

REL Mid-Atlantic Educator Effectiveness Webinar Series
Effective Integration of Technology and Instruction
Q&A with Michael Jay
December 3, 2015

In this webinar, long-time educator and developer of education technology Michael Jay discussed the importance of using technology to support learning and gave examples of how teachers can integrate technology into their instruction based on the Common Core State Standards and the Next Generation Science Standards. The [PowerPoint presentation](#) and [webinar recording](#) are also available.

1. How do you ensure technology does not overpower content delivery? How do you ensure technology doesn't become an after-thought in delivering content?

To ensure technology does not overpower content delivery, it is crucial to use technology purposefully to enhance classroom instruction. Gratuitous use of technology dilutes essential use of technology. Successful technology use requires professional development including professional learning communities to change how and what teachers teach, as well as how and what students learn. Teachers should be aware of the unique value and purpose of technology and work to master its use as part of the educational strategies they use. When teachers have opportunities to develop these skills and take advantage of these opportunities, technology will become a regular component of educational activities and less likely to be an after-thought in supporting student learning.

2. How can teachers integrate technology in instruction to make it fun, relevant, and accessible?

Teachers should work to engage and understand the needs of all of their students. Students with varying backgrounds and capabilities benefit from the effective use of technology to accelerate and enhance their learning. Teachers modeling the use of technology themselves for research, critical thinking, problem solving, decision-making, communication, collaboration, creativity, and innovation emphasizes for students the value of digital literacy and technology skills.

3. How can technology be used to remediate appropriately and to maintain mastery of skills?

There are three stages of educational technology: accelerate, which increases comprehension speed associated with facts or concepts; extend, which builds greater depth of understanding and more extensible knowledge; and transcend, which provides access to learning experiences

otherwise unavailable. Technology can be used to support students at various levels through teachers' careful consideration of students' needs and precise planning to address those needs with available technology.

4. How can technology be used to support older youth who are behind academically?

Technology gives teachers a unique opportunity to effectively differentiate instruction. Students, especially those struggling to learn certain skills, benefit from the multiple examples and accessible representations of concepts that technology provides. A teacher is able to personalize the learning according to individual student needs. Students benefit from support in reading instruction through text-to-speech, highlighting, underlining, the ability to use a virtual dictionary, and various other supports provided as part of an e-book reader or custom applications. By selecting the right materials and supports for students and implementing them successfully, a teacher can use technology to benefit students at all levels.

5. Which technology works best when one teacher is working alone and the whole school is not adopting the same technology?

Teachers should find and take advantage of professional development opportunities, do independent research, and ask other colleagues (potentially in other schools and districts) for support and suggestions. Teachers can remind their school administration and district-level administration that technology can improve data collection and analysis, as well as boost student achievement, and encourage those making decisions to include technology adaptation and support services in future planning.

6. Which technology is best for increasing parent engagement in a high-poverty school?

Engaging parents in a high-poverty school around the technology infrastructure is important, since it can teach them the value of technology in education and introduce them to ways their child can benefit from technology in the classroom. Educating all stakeholders about the use of school data helps discount the many public misconceptions about school data use. Although not all students have access to this technology in their homes, families can understand the importance of technology in learning and encourage their students to use the technology available.

7. In addition to how teachers teach with technology, how can technology act as a tool for students to use in their own learning? What strategies do you recommend for this approach?

As teachers introduce technology in their classrooms, they can follow a strategy in which they slowly give students increased responsibility for selecting the tools the students think best suit the task they are working on. By empowering students to select their own use of technology, teachers give students the ability to take learning into their own hands and self-select the technology tools

that will support them. It is key that the educator provides guidance to learners to help them realize that the right tool for the right task doesn't always mean a computer.

8. What are the best strategies for integrating technology in the classroom when instructors vary in their technological expertise and confidence?

Teachers can start with more scripted implementation of technology. By implementing a well-documented and planned out lesson that integrates technology, teachers can then ask colleagues or coaches to observe and work with them to improve the lesson and technology integration. Teachers can increase their use of technology and diversify their technology use as they become more comfortable. They can start by controlling risk and adding technology to lessons and content with which they are familiar and then begin using technology in ways that are less familiar. Part of this process is recognizing that the educator need not be the expert in all things and that students learn best when they are actively engaged.

