In Search of Future-Focused Learning Technologies

We need a common and inspiring vision of the future—something to aim for beyond our riches, beyond our power struggles. We need something that, against all the odds we’re facing, will give us hope and strengthen our resolve to keep working toward a better place. Future vision is the only thing that has ever built, and held together, good civilizations. Schools, in their collective mission to prepare people for their future, are collectively yearning for some future-focused glue as well.

Over thirty years ago, Alvin Toffler pointed out: “All education springs from some image of the future. If the image of the future held by society is grossly inaccurate, its education system will betray its youth.” Indeed, because we live in this fast-paced, interconnected, and complex world, the need to frequently revisit education’s role and effectiveness in preparing people to be ready for the future is clear. Though battles may rage over what is most important for students to learn and how education should be funded, the conversation surrounding education’s explicit connection to our preparation for and creation of the future itself is often lost in the myriad of judgments. Like other things such as scientific inquiry and creativity, future-readiness is abstract and difficult to assess. One thing we do know, though, is that we need to navigate a lot of change and prepare our students for this change. Somehow, we simply must become more future-focused.

Luckily—or perhaps ironically, depending on your perspective—just as many countries in the developed world are experiencing major financial and social upheaval, a number of learning technologies are maturing with real potential to allow us to collectively deal more effectively with such increased speed, interconnection, and complexity across the disciplines. On the one hand, we have a difficult and harrowing set of decisions to make simply to keep the world going; on the other hand, we have scores of new tools that allow us to seriously consider how to best align learning with changes and the pace of change reflected in the world around us. Sure, we need to use these tools in a way that sizes up the expanding “possibility spaces” of our future: biotechnology, nanotechnology, network technology, and political, cultural, social, and environmental change. Of course, navigating these changes will require enormous creativity and the ability to make collective decisions while in crisis. But we can make this happen.

The potential for a truly new learning ecosystem is emerging. Social networks, learner analytics, virtual worlds, and learning management systems operating in cloud-based services are beginning for experimentation and situated application. We could be witnessing the emergence of a ubiquitous infrastructure capable of differentiating instructional experiences on-the-fly, in real time, for each student as befits that student’s knowledge, skills, dispositions, and preferences. There are many possible futures. Which one will we work toward? I’d like to suggest that we work toward a future-focused learning framework.

One thing professional futurists often agree on is the need to systematically scan the environment. The future is “already here,” as the science fiction writer William Gibson says. “It is just not evenly distributed.” We look for early warnings of trends and events that have some probability of affecting our institutions and our students. Rather than flying by the seat of one’s pants, for years the RAND Corporation and others have advised us to be systematic and to work together to better “see” what’s coming on the horizon. Recently, there has been compelling argument for the need for continuous, persistent forecasting for “disruptive technologies” as a strategy for dealing with increasing change. This allows us to detect signals of change earlier than otherwise and to consider what we’ll do “if” these possible futures come to pass. Even though the actual future that we “get” might not exactly fit the possible futures that we had forecast, we will likely be better prepared than if we had never concerned ourselves with such possibilities at all. As Louis Pasteur quipped, “Chance favors the prepared mind.”

One way for us to better prepare ourselves in a world of flux is by making a habit of teaching, practicing, and modeling environmental scanning. Whereas environmental scanning once meant assigning strategic planning team members different sectors to cover, today is a different landscape. Rather than individuals culling relevant articles and tidbits to weave into “Possible, Probable, and Preferable” futures for the organization, with concomitant strategies, today we have a flood of information through which each of us needs to filter. Luckily, there are tools to help us. We have RSS feeds and personal news aggregators, mail filters, Twitter hashtags, Google Alerts, intelligent bots, and crowdsourcing. But we need to better integrate these tools into our learning environments and prepare students to deal with the terrabytes of information they must learn to accommodate.

Another range of tools useful for engaging in future-focused learning falls within the realm of learner analytics. Although many educational administrators look to use neural networks and other learning algorithms to assess aggregates of student data across school districts or institutions, the power of these algorithms may be much greater when trained on the datasets compiled for individual students. Imagine that future learning
environments are rapidly designed around aggregated learner profiles, developed as the curriculum actively interacts with the student. Many stakeholders—including the state, parents, teachers, and students themselves—might prescribe goals or recommend sets of curriculum while learner analytics are customized for each student through the volumes of data gathered on the individual student's preferences, skills, knowledge, and dispositions. Challenges, quests, and other learning activities relevant to the moment may be matched to these unique, emergent learner profiles, selected and put into motion by teachers or other facilitators.

Virtual worlds may also lend a hand in future-focused learning. As Daniel Livingstone noted in the March/April EDUCAUSE Review New Horizons column, virtual worlds may not be enjoying the widespread use that was predicted, but they aren't exactly dead. Though these highly plastic environments have moved out of the spotlight over the last few years, there are signs of well-integrated use cases in education. Indeed, the 2010 fall quarter's Gartner Report projected that public virtual worlds were just starting up the "Slope of Enlightenment" on the "Hype Cycle for Emerging Technologies." Virtual worlds can offer students and experts a place to project both data-driven and imagined future scenarios. In highly collaborative work environments like Open Wonderland, Second Life, and OpenSim virtual worlds, team members are evolving sophisticated work routines that enable them to rapidly prototype possible, probable, and future scenarios at a variety of scales. By merging with other media on the Internet, virtual learning environments may be exploited to a much greater degree—enabling critical thinking and creative problem-solving and enhancing people's ability to consider longer and different future timelines.

It's true, as Albert Einstein noted, that the future comes soon enough. We have enough trouble with today, do we not? A driver going down the road at 5 mph can look his or her passenger in the eye and carry on a decent conversation without too much worry, casually steering around obstacles with the occasional glance at the road in front. This is a little less possible at 35 mph. The faster you go, the further down the road you must look to see what's coming. Besides, as educators, we are mantled—by writ of our chosen profession—with the responsibility of future-preparedness, no matter how big and scary the future might seem. Whether consciously or unconsciously, we project images of the future for our students every time we teach or every time we create curriculum. I believe that transforming the Frederick Taylor "factory school" model to one that aligns with our networked "flat world" is the most urgent calling for those educators steeped in educational technology and instructional design.

There is a rhythm to the tasks that we ask of our students, with deadlines clustered around the end of the term or year—but no further into the future. When we repeatedly break topics down into component parts and discipline-specific problem sets, when we prefer teaching events to grappling with future trends, we tacitly take responsibility for the time perspective that our students graduate with and for the habits of mind with which they are armed, ready to face the world. We need to improve their chances for success. Let us commit to building a future-focused and scaffolded learning environment so that our students have a perspective greater than our own.