

How teachers are adapting to COVID-19 disruptions is subject of new study

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Noyce program researchers Meena Balgopal, Laura Sample McMeeking, DeeDee Wright and Andrea Weinberg, now studying how the COVID-19 pandemic has affected novice teachers. Credit: Colorado State University

The COVID-19 pandemic has shone a spotlight on many of society's unsung heroes—among them teachers, who took their duties online this past spring and kept teaching, even as schools shuttered and "homeschooling" became the new norm.

For Colorado State University researchers, this environment of

disruption across the country's public schools provides a new opportunity to take a deep dive into what makes teachers resilient, even in the midst of a pandemic.

Researchers led by Meena Balgopal, associate professor of science education in the CSU Department of Biology, have received National Science Foundation support to study how novice STEM teachers are responding to the COVID-19 outbreak. Support for this work was appended to an existing NSF grant aimed at preparing science and math majors to become teachers in high-needs school districts, through CSU's Robert Noyce Teacher Scholarship Program. The researchers involved with the Noyce program are now studying a crop of novice teachers just entering the teaching profession, as COVID is still dictating how schools will operate come fall.

"This is such an unusual turbulence that teachers are experiencing," said Balgopal, whose expertise is in pedagogical strategies and issues of social justice and inclusivity. "This is an opportunity for us to gather information on the characteristics of the system they are in, and whether they stay and adapt, or transform and leave."

Adaptive capacity

The team is using an "adaptive capacity model" to frame their findings. This type of model was first proposed in 2002 and is widely used to describe environmental responses to disturbances in natural systems. The CSU team is testing to see if it also applies in an educational environment; they previously published a paper proposing this theory.

"We propose to test a model, designed to explain teacher professional resilience in uncertain environments, to better understand when and why novice STEM teachers leave schools in which their expertise is most needed—often rural and urban schools," the researchers wrote in

applying for the funding extension.

They saw Noyce scholars as a natural test population for their study. In the last decade, CSU's Noyce program has supported close to 70 [undergraduate students](#), most of whom are now teaching STEM subjects at middle and high schools around the country. The national program, created in response to nationwide shortages of high-quality educators, provides support to high-achieving math and [science students](#) with an interest in teaching as a career. As Noyce scholars, the students receive scholarships and professional development in exchange for teaching in high-needs districts.

Even without a global pandemic, much is asked of teachers, Balgopal said. They are "inundated with expectations," like following state standards for academics, and developing assessments used to measure their effectiveness as teachers. They are expected to be "social justice educators, as well as character educators." Particularly in high-needs districts, teachers are expected not only to teach, but to teach in situations where students may be coming from unsafe or food-insecure home environments, or from non-English speaking backgrounds.

Then came COVID-19, in which teachers had to keep doing all these things, while cut off physically from the students they were serving and facing added stress and pressure to succeed.

The researchers hypothesize that teachers in this situation have responded by "reorganizing," and by implementing available resources to develop new instructional strategies. They also suspect some teachers may be leaving the profession, either by turning to other STEM education work or stopping their teaching careers altogether. To find out, the team is recruiting about 200 Noyce-supported teachers across western states, including Colorado, to participate in surveys that will be administered this summer and fall.

The ultimate goal of the study is to share the information discovered with other Noyce universities to inform how novice STEM teachers can be better supported so they don't leave the profession despite major disruptions.

The research team

The research team includes Laura Sample McMeeking, associate professor and director of the STEM Center at CSU, who brings methodological expertise for the research design of the study. She also has a background in professional development extending to in-service and pre-service teachers. The study results, she said, could potentially inform new or adapted professional development based on teachers' needs. She also said the group could learn about creative ways novice teachers are adapting to the pandemic.

"I imagine, because they are either still in their teacher educator program or just out of it, that they may have fresh eyes and new ideas that may help us understand how we can both plan for how to respond to future disasters, but also if there are ways to improve our education system regardless," McMeeking said. "This situation has clearly highlighted existing inequities in our educational system, and within this, I hope to recruit, support, and retain high-quality teachers in those districts that have been hit hardest in terms of these inequities."

Also joining the project is DeeDee Wright, Noyce program coordinator and a student in the Graduate Degree Program in Ecology with a specialization in human-environment interactions. Wright will lead distribution of the surveys, collection of results and data analysis. A former science teacher and educator, Wright served over 25 years in public education.

"I don't think I could have ever imagined this type of disruption to the

education system," Wright said. "I am interested to see what changes come about for teachers and students, who makes changes or not, and how that affects the culture of our schools. Will teaching and learning look the same or will it be dramatically different as we move into the next [school](#) year?"

The team also includes Andrea Weinberg, who received her Ph.D. at CSU and is an assistant professor in the School of Education at Arizona State University. Weinberg has expertise in in-service [teacher](#) education.

Provided by Colorado State University

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