaders must continually examine when and for whom teaching through educational technologies makes sense, and when other modes of teaching and learning make more sense. Students can read books as easily as they can read the screen, and they tend to retain more when reading books while avoiding problems associated with too much screen time.[44] Even within those school districts where most students are able to access online learning, some categories of students—such as students with disabilities or primary-grade students—may have a greater need for face-to-face instruction; there may not be a single format (online or face-to-face) that serves all students.

Schools that choose to employ online platforms must critically evaluate the impact on culturally, linguistically, and socioeconomically diverse learners. Educators and school leaders must continually examine how curricular, pedagogical, and technological choices impact the various issues highlighted throughout this brief that contribute to educational inequities and injustices.

The over-reliance on technology risks transferring significant funding, student data, and curricular decision-making authority to externally and privately operated, for-profit entities. Products and services may be marketed as cost-effective or pedagogically effective, but they are not always so: Subscription-based products and services may be offered initially at no cost but with fees for ongoing or full access; eye-catching and entertaining programs might be overly gamified with artificial and external motivators for student engagement; and packaged, user-friendly curricula might be monolingual and monocultural in perspective and lack the elements of a just curriculum mentioned earlier. Curricular decisions must be driven by educators, not technology corporations or the philanthropists who proffer technologies as the panacea. ***Therefore, we recommend that schools use technologies for online education as thoughtfully and sparingly as possible and guard against any move to replace the expertise of educators with such technology.***

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CARE-ED, the California Alliance of Researchers for Equity in Education, is a statewide collaborative of education researchers that aims to speak collectively and publicly and in solidarity with organizations and communities to reframe the debate on education. http://www.care-ed.org

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