

AUGUST 2020

TECHNOLOGY**Will education technology ensure continuity of learning during COVID-19?**

In California, the reality of surging COVID-19 cases is causing public health officials and district superintendents to rethink school reopening procedures for the fall of 2020. Reboot guides, sanitation stations, temperature taking, masks, and physical distancing might not be an option because schools may remain closed. As of July 13, 2020 Los Angeles Unified School District (LAUSD) and San Diego Unified School District (SDUSD) announced they will not reopen facilities in August and will focus on 100 percent distance learning which will inevitably cause a surge in technology wizardry, apps, video conferencing, bandwidth boosts, and possibly a nationalized cloud-based education platform. Other countries are months ahead of the United States and transporting education into the homes of millions of children using the latest educational technology (edtech), but is it working and what must improve?

GLOBAL RESPONSE

The World Bank, a global partnership committed to reducing poverty, increasing shared prosperity, and promoting sustainable development, is tracking edtech during the pandemic and many countries are exploring broadcast media solutions to deliver educational content through TV, Internet, cellular networks, and radio. Digital toolkits are being built with high-quality learning and

assessment resources that cater to varying learning styles and student abilities. These tools are emerging across the world using old and new technology.

In Kenya, the Ministry of Education deployed Google's Loon Balloons to expand four educational platforms: weekday radio broadcasts, TV broadcasts, asynchronous content across on-demand channels, and cloud services focused on distribution of free e-textbooks. In Saudi Arabia, 127 school administrators deliver daily lessons in 112 educational subjects across 19 TV channels broadcasting from a classroom in Riyadh. South Africa's Department of Basic Education launched education TV and radio curriculum across 13 radio stations. Local TV stations in Austria offer educational programs for pre-school and primary school children between 6 and 9 a.m. followed by educational programming for ages 10 and up. With over 200 million primary and secondary students, China is expanding next generation 5G and 6G networks to support national cloud-platform and educational resources. Students in Juba, Sudan, are being taught by the "radio teacher," using interactive radio instruction (IRI) over radio waves providing instruction in the world's poorest places. These countries have one thing in common — they are all engaging in public-private partnerships with telecom giants,



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nonprofits, and edtech industries delivering education in unprecedented methods.

LOCAL RESPONSE

The U.S. took similar steps to reach hundreds of thousands of students when schools closed in late March 2020. LAUSD, the second largest public-school district in the U.S., partnered with California’s Public Broadcasting Service (PBS) to reach 200,000 daily viewers (140,000 homes) delivering the district’s “At-Home Learning” initiative tailored for early childhood education. The initiative was originally geared for schools when they first closed and since then has been used by 70 stations in 30 states to maintain a steady flow of educational services for families at home. While a viewership of 200,000 is impressive it only accounts for 27 percent of LAUSD’s student population. Greater measures are necessary to reach all students should schools remain closed in the fall.

Broadcast education is possibly the new reality of education knowing that within my lifetime I have witnessed five epidemics and two pandemics claiming over 36 million lives worldwide. However, COVID-19 is a modern pandemic that will define our era and has shattered economies, broadened societal inequities, and continues to bully the remaining months of 2020. One thing is apparent; broadcast education is here to stay and edtech entrepreneurship will change the framework of education as we know it. In 2019, investors poured \$1.6 billion in edtech, a five-year high and 16 percent increase from previous years reported by EdSurge. While edtech will set new

investment records in 2020, are they able to bring the human quality of teaching to the virtual world?

Ultimately, educators need to make decisions on what edtech platforms are most appropriate for them. Educators are scripting how to innovate and deliver meaningful content knowing that they must be a part of the change and not just applicators of whimsical edtech. As school districts take the pulse of society’s willingness to send their children to school, teachers must find new and creative ways to reestablish the human connection that makes face-to-face education so valuable to child development.

METHODS

To answer some of these questions, we established a research initiative focused on how to improve primary and secondary edtech delivery methods and offer educators options that focus on today, and how school architects can support meaningful exploration of the future of education in America. Our research methods combined cloud surveying, peer review research, and one-on-one interviews with school administrators, teachers, facility directors, and mental health counselors throughout California, Oregon, and Washington.

