



Students in a classroom during the pandemic. ("Back to School: Research Topics on Education during Covid-19." *Frontiers*, Accessed September 21, 2021. <https://blog.frontiersin.org/2021/09/21/back-to-school-research-topics-on-education-during-covid-19/>).

# Creativity and STEM engagement during the COVID-19 Pandemic

Saaniya Rupani

The COVID-19 pandemic has affected every aspect of life for people all around the world, including social life, education, work, and mental health. Students are just one group that have been affected greatly by the pandemic. The educational system's transition to online school during quarantine was difficult for both teachers and students.<sup>1</sup> Curriculum had to be changed to accommodate remote learning, leading to loss of key components like in-person discussions and hands-on activities.<sup>2</sup> This often led to a lack of student engagement, which led to less learning and social development. According to a study done at the University of California Santa Barbara, remote platforms were generally found to be "non conducive to learning" because the biggest challenge was getting students to collaborate and discuss with each other.<sup>3</sup> Although students

became more familiar using technology and online programs, there is still something different about in-person, hands-on laboratories and teamwork-based design projects that normal STEM curriculum provides.

## ***The value of student connection***

Many teachers across the country struggled to quickly adapt to teaching during a pandemic; however, one teacher's methods stood out. Mrs. Sharita Ware, Indiana's 2022 Teacher of the Year, has been recognized for her unique teaching style and STEM implementations during the pandemic. According to Zoe Replinger's interview with Mrs. Ware, she is first and foremost unique as a teacher because of her STEM industry background in industrial engineering technology which she brings into the classroom.<sup>4</sup> This gives her a different

perspective as a teacher because of her knowledge of relevant technical skills learned in an engineering industry. Furthermore, her values include encouraging students to stand up and share their voice without being afraid of failure. Not only does this mindset allow her to empower her students, but also gives students a safe and free space to learn and use their creativity. One success story to highlight Mrs. Ware's impact in the classroom is about a struggling student who ended up being very successful. This student was struggling academically and ended up being expelled from the school. However, prior to being expelled, he had read a book in Mrs. Ware's STEM class about a role model who struggled throughout his life yet became a successful pilot. This story seemed to impact the student greatly, as he later took inspiration from the book, and decided to work hard to get into a flight school that started in the 9<sup>th</sup> grade. Mrs. Ware's out-of-the-box teaching style, which included reading and language within her STEM program, was the one thing that positively impacted this student. This goes to show that valuing personal connection with students is extremely beneficial in the classroom.

### ***Change in Assessments***

Transitioning her unique teaching style into a classroom during the pandemic was difficult even for Mrs. Ware; however, she was still able to deliver STEM content to her students because she recognized the changes her students would face. The biggest change to young students during the pandemic was their attention span, as many of them were heavily exposed to the internet, entertainment, and YouTube videos. This decreased their attention span when back in the classroom, so Mrs. Ware decided to now incorporate the internet with hands-on projects during the year by adding research components. For example, she designed a project using Barbie Dolls where the students had to design a prosthetic leg. However, she added the research component so that students had to write a backstory of the Barbie doll based on a real-life person. Now, students had an individualized section of their STEM projects that they could do remotely while using platforms they were exposed to during the pandemic. Mrs. Ware's values in the

classroom about encouraging creativity and failure is like other teachers as well. One teacher, Rick Erikson, stated that the biggest challenges at his school involved equity, access, and delivery of instruction.<sup>5</sup> These challenges led him to reevaluate essential learning outcomes to focus on translating those to students across online platforms. Furthermore, assessments were changed greatly because of new access to information. Since students now had access to look information up or ask people in their homes, assessments became more focused on explanations and processes rather than just the right answer. This allowed students to be more creative and emphasized problem-solving skills and communication. The combination of creativity and hands-on projects even during online school helped Mrs. Ware and other teachers to continue to impact their students and keep them engaged with STEM during the pandemic.

### ***The impact of STEM***

Although restrictions due to the pandemic are relaxing, school systems across the country have changed in their academic curriculum, assignments, and student interactions. These changes will likely remain a part of schools in the future and would not have existed without this transition period. Virtual components are still interconnected with curriculum today, with online tools being used, virtual options to classes and exams, and online discussions. Furthermore, valuing creativity and logic rather than the right answer is very beneficial to students because it changes the mindset and motivation of students in the classroom. With hands-on projects and assessments being focused on the process rather than the solution, students are more engaged and can take away more than just facts and figures. Overall, teachers like Mrs. Ware who value personalized student connection and creativity are extremely impactful in the academic industry, especially STEM. Recognizing these teachers and implementing their student engagement methods across the country will help future students learn and be successful.

## **Notes**

1. "Back to School: Research Topics on Education during Covid-19." *Frontiers*, Accessed September 21, 2021. <https://blog.frontiersin.org/2021/09/21/back-to-school-research-topics-on-education-during-covid-19/>.
2. James Palcik, "Teaching Stem during COVID," *THE Journal*, published September 18, 2020, <https://thejournal.com/articles/2020/09/18/teaching-stem-during-covid.aspx>.
3. Sarah D. Sparks, "Science Teaching and Learning Found to Fall off in Pandemic," *Education Week*, April 13, 2021, <https://www.edweek.org/teaching-learning/science-teaching-and-learning-found-to-fall-off-in-pandemic/2021/04>.
4. Zoe Replinger, "Carrying the Torch: Q&A with Sharita Ware, 2022 Indiana Teacher of the Year," *The Persistent Pursuit*, Purdue University, published February 17, 2022, <https://stories.purdue.edu/carrying-the-torch-qa-with-sharita-ware-2022-indiana-teacher-of-the-year/>.
5. Lauren J. Young, Xochitl Garcia, "What It's like to Be a Science Teacher in a Pandemic," *Science Friday*, published October 23, 2020, <https://www.sciencefriday.com/articles/stem-remote-learning/>.