



TEACHING



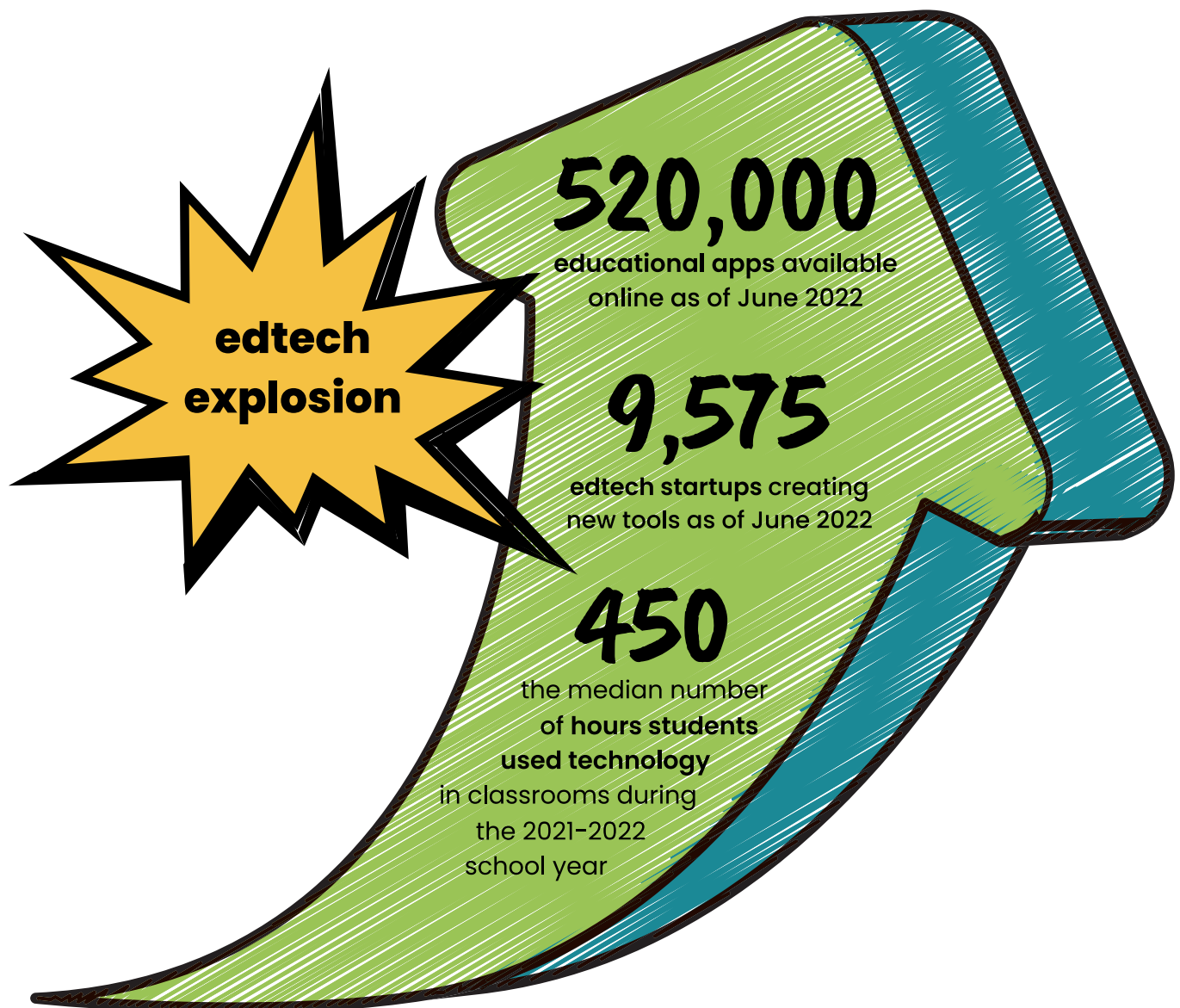
 *with*

TECHNOLOGY

TECHNOLOGY, TECHNOLOGY EVERYWHERE...

To say that the world of educational technology (“edtech”) grew exponentially during the pandemic is like saying that there is a lot of water in the Atlantic Ocean. Here are a few metrics on just how enormous the field of edtech has become: As of June 2022, there were 9,575 edtech startups in the United States, more than 520,000 educational apps available for use by teachers and learners, and a Google search of “educational apps” tallied more than 9.35 billion results.

