The E-book is divided into four separate parts, with each part providing insights from 17+ thought-leaders and students:

Following are the Questions we asked our speakers:

Part 1 - What do you believe the future of Education Technology looks like?

Part 2 - What technologies does your school utilize and how has it affected learning outcomes?

**Part 3 - What according to you are the biggest challenges in implementing Education Technology? Why?**

Part 4 - Which disruptive technologies are on your radar?

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**STAY TUNED FOR PART 4**
What according to you are the biggest challenges in implementing Education Technology? Why?

Jon Dron,
Professor & Chair, School of Computing and Information Systems,
Athabasca University.

I have big concerns about specific tools like personalized (not personal) technologies, increased automation leading to distance, a rate of churn that wearies the hardest technophile, and centralized LMSs that reinforce bad attitudes to learning and teaching: these fuel a justifiable reticence and kick-back against new technologies. However, I think the most complex challenges lie in orchestration, for three main reasons:

• Firstly, technologies exist within a much larger assembly and are inevitably mutated and deformed by the larger context, and they can (and should) deform that larger context. This is very hard to predict in advance, though we really need to try to do so. We are concerned with complex systems, in which large things have small effects and small things have large effects. It is less about conducting that process than improvising and reacting to it. This fits uneasily with our formal, hierarchical and industrial models of teaching.

• Secondly, we simply don’t know enough about what it is that we are trying to do to use technologies well. Far too often, tools are introduced with implied beliefs about the problems they seek to address and, often, they harden those beliefs (for example LMSs almost universally believe a unit of learning is a course and that a teacher controls it). I think the most transformative technologies are the softest: those with the potential to be used in infinite ways, that support creativity and individuality - tools that let teachers (including other learners) teach. But, like all soft technologies, skill is needed to use them well, and it is hard to adapt. Training can help a little, but it is much more important to develop a culture of sharing, where learning and teaching behaviours are visible, constantly reflected on, and critiqued, where good ideas infect others, and bad ideas are seen for what they are. It’s about learning communities, not processes and tools.

• Thirdly, path dependencies tie our hands. Those of us that started to build things like learning management systems in the 1990s did so in a context: we were replicating and often automating what we saw as being the existing functions and behaviours of our institutions, and our tools were built to fit with and support those systems. We thus embedded models of process, method, and pedagogy in those systems, making concrete what was formerly tacit. Now, such systems are embedded in institutions, and they constrain the potential paths more than what they replace. We cannot simply throw them away and replace them with something better because we have invested vast effort into learning, creating structure and content, and embedding the tools in our bigger systems. As long as they set the rhythm, transformative orchestration is difficult or impossible.
What according to you are the biggest challenges in implementing Education Technology? Why?

Nathalie Lemelin,
Head of Innovations in Teaching & Learning,
Lower Canada College

Training faculty is key to effective use. Technology can be transformative; it allows us as teachers to reach every learner and differentiate our pedagogy, however this comes with on-going training.

Farbod Karimi,
Chair, Digital Initiatives and Academic Educational Technologies,
Algonquin College

Technology when used properly can be extremely powerful. However, occasionally technology finds its way into course delivery where there is little added value for the students. We have to be mindful of this and strive to use technology that makes sense. Another challenge to implementing technology may be resistance among both faculty and students. For some, technology is new and adapting change is not very comfortable. Having the proper resources and support to facilitate the use of technology in the classroom and beyond is paramount to creating a meaningful learning experience.

A further challenge in implementing education technology is the sheer velocity at which technology changes and the overwhelming variety of platforms and interfaces. We have to ensure that our lexicon is suitable to all technology users.
Garth Nichols,
Director of Teaching & Learning,
**Bayview Glen**

No surprises here, it is time. I have worked hard to make the EdTech meaningful to both student learning and to the teachers themselves (in terms of reducing redundancy and increasing efficiency); however, we need to provide the time for teachers to learn, experience and apply this technology. That is a key pillar of our workshop - making PD opportunities that work for everyone. In short, it must be personalized, job-embedded and in the teaching day, in order to be effective.

The real challenge is how to make this possible. I would also add that an obstacle is trust. We need to build an EdTech plan that allows teachers to invest their time and planning and designing of learning opportunities into this technology. We can’t keep switching our EdTech to the new and shiny. We need to make deliberate and well-researched choices, and support our teacher in adopting this technology.

Beth Peterson,
Branch Manager, Division of Innovation and Program Engagement,
**Kentucky Department of Education**

Our current and greatest challenges involve work around impacting teacher practice with technology to empower learning. We are engaging in new work with several Kentucky school districts that are proving successful in their digital transformations. We are working with these districts to identify and highlight best practices for digital readiness and teacher professional learning models.
What according to you are the biggest challenges in implementing Education Technology? Why?

