

The Critical Role of Technology Support Programs During the COVID-19 Transition to E-Learning

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Long before the onset of the COVID -19 pandemic, there was a technological divide in the education system. Before the Spring 2020 academic semesters went entirely virtual, the digital divide was not as discussed, as students had access to resources such as their university library and computer labs. However, when millions of students were forced to transition their school life to their household, it became more apparent that students did not have access to the same quality of support when attending lectures on campus. According to research conducted by Robin Lake, one in five parents with children attending school mentioned how likely their child will suffer completing their schoolwork due to the lack of instant access to technology in their homes - roughly about “21 percent” (Lake, 2020, p. 1). With many students unable to access technology to complete schoolwork, the digital divide is highlighted now more than ever.

Keywords: CARES Fund, COVID-19, digital divide, e-learning, emergency aid, financial aid, higher education, loaner laptop programs, pandemic, technology fund

INTRODUCTION

The COVID-19 pandemic was not the beginning of the digital divide (Ruane, 2021, p. 1), but it brought to the surface what a critical issue this lack of technology resources presented for students attempting to attend classes, study, and complete research from home without adequate resources (Eshoo, 2020, p. 1). In response to the growing digital divide issue exposed by the pandemic, universities have been working towards the expansion of their laptop programs to keep up with the growing demand. One such university

that has an extensive loaner laptop program for students in need is the University of Illinois at Chicago. Since the start of the pandemic, UIC has loaned over 1,100 laptops and over 400 hotspots to students that needed reliable computer/and or internet access at home while classes have been conducted remotely (UIC News Contributor, 2021, p. 1) and UIC continued to loan laptops to students until the end of the Spring 2021 semester. When Collins (2020) interviewed several board members of the CPA Endowment Fund of Illinois, they realized how in-need students in public education were. As a result, the board increased funding and was able to grant technology to 16 students instead of five (Collins, 2020, p. 1). As of now, the long-lasting effects of the digital divide are starting to become more prominent. “In the context of school closures, equity problems arise when disadvantaged students lack access to the essential resources prescribed for distance learning.” (McAleavy et al., 2020, p. 2)

There is a need for a blend of high-tech (online learning), low-tech (radio and TV broadcasting), and no-tech (hardcopy workbooks) educational provision” (McAleavy et al., 2020, p. 2) to show how the lack of resources can be detrimental to students who do not have access to the right resources to complete their coursework.

Jessica Calarco, an assistant professor of sociology at Indiana University, along with Amy Gonzales of the University of California at Santa Barbara, and Teresa Lynch of Ohio State University, conducted a research study titled “Technology Problems and Student Achievement Gaps: A Validation and Extension of the Technology Maintenance Construct” that investigates the effects of the digital divide before the COVID-19 pandemic, (Indiana University, 2018, p. 1) and addresses several technology-related issues for students during the duration of the pandemic (West, 2020, p.1, 2021; Williams, 2021, p.1). This research on the technological struggles of both low-income and affluent students will also explore many support responses to this problem, including laptop programs, technology support funding (Williams, 2021, p. 1), and the critical role of technology across all platforms for educational delivery. All these aspects tied together will lead to supporting more students, closing the digital divide that exists today at many universities.

ADDRESSING THE COVID-19 PANDEMIC

The COVID 19 pandemic surged during the middle of the Spring 2020 academic semester - forcing universities to transition from face-to-face (FTF) to remote learning. Often with little to no training, instructors made rapid decisions about how to adjust their courses for remote instruction. (Gillis et. al, 2020, p. 1).

This extremely quick transition to remote learning was a challenging alteration for both faculty and students alike. Serhan (2020) states that due to this transition faculty and staff faced technological adversities. These challenges include learning how to use technology in a brief period, modifying course schedules to fit this “new environment,” finding ways to make classes interactive and adopting new ways to assess student learning: which was a challenge to all universities (Serhan, 2020, p. 2). To best serve students during this challenging time, instructors needed to shift their teachings and lectures completely online. Transitioning online was the only viable option to universities because COVID-19 was highly transmissible and students along with the staff were in danger of compromising their health if face-to-face lectures continued. Many people believe that a transition to online learning was necessary even before the health risks caused by the pandemic developed. Sean Gallagher and Jason Palmer of the Harvard Business Review state that following a slow, two-decade march toward more digital business models, higher education’s overdue technological transformation has been rapidly accelerated by the events of 2020, and centers more than ever on technology - and analytics-driven online learning experiences and business models (Gallagher, et.al, 2020, p. 1).

