



# Tech ed during COVID-19: Safety, engagement, and access



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**HAVE YOU EVER** taken swimming lessons? (Or did you just get tossed into the lake and told, “Sink or swim!”?) In those lessons, you get into your swimsuit, jump in a pool, and learn how to exhale underwater, to hold your breath, and various strokes to keep you afloat. Now, imagine doing those swimming lessons online.

Not the same, is it? Sure, you can practice holding your breath and flap about on the floor imitating the different strokes, but not much else. That is similar to what happened to tech ed teachers in BC when they had to figure out how to teach their students to build birdhouses or use a welder, but online.

In the same way that learning to swim requires getting wet, the tech ed curriculum requires the opportunity to experience tools and materials in a “hands-on” context. The suspension of in-class instruction in K–12 education in BC on March 17, 2020, in response to the COVID-19 pandemic, resulted in “emergency remote teaching” (ERT).

ERT, a sudden switch to teaching and learning online, came with a myriad of challenges that many educators were unprepared for. As educators of tech ed teachers at UBC, we wanted to survey the tech ed teachers in BC and present a snapshot of the challenges and impact of ERT.

One of the main barriers to learning was the lack of student access to the tools they needed. Further, there was no way to ensure student safety if hands-on lessons were attempted remotely. Here's one teacher's explanation:

"I cannot deliver instructions on safety or procedure, nor can I assign project work to students without supervising them on tool/equipment use. They might not have access to any materials, tools, or other supplies."

Many teachers said that this led to a lack of student engagement and explained that they could only work on units that focused on theory. One teacher wrote, "Student buy-in has been low. Many of the reasons for signing up for a tech ed class (hands-on work, physical project to take home, the teacher) are not the same or entirely missing from online learning."

In addition, the lack of student access to "shop tools," as well as digital tools, both hardware and software, hampered teachers' ability to engage with students. Many teachers pointed out that their students lacked the computer hardware—"Few students with mice ... tough to do 3D modelling work without"—and licensed software that they needed to complete assignments—"Many of the projects that 'could be done from home,' can only be completed by about 10% of my students."

Where these tools were available, teachers highlighted other access issues: "Some students have one computer for up to seven students in a household." These access issues were compounded when a student's family situation was facing additional,

and often more pressing, concerns: "Limited WiFi due to remote residence, inability to logon due to district issues, family is in a crisis with food and lodging."

Looking to the future, teachers were concerned that tech ed would be severely affected if classes continued to be taught online in the fall. Several teachers expressed sentiments, such as, "This will kill tech ed if we do not go back or find a way to provide students with technology." Several also mentioned the fear that student enrollment would drop if students couldn't experience the hands-on components of Tech Ed. For many students, the hands-on component was the very reason they chose the elective: "Kids want shop classes because they want to be active and learn by making and doing."

At the same time, some teachers saw an opportunity in the sudden experience of ERT, with one noting, "Remote learning has a lot to offer, especially in a blended model, but tech ed cannot be fully converted to remote learning." The experience of providing instruction online during ERT has shown that some parts of the tech ed curriculum can be conducted effectively online: "One could do all the power tool safety orientation online using videos and quizzes and perhaps a module on hand drafting and design"—but other parts would need to be done in the classroom.

As we move forward into the hybrid learning environment, considerations around the hands-on element of the

curriculum have come to the fore. The BC Ministry of Education *Continuity of Learning Planning Guide for Teachers* explains that the in-class instruction may focus "on those parts of the curriculum that are more effectively taught face-to-face, such as science labs and other hands-on learning." In reimagining the delivery of tech ed, the teachers will benefit from familiarity in approaching tasks with a design mindset. Tech ed teachers will not be alone in this challenge. They can support each other through the BC Technology Education Association (see text box below). They can also learn from colleagues in other "hands-on" subjects, such as home economics, fine arts, music, and physical health education. It is likely their colleagues in these subjects also needed to overcome the difficulties around access to tools, equipment, space, and materials. As a result, sharing successful strategies with such colleagues could be quite helpful.

While some of the preparatory work for teaching someone to swim can be done out of the pool (breathing exercises, modeling strokes, etc.), it is hoped that the online component of the tech ed curriculum can do some front-end online work, with the rest being hands-on. Hopefully, some of the lessons learned from being thrown into the deep end during ERT will transfer into better online teaching and learning in the future. The provision of limited in-class instruction will allow tech ed to not only stay afloat but to thrive and be recognized as a valuable, perhaps even critical, elective in the years ahead. 🐟

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The BC Technology Education Association ([bctea.org](http://bctea.org)) is a provincial specialist association (PSA) of the BCTF. PSAs are channels for members to exchange ideas on research, teaching strategies, curriculum development, and other shared interests, including how to navigate emergency remote learning in these challenging times. Whether you teach a hand-on discipline, like tech ed, or academics, like social studies, there's a PSA for you. Learn about the BCTF's 32 PSAs at [bctf.ca/PSAs](http://bctf.ca/PSAs).