9. What can you do on a limited budget? What techniques can I use that will go across all the grades?

It may seem a bit antiquated given that one-to-one is all the rage, but there are incredibly effective strategies for the one-computer classroom. David Dockterman of Tom Snyder Productions produced a wonderful book back in 1990 on this very topic, which remains relevant today and is available online. Teachers can also reach out to other teachers and school and district personnel for support and collaboration to find pockets of funds to integrate technology into their classrooms. In many districts over the last few years, funds for instructional technology have been integrated with curriculum funds. Teachers can support each other and share their best techniques and practices with other teachers.

10. Can you give an example of a one-stop meta-warehouse for good technology apps/websites, etc.? What resources do you recommend for overly busy teachers?

For overly busy teachers, I recommend a change in strategy and then resources. As educators, we tend to feel that we need to "do it all" in service of our students. Learning strategies that support student collaboration and creating a community of learners who are passionate about their learning can free the teacher to do what is best for their students—prepare rich learning opportunities. For example, why not let students create their own quizzes and score those together? Those students will learn much more through that process and be more invested, while the teacher is freed from the position of knowledge mediator. You can spend the time you save learning how to use a new instructional resource. As for educational resource registries, several states have their own versions of the Learning Registry, an effort supported by the U.S.

Department of Education. To view the growing set of educational resources, see:

<http://learningregistry.org/educators/>.

11. What are some research-qualified, pedagogically sound, technology-enabled teaching strategies?

There are many potential responses to this question. In addition, solutions that are pedagogically sound increasingly incorporate multiple strategies and multiple media. The International Society for Technology in Education produces several different journals and books that address how to make the most of technology as part of teaching and learning. The National Education Technology Standards provide an excellent framework for the use of technology and digital media. Other standards infer the use of technology based on pedagogical demands and include the use of models, collaboration, construct of artifacts, research and the use of media, and understanding perspectives and cultures.

12. As technology is integrated into curriculum and instruction, how can we educate families and parents on the digital literacy component of 21st century learning to support their children's academic achievement?

Although families may not have access at home to all of the technologies used in the classroom, it is important for schools to include families and educate them about how technologies are used in the classroom and how they can further enhance learning at home. Families should be included in the conversation about digital literacy and academic achievement so that they understand their students' learning and technology use. It is important that they recognize that use of technology is an essential skill to be integrated into how their children study and solve problems. Invite parents to after school sessions where they can experience what their children are doing and, even better, invite your students to join them and show their parents how they are learning. It is not unusual for parents to think that their children should not use a computer until they have completed their homework. Help parents understand how technology is being integrated into learning and how best to engage with their child when using technology.

13. How can school policies regarding student-owned devices aid in effective technology integration?

Administrators and teachers can work with students' families to better understand students' needs and create policies that work for parents, educators, and students for the use of personal devices. A combination of student-owned devices and school-owned devices can create a compelling, technology-rich learning environment as long as there is open discussion to address equity and access, appropriate use of email and the internet, and care and theft of devices. Being proactive in addressing policies, strategies, and expected behavior related to these issues can make for a rich and rewarding learning environment for all students.

14. How can I best utilize technology during the face-to-face time I have to instruct all six grades in all four subjects (language arts, math, science, and social studies) in a cyber program?

The use of technology in classrooms allows for more effective differentiated instruction and scaffolding techniques that may otherwise not be available. Look for interdisciplinary activities where students can engage with content and processes from all four disciplines. Application of a “jigsaw” strategy, where students of different ages and capabilities collaborate in researching and sharing knowledge to generate new understanding of a topic, can be compelling for all learners involved. With careful educator guidance, older and more advanced students can remain challenged, even as younger learners remain more focused on gathering essential information. Using technology to facilitate collaboration and sharing of information often results in greater depth of understanding by all learners. There is rich literature on creating a community of learners, particularly as related to the use of technology as a tool to support this learning.

15. What are the limitations of technology in education? What nontechnical aspects need to be present in a classroom in order for the technology to be most effective?