Jo Axe, Director, School of Education and Technology, Royal Roads University

Support for course development and faculty training are among the biggest challenges in implementing educational technology, along with these challenges is the need for ensuring appropriate distribution of resources. RRU’s Centre for Teaching and Educational Technologies has developed a system where courses are assigned to a service level so that resources can be allocated appropriately. For example, Service Level 3 would usually be provided to a new course, or one that requires a significant amount of learning design support; Service Level 1 would typically be allocated to a course that has run previously and is deemed to require only minor upgrades for the next offering. Support and training are essential to quality delivery and, with new developments coming rapidly into play, it can be challenging for course developers and instructors to stay abreast. At RRU, programs can be on-campus, fully online, or a blend of modalities; in addition, a high number of our students are mid-career professionals with complex lives and competing demands, with the result that we need to ensure students are appropriately supported in reaching their educational goals. Providing environments that enable students to connect with each other and engage meaningfully with faculty is imperative.

Matt Devlin, Learning Technology Specialist, University of Toronto, School of Continuing Studies

Creating buy-in from instructors and course developers alike can be a significant hurdle. Tried-and-true course delivery methods are a comfortable way to repeat past successes, but as the world continually changes so must education. Decisions to incorporate technology into courses often come from collaborations between executives, technology professionals, educators and course curriculum developers—which doesn’t always include everyone who will actually be teaching. It can be difficult to show the impact new education technology can have on a specific organization without having already implemented and assessed the results; so proactively addressing concerns is a key part to a successful implementation.
What according to you are the biggest challenges in implementing Education Technology? Why?

Gina Alexandris, Director, Law Practice Program, Ryerson University

Fear of change and lack of time to try new things and reflect on how best to incorporate them into past practices.

Greg McLeod, Principal, John A. Leslie Public School, TDSB

In public schools the issue is always keeping up with the rapid change in technology. Having both new technology in terms of hardware and the backbone to support it. Having the infrastructure (high speed wireless access) in place to support the technology is an issue as school purchase Wi-Fi dependent devices and students bring in their Wi-Fi devices. This puts strains on the system and as we become more dependent on cloud based eco-systems slow access becomes an issue.

Brenda Massey-Beauregard, Program Manager, Interpersonal Skills Teaching Centre, Ryerson University

Just keeping pace with technological innovation can be a challenge these days. Always being up to date with the latest and the greatest of everything is a daunting task for any publicly funded institution. Again, I think it comes back to how we determine the most effective, intentional uses of technology in a given context, and then leaving room for the students to bring their own skills and knowledge to the table. In the case of interpersonal skills development, as our program demonstrates, the technology isn’t necessarily the primary consideration when it comes to determining outcomes or impact – the experience is.
What according to you are the biggest challenges in implementing Education Technology? Why?

Jill Cummings,
Associate Dean Faculty Development,
Yorkville University

The opportunities outweigh the challenges. However, some technologies are more compatible with PCs than Mac products - difficulties that are bearable however.

Leonora Zefi,
Manager, eLearning Initiative and Course Development,
The G. Raymond Chang School of Continuing Education

Balancing the needs of educators and students. There are also real challenges with issues of usability and privacy. It’s critical to be strategic about the selection and investment in new technologies and consider long-term value for learning vs novelty.

Jonathan Obar,
Assistant Professor of Communication and Digital Media Studies,
The University of Ontario Institute of Technology

Ensuring that the appropriate time and effort are devoted to a broad and deep digital literacy. As more and more of our lives are lived online we need to ensure that we are teaching students to be informed and engaged digital citizens. We need to ensure that our students are enjoying the benefits of a twenty-first century education that includes both traditional and digital learning techniques.
What according to you are the biggest challenges in implementing Education Technology? Why?

Neil McClung, Teacher, Peel District School Board (PDSB)

1. Teachers - The “I learned this way, therefore this is the way I teach” model is still a battle cry for some. It is time to stop the practice of adapting technology for the teacher, and begin adapting teachers to use the technology. After all, the students are there already.

2. Inequity - There are two parts to this. Technology was touted as being, and still can be, the great playing-field leveler. However, many students, even those at schools in rather affluent neighbourhoods, do not have adequate technology at their disposal at home. The recent news stories that revealed that some families must choose between food and internet access is a harbinger of a growing “tech gap” that goes well beyond whether we can provide a refurbished computer to a family that is struggling. This is only exacerbated when school boards encourage BYOD policies that serve those who can afford to allow students to bring expensive equipment to school, while others cannot. The other issue is the growing gap between older “have-not” schools and newer buildings that are being constructed with instructional technology as part of the overall design. New schools, especially in fast-growing communities like Brampton, are brimming with technology, yet the older buildings in the same board, and sometimes in the same neighbourhood, don’t have adequate power outlets in classrooms, let alone fully integrated multi-media networks.