That’s the supply side, but how about the demand? In November 2021, the EdWeek Research Center asked 846 teachers from across the country this question: How much of the day do students typically spend using edtech? About half of teachers say their students spend 1 to 4 hours a day using edtech. Calculate that across the school year and that means that a majority of students spent anywhere from 180 to 720 hours using edtech during the 2021-2022 school year (a median of 450 hours).



What Teachers Want...

For teachers, this influx of edtech into classrooms can be transformative, but it can also feel arbitrary and overwhelming.

When SUNY Stony Brook (on behalf of the New York State Department of Education) surveyed teachers across New York State during the 2020–2021 school year about what support they needed to shift to online teaching, 26% ranked technology skill-building as a top concern (second only to student engagement). Teachers expressed specific requests such as those in the quote bubbles.

“ I need more technology training that is not a drive-by experience; someone is needed to walk us through our own individual lessons at least one time while we are developing real lessons. ”

“ Ways to improve my knowledge of technology to design improved lessons ”

“ We need entire days to be presented platforms, applications, and time to apply what we learn so we can share it with students confidently. ”

“ Learning how to use the online programs and tools effectively, confidently, and efficiently ”

“ I have a lot of experience using technology, but I am not sure I use it in the best ways. ”

IN THEIR OWN WORDS...

The supply/demand equation around edtech seems to leave educators facing the quandary posed by poet Samuel Taylor Coleridge when writing about the lives of ancient mariners out at sea, surrounded by salt water: *"Water, water, everywhere, nor any drop to drink."*

If we drop the teacher requests from the prior page into a word cloud generator, we can quickly see that teachers know what they need to move beyond this paradox:



Turn the big words from the cloud (above) into a sentence, and it might read:

"[Teachers] need time and experience to use technology confidently in ways that [improve] lessons."

BUILDING CONFIDENCE





for teaching with technology

Let's begin with what most teachers are confident in – teaching – and then think about adding technology. Educator Ruben Puentedura developed a model to just do this: help teachers think about integrating technology into their instructional practices in ways that allow them to build on their existing strengths. The SAMR model helps teachers think about how they currently use technology in their classrooms and then “level up” as they gain confidence with new practices. The levels of technology integration are (1) substitution, (2) augmentation, (3) modification, and (4) redefinition.

- **LEVEL 1 - SUBSTITUTION** – Technology acts as a direct tool substitute, with no functional change. For example, students may type up notes in a Word file instead of writing by hand in a notebook.
- **LEVEL 2 - AUGMENTATION** – Technology still acts as a direct tool substitute, but with functional improvements. To stay with the note-taking example, students use Google Docs and on a tablet that has a camera. They are able to add hyperlinks within their notes and take photos of in-class activities to insert them in their notes.
- **LEVEL 3 - MODIFICATION** – In this stage, technology not only enhances the learning activity, it also significantly transforms it. Extending the note-taking scenario, the students may revise their notes for sharing via a blog. This requires them to refine their own thinking on the topic in order to be able to communicate it to others in a public format.
- **LEVEL 4 - REDEFINITION** – This level requires the teacher to think about learning activities that were previously inconceivable without the use of technology. Again, staying with the note-taking scenario, students can work in teams on a shared Google Doc to collaboratively generate and refine their notes, which they can then present to students from other schools via Zoom.

What's really nice about the SAMR approach is that it is focused on teacher decision-making, and, while we described the four levels, teachers are encouraged to work across these levels as appropriate for the learning activity. Yes, the redefinition level is the most transformative in terms of integrating technology, but not every learning activity needs to be or should be redefined! Sometimes you need just a black cup of coffee.

SAMR as Coffee

Substitution	Augmentation	Modification	Redefinition
Tech acts as a direct tool substitute with no functional change.	Tech acts as a direct tool substitute with functional improvement.	Tech allows for significant task redesign.	Tech allows for the creation of new tasks previously inconceivable.
<i>black coffee</i>	<i>latte</i>	<i>caramel macchiato</i>	<i>pumpkin spice</i>
			

Teacher as Barrista

Adapted from Tech Tips for Education Blog

MEASURING EFFECTIVENESS

of teaching with technology

As we integrate technology with the SAMR model, we also need to ask ourselves if the tech we're using is effective and how to know what to use.