The influence of the COVID-19 pandemic on public universities varied, but under Almaiah 2020 study, school closures resulted in several “adverse consequences on students”. Adverse consequences also arise from distracted learning, in which students are being robbed of opportunities for growth and development that cannot be done outside the in-person classroom. This issue helps show the effect the pandemic had on students (Almaiah, et. al, 2020, p. 2). One of the adverse consequences listed by the United Nations

Educational, Scientific, and Cultural Organization (UNESCO) (2020) of school closures for students were interrupted learning. Challenges for teachers included confusion and stress when creating, maintaining, and improving distance learning, and challenges measuring and validating learning. (UNESCO, 2020) Rapid transitions to virtual learning illustrate that the digital divide was more than being given a physical device for learning, but a divide in what teachers and students knew about digital interfaces. One significant challenge faced by students during the COVID-19 pandemic was the lack of social interaction with fellow peers due to the transition from in-person learning to remote learning. Edward Roesch of eLearning Industry states that while teachers are focusing on providing engaging eLearning experiences, 55% of students still find the lack of social interactions troubling. They learn better with fellow students, and for 45% of students, this could lead to underperforming in their academics. (Roesch, 2021, p.1). The pandemic shifted views of traditional face-to-face learning, which spawned several adaptations in education and learning for the students during this time.

As a result of this difficult transition, the need for technology funds and loaner laptop programs was tremendous due to the implementation of social distancing protocols. A series of proposals conducted by Neuwirth at the State University of New York public education system found that most students only have access to cell phones, and those that only have access to cell phones did not have access to other forms of technology. Neuwirth's proposition continues, claiming "To ameliorate these technology insecurity issues, certain colleges such as our own, have reactively devised systematic student outreach efforts during this pandemic and have provided them with loaner laptops at no cost, as needed" (Neuwirth et. al, 2020, p. 5) to help support students. The pandemic sparked a national discussion amongst education officials about providing support to their student population because of dire technological needs. The Duke Initiative for Science and Society at Duke University is a prime example of these vital conversations, as they have held virtual events called "Coronavirus Conversations" in which they discussed vital issues relating to the pandemic such as mental health struggles, how to help low-income communities, and the challenges that STEM graduate students have been facing during this time. (Duke University, 2021). They have recognized the need for discussion on these issues to bring more awareness and action to their community.

BUILDING UPON TECHNOLOGY PROGRAMS TO MAKE THEM MORE SUCCESSFUL

The application of laptop lending programs, along with financial aid exigency for technology in universities is not a new idea and has been utilized for many years on a smaller scale. As the need for technical support during tough times grow, universities must create more ways of helping support the students. The Coronavirus Aid, Relief, and Economic Security (CARES) fund was created in response to the COVID-19 pandemic for the purpose to support students at numerous universities throughout the country. As a result, the University of Northern Iowa was set to receive "3.8 million through the (CARES) act" to assist students who were struggling with expenses related to education. Included in these expenses were: food, housing, childcare, and healthcare, with additional needs taken into consideration. The CARES act served to help students transition to remote learning while facing economic challenges due to COVID-19 (Proud, 2020, p. 2).

