Blending Pedagogy With Technology- How to Enhance Student Learning Outcomes?

Part 2

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We asked Education Technology experts the following questions about their strategies and experiences, and they were kind enough to share their insights with us.

Q1. What according to you are the biggest challenges in implementing Technology in Education? How can we overcome them?

Q2. What do you envision when you think of Innovative Technologies for classrooms?

Q3. What technologies does your school utilize and how they have affected student learning outcomes?

Q4. To combine pedagogy with technology- what things we currently have and what more we need?

Q5. Share any of your success story, where you have used personalized learning method.

This is the second E-Book, containing answers from Questions 3 and 4. Stay tuned as we release our final Ebook in 2 weeks.
Q3. What technologies does your school utilize and how they have affected student learning outcomes?
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BX has two platforms it uses to deliver programs to students. Both were custom built. One is our online learning platform. Built with the expressed intent to enable the delivery of inductive learning (through case studies), this platform is mostly asynchronous and does not use live faculty. It enables (and indeed requires) students to answer each other’s questions, share reflections regarding their thoughts on a case, and answer “cold calls” to understand how they might be thinking about a given problem. The other platform is the HBX Live platform referenced above. Through this platform, we have created a virtual classroom that many students say surpasses and in-person experience.

Patrick Mullane
Executive Director,
HBX Harvard Business School

“This platform is mostly asynchronous and does not use live faculty.”
Q3. What technologies does your school utilize and how they have affected student learning outcomes?

I am a secondary teacher from the Waterloo Region District School Board and feel incredibly fortunate to be in the second year of a board wide rollout out of 1:1 chromebooks for all grade 9 students. At my school, in a year and a half every single student of our approximately 1400 will have their own chromebook, supplied to them by the school board, that they take from class to class and home with them each night. This project has positively transformed teaching practice in our high schools, and thus had a powerful impact on student learning outcomes. Through making use of the GAFFE cloud environment, we’ve seen some really powerful changes in practice that has fostered collaboration and opened new doors for our students in the differentiation and personalization of their learning.

"we’ve seen some really powerful changes in practice."
Q3. What technologies does your school utilize and how they have affected student learning outcomes?

Lisa Read
District Information Technology Coordinator,
School District 79, British Columbia

We have recently gone through the process of removing computer labs from elementary schools and moved to mobile technologies. The underlying premise is that learning tools need to be where the learning happens, not have technology be an “event” but rather embedded in daily practice. Besides our mobile fleet, we have drones, robotics, 3D printers, and maker spaces popping up in schools and classrooms. Students are more engaged, as much by the variety as the new technologies, and providing them options creates opportunity to show their learning in meaningful ways. We purposefully purchased our mobile fleet with a view to providing one device per 3 to 4 learners. This was done with intention, as we have learned in the past that 1:1 environments don’t provide the same opportunities for rich collaboration, challenge-based learning projects, and community interaction.

“Learning tools need to be where the learning happens.”
Q3. What technologies does your school utilize and how they have affected student learning outcomes?

I work for all of the English school boards in Quebec so there are a wide variety of technologies being used through the nine English boards. The top initiatives are ones that help to increase the relationship between teachers and students. When teachers record their lessons and share them online for students to access or when they create websites so that students can access course content when needed they are showing their students that they care about their learning. Learners appreciate this extra effort and learning outcomes are positively affected. When the focus is on how we believe in our students, the technology emerges naturally.

“Top initiatives are ones that help to increase the relationship.”

Tracy Rosen
Education Consultant
Recit Provincial Service for Adult Education, Quebec
Q3. What technologies does your school utilize and how they have affected student learning outcomes?

We use and provide the devices outlined above, and they have greatly improved student engagement, collaboration, and their ability to reach and communicate with diverse audiences beyond their schools and classrooms. They can produce new evidence of student learning because they have new tools to demonstrate what they know and can do, including videos, blogs and Hangouts with experts and others from around the world.