In 2011, Professor Liz Kolb at the University of Michigan developed the "**Triple E Framework**" to flip the script on the traditional methods for choosing technology tools, which put technology first. Instead of asking whether Google Docs is the right tool, Professor Kolb suggests teachers begin by asking, "What are the learning goals of this activity/lesson/unit? And then, would Google Docs help reach those goals?" As with backward design (discussed in Session 5), begin with the goal and then back into the evidence of student learning, planning of instruction, and use of technology.

The Triple E Framework is built around (you guessed it!) three action verbs that start with the letter E: **Engage, Enhance, and Extend**. A good way to understand the framework is to first recall a learning experience (activity or lesson) that you are thoroughly confident in teaching and that already integrates technology. Ask yourself the questions in the infographic to the right to consider how you are currently using the technology and how you might further integrate technology into your instructional strategies to help students achieve the learning goals and objectives.

NOTE: You can connect the Triple E Framework to prior sessions in this module:

- **ENGAGE** - Session 4 on Student Engagement
- **ENHANCE** - Session 5 on Instructional Planning
- **EXTEND** - Session 4, which touches on culturally-responsive and sustaining education

TRIPLE E FRAMEWORK

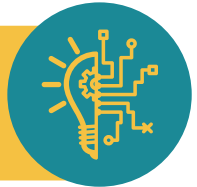


ENGAGE

Does the technology:

- help students focus on the assignment or activity?
- motivate ("hook") students to start the learning process?
- cause a shift among students from passive to active learners?

ENHANCE



Does the technology:

- help students develop a more sophisticated understanding of content?
- provide scaffolds for learning (understanding concepts or ideas)?
- create unique paths for performance-based learning and assessment that can't be achieved with other tools?



EXTEND

Does the technology:

- provide opportunities for students to learn outside the traditional learning environment (physical classroom, class period, school day, etc.)?
- provide bridges to connect learning in the classroom with students' cultural and social lives and experiences?
- allow students to draw from and further develop skills that they use in their everyday lives?

TIME & EXPERIENCE

teaching with technology



Both the SAMR model and the Triple E Framework emphasize three things:

1) Begin your teaching and technology journey from where you are currently confident in your instructional practices and build from there. Keep putting excellent teaching first and integrate technology from that point of experience and confidence.

2) Focus on integrating technology in ways that support learning goals and objectives. Technology for the sake of technology isn't useful and can even be counterproductive!

3) You don't have to do it all at once...and you probably shouldn't anyway! Try out technology tools in ways that you are ready for and are confident will support the learning goals and objectives. You can always "level up," but jumping in too deep too quickly is likely to be a disaster for you and your students. Remember, the ultimate goal is student learning, and there are many ways to achieve that goal!

The takeaway here is that you should take your time and build your experience organically. Set reachable goals for yourself in terms of trying out new technologies. For example, you can choose to focus on using one broad technology resource across your instructional program throughout a school year (the Google Docs example above works for this approach). Or you can pick one new tool to use for each unit. Give yourself and your students enough time to learn about, try out, practice, and improve the use of the technology.

In the next part of this session, you will explore more deeply the technology frameworks described above. If you choose to complete the micro-credential activity, you will also have the option to evaluate your use of instructional technology using SAME and Triple E with the help of guiding questions.

Now it's your turn!



As you select and review resources on SAMR and Triple E in the session choice board, use your workbook to record key points and strategies that you can apply in your classroom.

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About Us

The TALE Academy

The TALE Academy is a series of virtual learning experiences available to all New York State educators and offers a rich array of resources on topics related to teaching across learning environments (TALE). The TALE Academy is built upon the work New York State educators carried out during emergency remote teaching (ERT) throughout the COVID-19 pandemic and extends it toward the future. TALE invites educators to think beyond online learning to consider a broader perspective on teaching and learning that encompasses teaching across multiple environments (in-person, remote, and hybrid).

The Teaching in Remote/Hybrid Learning Environments (TRLE) Project

The TALE Academy is part of a broader New York State Education Department (NYSED) initiative known as Teaching in Remote/Hybrid Learning Environments (TRLE). In July 2020, NYSED was awarded funding through the United States Department of Education's Education Stabilization Fund-Rethink K-12 Education Models Grant to implement TRLE – a three-year project to build the capacity of teachers and educational leaders to effectively implement remote/hybrid learning for all students. Launched in the depths of the pandemic, the first phase of the TRLE project focused on getting resources to the field through partnerships with Boards of Cooperative Educational Services (BOCES) and school districts across the state. The second phase, which began in February 2022, focused on aggregating lessons learned and emerging teaching and learning strategies to address a broader field of practice: teaching across learning environments.

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