Many universities already had technology programs in place before the COVID-19 pandemic, including the University of Michigan who, in 2017, began a laptop lending program. One anonymous student surveyed by Allen (2017), mentioned how he noticed his father struggling to know that his child was attending classes with a Chromebook that was prone to crashing. "I am ever so grateful for this, and it truly lifted a lot of burdens off my shoulders and my family's. It honestly helped with my studies, and I was sincerely able to accomplish so much more with this." (Allen, 2017, p.1). However, not all universities were prepared for this sudden shift in learning. Georgia Southern University's (GSU) library had 117 laptops available to check out at the beginning of the Spring 2020 semester, but as COVID-19 started to spike only "22 of those laptops was still available". This information comes just after their campus closed. According to Garner, when the GSU library began noticing the need for more laptops, they called other departments on campus asking for laptop donations. After the library's announcement, the campus received over 600 laptops for student use. The exponential growth in the need for laptop lending program was

evident. (Garner, et.al, 2020, p. 8). Examples such as this illustrate the growing demand for technology during the pandemic and how quickly universities moved in adapting their resources for their students' needs.

Additionally, the University of Alabama also realized that the campus only had four days to prepare for the shutdown of library resources. The UA staff "were able to build off existing library programs," ensuring that students had access to critical tools to academically succeed. (Decker, 2021, p. 14). Due to this short turnaround in creating a solution, universities realized the importance of building from already established programs instead of forging new ones. These existing programs allowed universities to have a short turnaround time during a time of crisis and were able to quickly solve student technology problems so that they can focus on finishing their courses.

TECHNOLOGY FUND: PROGRAMS HELPING STUDENTS DURING THE PANDEMIC

A Technology Fund is money set aside that helps students get access to the technological tools necessary for completing their coursework. For example, the University of Texas at San Antonio's student Tech Fund was established for aiding students who do not have adequate resources in obtaining the technology they need for excelling academically in their courses during the online transition (UTSA (University of Texas at San Antonio), 2020, p. 1). The Tech Fund by UTSA (University of Texas at San Antonio) was created for helping students with any hardships that came with the COVID-19 pandemic. Subsequently, this fund provided access to technology allowing students to turn in their assignments and keep up with lectures.

Establishing a technology fund is not only imperative but an objective that higher educational institutions should consider. For the American Council on Education, J.M. Turk conducted a pulse point survey focusing on the response from college and university presidents to challenges presented by COVID-19 and the immediate and long-term effects of higher education. One challenge mentioned within the survey comprised of 192 universities presidents' focused on financial aid for students and found that:

"63 percent of the president's indicated that their institutions had already established emergency aid but are now making more funds available; 14 percent said their institutions currently do not have an emergency aid fund, but that they are considering establishing a fund" as stated, technology funds have been available for a while now, but the need has been increasing. Another "9 percent said that in direct response to COVID-19, they created their first emergency aid fund; 7 percent said they had already established emergency aid and are not making additional funds available; and 6 percent said that their institutions currently do not have emergency aid and are not considering establishing a fund" to show that most universities have already established emergency aid and plan to build on those programs (Turk, 2020, p. 3).

Although having overarching emergency aid during this time proved to be beneficial, a permanent, direct technology fund is crucial because of the forced need to work on school remotely in the state of an emergency.

Berkeley's technology fund website states that "the digital divide that impacts UCB students predates COVID-19," and thus a coordinated institutional response that ensures equitable access to technology resources is necessary long-term. To meet the health and economic needs created by COVID-19, as well as other needs exacerbated by the virus, the Student Technology Fund began the following three-pronged response in March 2020:

- First, the STF funded, and together with the Chief Technology Officer and other campus partners, mobilized STF's Technology Access Program as a short-term emergency response to students' need for laptops and Wi-Fi hotspots during COVID-19.
- Second, the STF and other campus partners developed this portal to help students navigate a centralized process of applying for cash relief for technology, housing, and food needs.

- Third, in response to a COVID-19 relief proposal solicited from the Office of the Chancellor, STF granted \$717K in emergency funding to the University to deploy Zoom Pro licensing for all students from May 2020 through June 2021 and the new Student Technology Equity Program (STEP) for the 2020-2021 academic year. STEPS is staffed by STF and funded in majority by campus and minority by STF” (Berkeley Student Technology Fund, 2020, p. 1).

