

The STEAM silver lining of the pandemic: Implications for teacher education

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Abstract

The first months of 2020 brought many unexpected challenges to teachers, parents, and students. The teachers had to learn on-the-go how to engage students in online learning environments. It became clear very quickly that to make online learning environments work, it is not enough to master the technological side of online learning. The teachers have to learn how to design authentic learning environments that will engage and challenge the students. This makes the integration of science, technology, engineering, arts, and mathematics (STEAM) even more relevant than ever before. At first glance the task might look difficult, as traditionally in K-12 schools these subjects have been taught separately and teachers rarely had a chance to collaborate on teaching integrated lessons or to engage students in long-term STEAM projects. However, today we have a great opportunity to ponder how we can break the traditional classroom walls and to consider novel learning opportunities that might not have been overlooked in the face-to-face classrooms. An opportunity to design novel online learning environments allows teachers to challenge how their students were learning before while drawing on students' passions, interests and strengths to facilitate more powerful engagement. For example, students can learn how to communicate science and mathematics ideas to the general audience using social media, such as YouTube. The students can investigate the science of music or to examine how artists, such as Leonardo da Vinci, integrated STEM to create their immortal works of art. In this presentation, I will discuss how we can educate future teachers who will be open and ready to collaborate with peers and create face-to-face and online STEAM learning environments. I will invite us to think about different ways of how we can use STEAM education to prepare future elementary and secondary teachers. I will discuss the role of modern technologies in STEAM classrooms and will bring two examples to illustrate these suggestions: Family Math and Science Day at the University of British Columbia and our online YouTube channel featuring educational STEAM videos designed by future teachers.