Evolving Education Systems for Generation Z and Beyond

Technological developments have been unprecedented over the past two decades. This revolution and the emerging ‘digital natives’ are having important impacts on education systems in North America.
IN OUR HIGHLY connected and data-driven society, the world’s information can be at our fingertips in the time it takes to say "OK Google". Zero complex knowledge is required to operate our devices; using only simple hand movements and voice recognition we can contact someone on the other side of the planet, watch topical events unfold over Twitter or play the latest games via internet forums like Steam.

The majority of young people growing up in North America – alternately called Generation Z or digital natives – have never known a world without internet access and are maturing with increased technological literacy and connectedness. A 2014 survey from Northeastern University’s Innovation Imperative series indicated that Generation Z is more aware of global issues and more accepting of diversity than previous generations. They are self-sufficient, resourceful and entrepreneurial problem solvers. However, the survey highlighted young people’s concerns over international conflict, their economic futures and growing inequalities between rich and poor.

Today, children are able to access knowledge whenever and wherever, meaning that learning can easily occur outside of the classroom in new and novel ways. As a result, this calls into question the roles of educators and education systems: how can they adapt to this new way of learning? John Palfrey, Head of School at Phillips Academy – an independent high school in Massachusetts – believes that a useful starting point is to think beyond the boundaries of the classroom. “Our education system should be a hybrid between learning in physical spaces and in virtual spaces,” he states. “What students learn in a museum (on the ground or on a device) should be linked into what they learn in a classroom or from a parent reading to them at night.”

BECOMING VIRTUAL

Open educational resources – those that are shareable, modifiable and copiable without charge – have blossomed over recent years, providing a great interactive alternative to textbooks for educators and students. The CK-12 Foundation has been a huge part of this by providing a free, web-based application to create customised and adaptable textbooks – or Flexbooks – that can be used and adjusted by anyone using Creative Commons licences. In the US, 38,000 schools use CK-12 materials and these are likely to become even more widespread.

Alongside these changes, virtual schools and online courses, such as massive open online courses (MOOCs), are also on the rise. The Virtual High School, one of the first organisations to offer online courses to complement traditional learning, has helped define a new style of global, connected learning with a network of over 700 member schools. This model, together with access to barrier-free open resources, opens opportunities to a broader range of students such as those from traditionally underserved or rural communities.

“Students in this generation have a different learning style than in previous generations, which requires teachers to have different practices in the classroom,” explains Carol Ribeiro, Chief Operating Officer for The Virtual High School. These include implementing blended or hybrid learning concepts, which combine traditional classroom approaches with virtual learning tools. Students can use school hours for project work and face-to-face collaboration with their peers, and then use their own time to fuel their interests and engage in further learning via online education tools. Within the US, 24 states have been trialing blended learning approaches.

The more widespread these hybrid and blended learning educational models become, the more important it is to revisit, and perhaps remodel, the role of teachers. Rather than imparting knowledge of a subject to pupils – there are thousands of YouTube videos that can do just that – it is arguably far more valuable to help children develop skills to find the information online.

ON A MISSION

Where online videos, podcasts and blogs are supplanting traditional teaching, new styles of learning are emerging. Perhaps one of the most interesting of these is gamified learning. With the increase in digital gaming, there have been many concerns about how these may negatively affect children. But digital and other games are starting to emerge as a new framework for developing the critical thinking and problem-solving skills that young people need. Some findings have even highlighted a positive role of games in cognitive, motivational, emotional and social development.

“As we learn more about the science of games and learning, we will see the influence of games grow beyond discrete games that are used in classrooms, and start seeing the principles of game design being applied to pedagogy and the design of education systems in really innovative ways,” predicts Robert Gehorsam, President of the Institute of Play. Quest to Learn, the New York-based Institute of Play school, is using the ideas behind game design to develop lessons in traditional classrooms that are based around game-like missions. To complete the missions, students must solve problems by finding the knowledge they need and thinking creatively.

Game-like features can be further integrated into the classroom using milestones, experience points and leader boards. Classcraft, a project started in Quebec, Canada, contains many of these game mechanisms. Students take part in a collaborative role-playing game of warriors, mages and healers and are rewarded experience points for correctly answering questions in class, among other things. Gamification like this can create shared or individual goals, and rewards players at every step – making the learning process fun.

“It’s critical for younger generations to develop skills like systems thinking, critical thinking, problem-solving and collaboration,” Gehorsam explains. “It’s also essential for us to engage younger generations and nurture a passion for lifelong learning that will help them shape a successful future, even if we don’t yet know what the future looks like.” This is particularly poignant in light of predictions that 65 per cent of children starting school in 2011 will find themselves in careers that have not even been invented yet.
PERSONALISED LEARNING

Many educators argue that children need an education system that is personalised to their individual needs – a tricky thing for most schools to achieve with traditional tools and 30 or so students in a class. Yet with the plethora of virtual learning tools now available, this becomes much more feasible – particularly with the implementation of hybrid learning techniques, such as those employed by The Virtual High School member schools.

In addition, the apps stored on an individual’s phone allow personalisation on a simple level because students can choose to download and use different apps according to their perceived own learning needs. Moreover, by taking advantage of learning analytics – whereby data are collated as to how a student interacts in online environments – students’ skills, progress, success and preferred learning styles can be analysed to create a learner profile. This information can be used to alter learning environments or flag any areas in which an individual is struggling. This could result in a dynamic learning system that uses inputs in the form of test scores and adapts tasks according to performance and success derived from specific learning styles.

School of One, a non-profit school in New York, operates on a similar principle. It gathers data on how students progress on different tasks and creates personalised ‘playlists’ for each student. The New York City Department of Education’s Research and Policy Study Group estimated that School of One students learn at a 50-60 per cent higher rate than traditional schools. Knewton, an online learning platform, also offers analytics tools to teachers that allow them to predict the learning priorities and pathways for each student.

Game-like platforms can further allow personalised learning. Hilliard Darby High School in Ohio has implemented a gamified learning menu that gives students task options through which to complete learning objectives. Different points are awarded according to the type of activity performed, and these contribute to whether the goal is achieved.

Improvements in digital technologies have opened the door to entirely new kinds of learning styles for those in Generation Z and beyond. Meanwhile, emerging educational tools and processes – such as gamified learning, learning analytics and online learning resources – are helping teachers and students to embrace the possibilities within personalised learning. Yet, drawing on his vast experience as a teacher of high school students, Palfrey outlines a timeless educational principle that can be taken as a constant despite shifting technologies and learning styles: “Our education should be interest-driven, creative, serious and fun, in ways that both teach and delight kids.”

FUTURE SCHOOLS: CAUSE FOR CONCERN?

“There is a much greater need than in previous generations for digital citizenship awareness. And although today’s students are digital natives, they can still benefit from direct oversight while taking online courses,” states Carol Ribeiro of The Virtual High School. The New Media Consortium, an international not-for-profit community of learning organisations that explores how new media will shape learning, released its latest Horizon K-12 report in 2014. The report highlighted some additional concerns alongside Ribeiro’s that will need to be considered with the emergence of digital technologies in schools, most notably the safety of student data on cloud-based software.

This is a genuine worry: key findings from a 2013 Fordham University report titled Privacy and Cloud Computing in Public Schools showed that 95 per cent of school districts rely on cloud computing, while only 25 per cent of these inform parents of their use. Unfortunately, only 25 per cent of cloud service agreements used by schools specify the reasons for disclosure of student data and less than 7 per cent limit the sale or marketing of student information. With the numbers of schools using digital and online tools increasing, concerns regarding student data security need to be addressed soon.