As an example of how successful and beneficial a technology fund can be during the COVID-19 era, a student who received aid stated that:

“Service was something I appreciated and was grateful for. At the time, my son, who is in sixth grade, also had to transition to online learning: But we only had one laptop to share. My professors were very flexible, but I was missing classes for my son to use my laptop. Thankfully, Lorena Valdez and Andrew Henry from the Transfer Student Center, knew I was struggling and moved quickly to find scholarships and funding for a new laptop: I am so grateful for that help. I am also amazed by how fast student parents at University Village have organized to get a lot of the resources that we needed during the pandemic.” (Berkeley News, 2021, p. 1)

To show how this student was able to be helped by university resources. Not only are these resources going to be used during this critical transition, but the resources available can be utilized after the pandemic is over. The increased funding and support show that the resources have been out there, yet not provided to students since the issue is now in the spotlight.

Loaner Laptop Programs: A Temporary but Vital Resource

Another resolution for the lack of technology support when COVID-19 began was loaner laptop programs. Loaner laptop programs focus on providing temporary technology to students without access and who are enrolled in accredited universities. Laptop programs at the tertiary level help address “digital poverty” faced amongst college students. According to a 2019 study by ECAR, 10 percent of undergraduate students did not personally own a laptop. As research has shown, access to technology is vital for academic success, a statement that 99% of students agreed with. (Gierdowski, 2019, p. 13) Before the pandemic, students were allocated access to technology by going to public libraries, but after the shutdown, many students who used those resources were left unable to complete their coursework. Public facilities were mandated by the CDC (Centers for Disease Control) to maintain “six feet social distancing” to increase personal safety. Office devices were shut down to the public since they were not efficiently sanitized and placed too close to another device. Students who had limited access to laptops, printers, scanners, and audio files struggled to find ways to keep on top of their education. Since school turned to an online, independent format, personal use of laptops has become essential to completing their degree.

Establishing loaner laptop programs in higher education is crucial for both faculty and student success, (Harris, 2010, p. 1) because students who lack technology access may experience feelings of stress and anxiety wondering how and if they will be able to submit their next assignment. As a higher education institution, providing students with the access they need for success emphasizes how committed a university is to ensure its students are successful.

Jennifer Latino, who is a Management Consultant for Ellucian, listed the diverse ways in which a higher education institution may offer support to students, both virtually and in person.

Research shows that students have shared negative experiences toward online learning - as students prefer traditional learning, and having faculty and staff personally reach out may help these experiences (Biswas & Debnath, 2020, p. 5). Latino encourages faculty and staff to reach out to “both students and families on a personal level” and advises educational leaders to lean on technology during these times (Latino, 2020, p. 1). However, it may be difficult for faculty to utilize this technology when their students are struggling in gaining access to laptops. Asgari’s explanation of how laptop loaner programs work gives insight into the backbone of the loaner laptop program:

“A loaner program can be implemented where students can borrow laptops for a certain period of time to access the course materials and complete the course requirements. The institution can also provide a virtual desktop environment for students to access all necessary software” (Asgari et al., 2020, p. 6)

Following this process, students can finish their coursework and attend classes during this transition to online learning. Students will then turn their loaned laptops into the university like they would turn in a textbook.

For laptop loaner programs to be successful, higher education institutions must work directly with their students and staff (Gutierrez and Summey, 2011, p. 5). By employing communication and encouraging faculty to reach out to students personally, academic success can be realized. The main purpose of loaner laptop programs is in helping low-income students achieve success in their studies, while also creating equality amongst all class groups in education. One study completed by Fried-Goodnight et al. found that plans which proved successful for higher education institutions directly correlated to laptop and “Hot Spot loan programs” for low-income students, (Fried-Goodnight et al., 2021, p. 1) which illustrates the potential success of this kind of program. The study also mentions that a loaner laptop program helped “student success to demonstrate increased Retention and Persistence, and college completion at remarkable rates,” (Fried-Goodnight et al., 2021, p. 1) expressing the positive review of how a program like this is beneficial for students during this time. Loaner laptop programs have been critical during this time and, hopefully, universities will continue growing and expanding these types of student support programs.