Anita Simpson
Superintendent of Program & Innovation
Simcoe County District School Board

“They have new tools to demonstrate what they know and can do.”
Q3. What technologies does your school utilize and how they have affected student learning outcomes?

In the last two years we have encouraged the combination of a diversity of technologies: from modular robotics to raspberry pi, including Chromebooks, iPads, littleBits inventor kits and MakeyMakeys. We are amazed to observe the synergistic potential of these different technologies when kids and teachers are engaged in challenges such the #smartcitymaker, in which they should codesign and cocreate the model of an inclusive smart city combining both recycled materials and electronics, robotics and 3D printed pieces.

"From modular robotics to raspberry pi."

Margarida Romero
Associate Professor of Education Technology
Laval University
Q3. What technologies does your school utilize and how they have affected student learning outcomes?

We just opened our school this year and therefore are both more fortunate than most, and still waiting to assess the impacts of these technologies on learning outcomes. However, we believe we have been forward thinking in our approach to technology. We’ve created multiple mobile ‘computer labs’ rather than hardwired computers to encourage the flex learning spaces; an industry comparable design studio with multiple 3D and Laser printing equipment to allow students to work through design thinking & see tangible results; a media arts Mac lab with a full photography studio and creative suite; and an ‘Innovation Hub’ (think secondary school makerspace) that will be host to most of the technologies throughout the school and allow students & staff to run workshops at any point during the day, as well as pursue their own social innovation projects.

“Encourage the flex learning spaces.”

Jason Richea
Lead Learner
Jean Augustine Secondary School
Q3. What technologies does your school utilize and how they have affected student learning outcomes?

Our schools have access to iPad carts and computer labs, as well as most teachers have projectors and interactive whiteboards in their classrooms. Recently we have seen a shift in teachers moving away from using installed apps on the iPads and moving instead toward using them for accessing videos or websites. This eliminates a lot of the overhead and management issues that can come with iPad use. One of the teachers I work with has integrated the iPads this way in her station-based classroom. By allowing students to access videos from the iPads, they can work more autonomously in small groups or explore individualized learning.

“ This eliminates a lot of the overhead and management issues.”

Avi Spector
Education Consultant
Riverside School Board
Q3. What technologies does your school utilize and how they have affected student learning outcomes?

It is a pretty long list: primarily GAFE, but different folks are using a wide range of testing and quizing modes, as well as an incredible range of teaching programs. If it’s out there, someone in my building is using it!

“*If it’s out there, someone in my building is using it!*”

Ed Doadt
Secondary Principal
Waterloo Region District School Board
Q4. To combine pedagogy with technology - what things we currently have and what more we need?
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Patrick Mullane
Executive Director,
HBX Harvard Business School

Pedagogy trumps technology.

“Pedagogy trumps technology.”

Pedagogy trumps technology. The best technology won’t save an ineffective teaching method any more than the best special effects won’t save a movie with a horrible plot. The good news is that this means that teaching effectively in the modern age doesn’t necessarily require some earth-shattering innovation the likes of which the world has never seen. Most of what we need to deliver great educational experiences exists: the Internet, rich video creation and editing tools, data analytics processes, learning management systems, etc. Perhaps what we need more than technology is a way to effectively re-build lesson plans with technology integrated into the whole. Integration is the innovation that matters.
Q4. To combine pedagogy with technology—what things we currently have and what more we need?

If you’re looking to improve student outcomes with the implementation of technology, you need to have a dedicated focus on how it’s going to change teacher pedagogy as well to see any results. Having teachers run their classes the exact same way but only having their students do it on a device instead of paper won’t have any noticeable impact on learning. Indeed, I would argue its the potential change in pedagogy that technology can enable that is where the true “magic” can start to happen in classrooms. Many people will mention the TPACK and SAMR models when thinking about the fusion of pedagogy and technology, and they are a great place to start. I think the thing we need most in this space is collaboration and sharing; we need to give educators a lot of time to sit down together, share their successes and their failures, and really talk deeply about making a transformational change in teaching practice that is now available to us like never before. This is not a change that will happen over a single PD day or at a staff meeting.