We surveyed two groups. The first group consisted of HMC’s employees with children engaged in distance learning and the second group were unassociated with HMC. The survey polled family size and age groups involved in distance learning, technology

access, edtech types, comfort with edtech, reopening comfort, and what is important to safeguard children should they return to school. It should also be noted that the first group are all families living in California with children in either public or private schools, and the second group's location is indiscernible and may reflect a broader perspective not influenced by HMC's workplace culture. Their results are represented in brackets (). Here is what we know so far.

RESPONSE/DISCUSSION

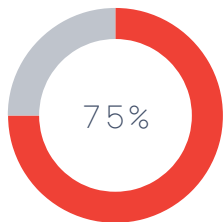
The digital divide resonates as 70 percent (75 percent) have access to computers and tablets to perform satisfactory distance learning. Eighty-six percent (95 percent) have satisfactory Internet connectivity to manage video communications and 72 percent (85 percent) were familiar with computers to support their children. This leaves out a significant portion of the school population without satisfactory access to distance learning and amplifies digital equity concerns. In April 2020, California's telecom giants formed a Closing the Digital Divide Task Force focused on expanding low-cost access for students. The California State Board of Education estimates that 1.2 million students lack high-speed Internet or hardware and are disproportionately black or Latino according to the Public Policy Institute of California. When asked about Internet speed, 90 percent of parents overwhelmingly noted that Internet reliability and bandwidth is a top priority, and the current state of video conferencing and edtech is underperforming.

Given that three-quarters of California's population are able to participate in distance learning doesn't mean quality education is received, absorbed, and applied. Only seven percent (10 percent) of parents strongly agreed that distance learning was effective. Parent sentiment was echoed by The Hechinger Report noting that "most schools are completely unprepared—or, at best, woefully underprepared—for coronavirus and virtual learning." The nation has digital equity challenges amplified by COVID-19 and radical change is necessary to deliver durable

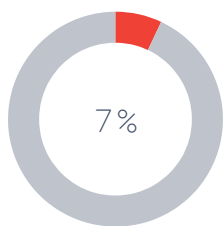
and resilient solutions that can be deployed. Eighty-nine percent of respondents used video conferencing platforms Zoom, Google Classroom, and Google Meet in combination with Schoology, Khan Academy, Class Dojo, Big Blue Jean, and YouTube. Other edtech platforms like ABC Mouse, EdPuzzle, Turnitin, i-Ready, ABCya, and Montessori Preschool, to name a few, were also used by parents during stay-at-home conditions.

Edtech armory will revolutionize classrooms. However, it is important to understand that children are not wikis or apps and they will be forever grateful for light bulb moments that only the serendipity of a teaching experience can recognize. Rather than be a victim of edtech entrepreneurship, the 3.8 million public school teachers in the U.S. and 13,500 school districts must steer the next generation of content delivery with the human touch prioritized as a vital and unsolved link in our distance learning portfolio. To do this, educators will need to rally a forward thinking and progressive voice rather than anchor down and resist change, especially when unforeseen events and new technologies radically shape our world.

Surveyed parents offer educators and edtech developers what matters the most to kindle the human touch. Eighty-three percent of parents suggest that one-on-one interaction between student and teacher is indispensable and 75 percent are in favor of improving teachers' virtual skill sets. The survey inquired about parents' experience with distance learning and parents favored break-out rooms that focused on one-on-one collaboration. Also extremely important to parents are innovative projects and performances, and greater opportunities for collaboration and student independence. Parents were asked to rank their concerns about access to specific school resources should in-person instruction not reopen in the fall, and individualized education programs and access to sports and athletics was at the top of the list. All to say that the virtual classroom has tremendous opportunity for growth.



Percentage of California's population able to participate in distance learning



Percentage of parents who strongly agreed that distance learning was effective.