Technology Programs for Thought

Though the application of laptop loaner programs has been critical during the shutdown, issues relating to the digital divide for students were exposed long before the beginning of the pandemic (Cantù, 2020, p. 1). Students without technology at home struggled with their schoolwork, and online courses and were at the mercy of donations, emergency funds, and public libraries. However, the pandemic has highlighted the importance of all students being equipped with the proper technological devices for a successful academic experience. Confronting the challenges during this past year in dealing with both the pandemic and providing college students with the necessary tools, is the best opportunity for achieving digital equity (Correia, 2020, p. 7).

Student support programs that became prominent throughout the pandemic, such as laptop programs and technology funds, were potentially the driving forces in implementing more inclusion within universities. Realizing that students needed more assistance, universities are now able to provide more support and structure during times of crisis. Emergency funds were set aside to provide students with the materials needed to complete their coursework and to attend class lectures virtually (Chaka, 2020, p. 84). Laptop loaner programs were also beneficial as students could borrow the needed technology to continue their education from home. These were set up to foster the students continued academic success and should continue to grow after the pandemic has run its course (O’Donoghue et al., 2020, p. 3).

These technology support programs continue to be beneficial in tackling the technical challenges of the pandemic and make the transition from a face-to-face setting to learning remotely a lot smoother (Tsai et al., 2020, p. 16). Many schools struggled at the onset of the pandemic because of the uncertainty in dealing with such an unprecedented event. This coupled with not only school closures, but transitioning into a fully online learning environment, proved difficult. Technology is important in today’s learning experience because of its endless possibilities in helping students succeed. Students without access to technology were likely to fail and fall behind. However, with universities working to adapt to these problems, students could continue their academic careers successfully at home (Faraj et al., 2021, p. 5).

The transition from in-person classrooms to virtual classrooms did not solely have an impact on students, but faculty as well. Govindarajan et al. (2020) share an example of how some faculty members felt about this transition:

“Not all faculty members are comfortable with virtual classrooms and there is a digital divide among those who have never used even the basic audio-visual equipment, relying on blackboards and flipcharts, and younger faculty who are aware of and adept in newer technology. As students across the nation enter online classrooms in the coming weeks, they are going to learn that many instructors are not trained to design multimedia presentations, with elaborate notations and graphics. Colleges and universities need to use this moment to assess what training is needed to provide a smooth experience” (Govindarajan et al., 2020, p. 3).

CONCLUSION

Technology is critical in today’s learning experience because of its endless possibilities in helping students succeed. Those without access to technology away from school when the pandemic hit was highly likely to fail and fall behind. As De Los Santos and Rosser (2021) explain, it is extremely hard to get equitable outcomes from students without equitable access (De Los Santos et al., 2021, p. 1). With universities working hard to adapt to the digital divide, students could continue their academic careers successfully at home with adequate access to new innovative technologies, collaboration, and proper oversight (Williams and Booth, 2021, p. 1).

The pandemic has truly pushed the importance of technology in academia even further to the forefront of institutional infrastructure and financial planning (Ezarik, 2020, p. 1; Govindarajan et al., 2020, p. 3). Additionally, the pandemic has forced universities’ executive leadership teams to take a hard look at plans for brick-and-mortar expansion as students, faculty, and staff find new ways to build communities without traditional buildings (Amour, 2020, p. 1). As more universities acknowledge that student support programs are in high demand, more will start to incorporate them into their plans. Universities that already had programs like these were able to have a quick turnaround time during the onset of the pandemic and were able to support their students and staff faster. Universities that did not have programs like these hopefully learn from this and have started a blueprint on how to support students and grow student support programs. It was stated by Salvin “At the end of June, the United States has experienced the highest number of cases and deaths due to COVID-19 in the world, and infection rates are rising once again. Given the great physical and socioeconomic diversity of the United States, the federal and state response to COVID-19 and plans to reopen schools in the autumn have emphasized flexibility and adaptation. However, the implementation of remote (online) learning has highlighted and exacerbated long-standing racial and economic inequalities in US society related to technology access, school engagement, and school-parent relationships” (Slavin & Storey, 2020, p.1). Programs like these are crucial to times of emergency and closing the digital divide that exists today so that all students share the same opportunity in success.

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