“\textit{The thing we need most in this space is collaboration and sharing.}”

Andrew Bieronski
Secondary Teacher
Waterloo Region District School Board
Q4. To combine pedagogy with technology—what things we currently have and what more we need?

Lisa Read
District Information Technology Coordinator, School District 79, British Columbia

“It’s important in my organization that Pedagogy is the driver. Technology, though, is the accelerator. Technology richly supports differentiation and personalization, supporting pedagogy in ways not possible before. Technology needs to be used to create, not as a means to provide content—learners need to be creators, not consumers. The pedagogy informs what technology is the most appropriate for the task.”

“Pedagogy is the driver.”
Q4. To combine pedagogy with technology- what things we currently have and what more we need?

I think we need fabulous professional development opportunities that focus on teacher needs as well as their expertise. If we provide more opportunities for teachers to connect with each other and share their own success stories, all the while integrating technology implicitly throughout the process, we will see change in the classroom. I believe that every part of an educational system is a reflection of each other and if we want to see innovation in the school houses we need to plan for it in PD as well.

“Every part of an educational system is a reflection of each other.”

Tracy Rosen
Education Consultant
Recit Provincial Service for Adult Education, Quebec
Q4. To combine pedagogy with technology- what things we currently have and what more we need?

Ideally, all students would have their own device and access to new technologies that emerge. Virtual reality has the potential to disrupt education in the near future.

“Virtual reality has the potential to disrupt education.”

Anita Simpson
Superintendent of Program & Innovation
Simcoe County District School Board
Q4. To combine pedagogy with technology - what things we currently have and what more we need?

We need to develop a stronger culture of innovation which engages all the educational actors in a community to be on an iterative process of improvement and reflection about technology enhanced learning. We need to encourage teachers to join innovative communities to be supported in their process and be part of larger projects which can develop their reflexive practices and innovation capabilities with a lifelong learning scope.

Margarida Romero  
Associate Professor of Education Technology  
Laval University

“Encourage teachers to join innovative communities.”
Q4. To combine pedagogy with technology- what things we currently have and what more we need?

We have the technology in the schools for the most part; and we also have the teaching strategies. We really need to do a better job at marrying the two by providing ample opportunity to explore, take risks, and really just play. In my experience, it means offering an opportunity for teachers to learn without judgements, restrictions, or unrealistic expectations; and offer the necessary support. As a result, I believe many will see how new technologies can support existing practices in ways that lead to new learning outcomes. Unfortunately, that support is often what’s needed most, and few districts have educational technology coaches like they do for numeracy or literacy.

Jason Richea
Lead Learner
Jean Augustine Secondary School

“Unfortunately, that support is often what’s needed most.”
Q4. To combine pedagogy with technology- what things we currently have and what more we need?

I don’t think it’s a question of acquiring more technology, but rather it’s about allowing more technology into our classrooms. I believe trusting our students to use their technology to solve everyday problems (as they would in the real world) is a powerful way to combine pedagogy with technology. That being said, some teachers may be uncomfortable with the concept of allowing students to fully integrate their own technology into how they learn.

In order for this to happen, educators need to do more modelling when it comes to the proper use of technology rather than just focusing on a list of do’s and don’ts.
Q4. To combine pedagogy with technology—what things we currently have and what more we need?

New technology will be piloted and tested. We have a building full of keen, and critical teachers, who can quickly assess the “value” of new programs and mechanisms. We are always looking for something new. Of particular interest currently is software that aligns with the Ontario Ministry of Education’s “Growing Success” initiative.

Ed Doadt
Secondary Principal
Waterloo Region District School Board

“New technology will be piloted and tested.”
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