Fifty-seven percent of parents surveyed are comfortable sending their kids back to school but, only if schools implement safe operations such as disinfecting touched surfaces, PPE protocols, and daily temperature checks. Forty-two percent prefer to not send their kids to school until there are no local reported deaths or a widely available vaccine. Should schools reopen, the options of staggering or split-session further drives complex societal inequities and deserves a voice that outweighs the importance of edtech. What we do know is that 61 percent of parents surveyed favor staggered school days to 51 percent for split-sessions. For now, many higher education campuses remain virtual until 2021, with some exceptions, and California public health officials and district superintendents are monitoring COVID-19 statistics to make the final decision to remain virtual or reopen primary and secondary schools.

Teachers across the nation are coming back to some form of instruction in August and no matter your position, educators must adapt to challenges, remain flexible, and build resilient solutions to find the human touch in an edtech world to inspire change.

The digital divide must not be allowed to further drive societal inequity, and other countries are showing us how to create equitable access using Internet, radio, and TV. Telecom providers and school districts must create free or low-cost Internet access to the millions of students whom are from families living in poverty and do so in less than five weeks.

VIRTUAL CLASSROOM RECOMMENDATIONS

Whether teaching in-person or virtually, everything matters to gain the confidence and trust of your students. Consider your edtech platform(s), attire, background, lighting, and acoustics. Here are a few recommendations that can be mastered with a tight budget.

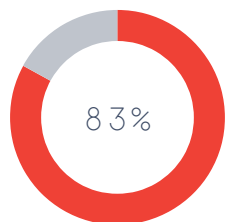
Before and After Bell Noise

The most valuable tip shared was starting the session before the bell and extending the session beyond the bell. It brings a cacophony of chatter into the session that is oddly pleasant when you've been away from it for so long. Take it a step further and let students form chat rooms so they can catch-up with friends for a few minutes. When the bell rings, you teleport them back into the classroom.

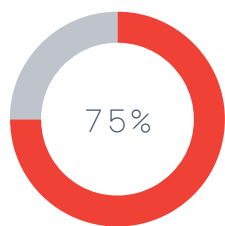
Field trips are central to the learning process. Huell Howser was the pioneer of virtual field trips and while he traveled with a production crew, today's low-cost technology allows educators to produce amazing content and share it in an asynchronous setting in a synchronous class. Using their own smartphone and a low-cost gimbal, teachers can travel further, faster, and have deeper meaningful explorations of subject matter. Take it a step further, if they're comfortable with drones, educators can develop phenomenal footage to deliver instructional content.

Broadcast Nook

A computer's camera and microphone will work just fine but think like a broadcast studio. A



Percentage of parents who suggest that one-on-one student-teacher interaction is indispensable



Percentage of parents who are in favor of improving teacher virtual realm skill sets

digital camera can be used as a live streaming camera to make videos look amazing. Desktop light rings are inexpensive lighting solutions, pick one that has the option to clamp or stand on the desk with dimming options and color control. Place the light slightly above perpendicular to your face for best results. Also consider reflective surface to bounce ambient light. Take it one step further and get a green screen to explore interactive presentation options.

MultiCam

Investing in a camlink allows the opportunity to use more than one camera such that one camera is always focused on the presenter and the other is focused on the subject matter, be it a book, marker board, or a greenscreen.

Acoustics

Mobility is key. Desktop microphones, broadcasting arms, or lapel microphones do a good job of picking up your voice when moving around. Headsets are great to cancel background noise but they can be slightly irritating after repeated use.

Edtech

There is no perfect edtech solution, but look for collaboration features and, if you do adopt a particular cloud-based application, create a feedback voice to the developers looking to improve outcomes.

Based on our survey we ranked the top three needs and priorities for virtual learning.

Top 3 Tech Needs

- Access to reliable bandwidth
- Teacher training
- Access to affordable computers or tablets

Top 3 Edtech Needs

- Improved breakout rooms
- Innovative online projects and performances
- Greater opportunity for collaboration

Top 3 Virtual School Resource Needs

- Art programs
- Sports and athletics
- Library services

Top 3 Reopening Priorities

- Maintain clean indoor air quality
- Reconfigure classrooms to accommodate physical distancing rules
- Smaller class sizes

Top 3 Reopening Daily Needs

- Routine school disinfection of touched surfaces
- Daily temperature checks
- Physical distancing

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