3. Sustainable funding - Purchasing computer technology is not like the other forms of large capital outlays our boards are used to making - a desk will last more than a decade, a building could remain standing for a century. A computer, on the other hand, is more-often-than-not obsolete before it is packed in the box for shipping. In order to truly embrace a 21st century pedagogy we must first embrace the speed at which 21st century technology evolves, and plan accordingly. A room filled with 30 seven-year-old under-maintained computers might as well be a room filled with slates and chalk.
For me, the biggest challenge is a system that hangs on to the industrial model of educating our kids. This can be seen in the product-first mentality or the prioritization of facts over skills. This traditional system commodifies kids and shapes them, their teachers and their schools into citizens who are proficient in reading, writing and arithmetic. These skills are necessary, but a modern world needs more. Our kids need more. They need to be ready for problems we can’t yet conceive. They need to be able to work together, be creative and think about the big-picture. Changing peoples (mostly teachers) minds about making a shift from this traditional model is my biggest challenge.

As we move to an open learning environment the methods of class delivery and assessment need to evolve to incorporate the availability of access. An increase in peer-peer learning, group and teamwork, and various forms of student engagement (such as team competitions, researched team presentations, and interactive discussions) are needed in the classroom. Revised methods of delivering material will also need to incorporate more individual online research, to help develop these skills in students. Assessments based on independent online work can motivate this kind of learning. In all of this the professor or teacher acts as a guide, not as the source of all information, helping develop meaningful research skills such as reference checking, discriminatory review and extraction of salient content. The biggest challenge: moving teachers out of the past and into this inevitable future in terms of how the learning environment looks.
What according to you are the biggest challenges in implementing Education Technology? Why?

Paul Brown,
Teacher, Computer Studies,
North Park Secondary School

The biggest challenge remains the issue of technology as facilitator to the teaching style. Whether it’s because they feel they don’t have time to learn how to properly use technologies, they don’t embrace technology for themselves and therefore are disinclined to use it in the classroom, or they feel that ministry curriculum requirements and board initiatives don’t make it possible to radically change the way they teach to accommodate new technologies, resistance is significant. And simply moving the technology into the classroom isn’t going to work. Left on its own, technology by itself isn’t going to change anything. Technology has to be seen as a tool to enable a new way of teaching.

Katherine Turner,
Writer/Trainer/Facilitator, Interpersonal Skills Teaching Centre (ISTC),
Ryerson University

The biggest challenge seems to be finding a balance within the constraints of budget. Should universities pursue the costs of new technologies over those of hiring additional instructors? The students’ learning needs and opportunities should be the determining factor. In our program, we can deliver authentic experience without technology. However, we struggle with the knowledge that many students cannot be here and so miss what for many is an essential learning experience in their professional development.
A STUDENTS PERSPECTIVE

What do you believe the future of Education Technology looks like?

Ahmed Tahir,
President, Humber Students’ Federation,
Humber College

Funding and Adoption. Having these technologies available to use is useless unless schools have the ability to buy them, and there is an appetite to use them to the effectively. Changing the way we teach is easier said then done, and comfort in old methods is very difficult to ignore. The students we are teaching are constantly changing, their environment is constantly changing, their needs and wants are constantly changing and the way they learn is constantly changing. The way we teach needs to be constantly changing to accommodate this.

Cormac McGee,
Vice President Education,
Ryerson Students’ Union

The biggest challenge I’ve experienced is making sure the technology is accessible to all. We’ve experienced certain “flipped courses” at Ryerson, which in theory could work very well, but in practice have ostracized from the learning experience because of different abilities.

Jasmine Denike,
Vice President External,
University of Toronto Students’ Union

In some ways, I would say that the biggest challenge is learning to be constantly changing and adapting to whatever comes up next. In some ways, professors and students don’t want to try any new forms of technology and communication because their current methods are already incredibly effective. Another challenge would be understanding the importance of implementing new resources for students and why, although it may not at first seem necessary, new technological practices and skills should be available to our students as they develop.
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5. **BYOD & 1:1**: Roll out your programs effectively
6. **Online Learning**: Boost enrolment with distance options
7. **Pedagogy**: Ensure your technology of choice enhances learning
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9. **Faculty Culture**: Develop support for your tech programs
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