Technology can be an important part of instructional content and classroom management. However, technology does not take the place of kinesthetic activities or students engaging one on one with a teacher or other students or even working in groups of varying sizes. Hands-on experiences with science experiments, cooking, building with one’s hands, and other such activities can benefit from technology, but the technology does not replace the first-hand experience. Technology accompanies and supports quality education. Teachers should receive training and development so that they are comfortable using technology to augment or extend existing experiences. Of course, when students have special physical needs, the technology can make available experiences that they might otherwise be denied.

16. What are some technology programs that support English language learners (ELLs)?

It is important to keep in mind that students come to school from different backgrounds and with different experiences. For ELLs, teachers can support students by building vocabulary and reviewing content-specific words. Pair and group work benefits English learners, and connecting families with technological resources also supports student learning. Modeling tasks and ensuring that technology use is goal-aligned and meaningful are helpful for students. There are several different programs that explicitly address ELLs and far more that offer strategies by which the programs can be made better suited to address the needs of ELLs. Several active online ELL communities discuss uses of technology in support of the students they serve. I suggest that you lurk there to gather tips or, better yet, get involved in the discussions.

17. How will the use of technology make the topics I am teaching more relatable to my students?

Technology gives students the opportunity to connect what they learn in the classroom with the real world. These connections allow learning to move outside of the classroom and into students' everyday lives. Madeline Hunter suggested that educators reach closure at the end of a lesson. I think it is far more compelling for students to engage with what they are learning in their nonschool lives, and technology can go a long way to facilitate that. Young people naturally communicate via several online environments. Teachers can leverage that to both draw examples and experiences from nonschool life and carry lessons outside the school to help students create more relevant and coherent knowledge.

18. How effective is the use of technology for students with special needs?

Teachers must know their students' needs and what resources are available to determine how technology can best benefit that student. Teachers can call on specialists who are aware of the wide variety of tools and technologies available to support unique learning requirements. Many mainstream computer operating systems and e-book readers have robust tools built in (no additional cost) that make digital educational resources more accessible to a wide variety of students who have special requirements. Students and parents grappling with print disabilities should be introduced to Bookshare (www.bookshare.org). They can access a rich library of educational assets in a format that many different technologies, some built right into readers and browsers, can use to make these resources more readily available. The effectiveness of these tools lies in their ability to level the playing field and provide these students access to educational resources in a form they can read. The effectiveness of these resources depends on the student's need.

19. How does technology relate to blended learning?

Blended learning refers to learning in which multiple media types and learner-centered educational strategies are employed to support learning. Technology is a key ingredient in creating a learning experience that pleases the palette of each learner. Technology allows skilled educators to manage far more variations than they might otherwise be able to handle. Learners can work alone or with others to solve problems, discuss a book, research a topic, view a video, and most important, they can get more quality time with the teacher in areas where they need assistance. While some of this was possible before technology was available, technology makes it easier to create and manage this sort of environment. This model has changed learner and parent expectations as to the role of the teacher and increased learner autonomy, making technology essential to future teaching and learning.

20. How can people in the education field attract more people in the technology field to get involved in education?

Educators who are early adaptors of technology often work with other educators to share best practices and techniques. The technology aspect is important, but understanding how to manage a classroom and how to incorporate technology into education is even more important. Think of it this way—you wouldn't want to select someone to be an ophthalmologist simply based on their interest in lenses. You want someone who is interested in human physiology and has expertise in the eye and structures around the eye. It is important to have educators who know how to integrate technology to create compelling lessons and learning activities.

21. How can online videos support teachers in learning to implement technology effectively?

Online videos can support teachers by providing examples of how they can integrate technology into their lessons. Fear of failure plays a large part in preventing educators from taking risks, and videos help lower that barrier by modeling how to introduce and manage the use of technology with students. When coupled with notes and guides for watching, videos can be a form of just-in-time professional development that supports the internalization of these strategies and development of habits that make it easier to introduce and apply new technology. Encouraging teachers to record their own lessons can be useful for self-critique or sharing with peers for collaborative review. This is a great method for supporting teacher growth in technology use and is increasingly becoming part of pre-service and master's level teaching programs.