School's in

Cutting-edge IT technologies are having a profound effect on the nature and provision of education and training services in the Middle East.

By Aaron Greenwood

The development and application of IT in the education sector is not only transforming the way in which students learn – and are taught – but they are also having a huge impact on the way many learning institutions are ran.

Just 15 years ago, providing universal internet access to students was barely a consideration of most Middle East higher education institutions. Now, elite institutions are locked in a race to provide cutting-edge services ranging from teleconferencing to virtual classes, in a bid to not only provide their students with the best learning experience, but also to guarantee a valuable point of difference to rivals.

"The traditional classroom model supports a one-to-many teaching concept," explains Salim Ziade, general manager of HP PSG Middle East. "However, research shows that knowledge retention rates using this model are sub-optimal.

"The application of IT in a classroom environment supports new approaches to learning. Classroom management software combined with advanced hardware encourages a combination of team work, discussion and self learning. Teachers can also develop new ways of engaging students."

"The way we learn has changed," adds Mohammed Areff, Avaya managing director for the Gulf. "Today, students have access to some of the best institutes worldwide, without having to leave the region. Remote learning and extended campuses have transformed the delivery of education."

At the forefront of this trend are universities, such as those supported by Qatar Foundation, a non-profit institution founded in 1995.

Qatar houses more higher education institutions per head of population than any other country in the Middle East, many of which are satellite campuses of prestigious American universities such as Georgetown and Weill Cornell Medical College.

The Qatar Foundation oversees an area in 'New Doha' that houses the major universities. The Foundation's commitment to positioning Qatar as a centre for learning is reflected in its ambitious approach to ensuring these facilities boast a cutting-edge IT infrastructure.

Qatar Foundation Education City-based Texas A&M University and Georgetown University are but two of these facilities to have implemented advanced IT technologies across classrooms, lecture halls and other areas within their campuses.

The Georgetown University School of Foreign Service was the first organisation in the Middle East to install a Polycom RealPresence Experience high definition videoconferencing system. In practice, the technology enables Georgetown students in Qatar and Washington DC to interact in realtime in a virtual environment. In terms of interior design, both classrooms are mirror-images of the other, even down to the physical placement of desks, seating rows and the dimensions of each classroom. The system enables lecturers to present course notes and other data in both locations.

The technology also enables professors and other class leaders to make virtual eye contact with students in the remote location, thanks to strategically placed microphones and a unique twin-lens camera system, which blends and processes the resulting images in a panoramic environment. The system also employs HDX audio processors with the signals handled via DSP, separate to the codec, all operating over IP ensuring zero latency.

REALITY CHECK

While the impact of cutting-edge IT on many learning institutions in the Middle East has been profound, for others the current economic reality has forced them to reconsider their approach to the adoption and implementation of many applications and services. For many, providing adequate resources for IT support remains the key priority.

"The cost of ownership is always a key consideration," says FVC's Prasad. "Typically, students require significant levels of IT support and that places a bigger burden on costs from a service management perspective. 24x7 support becomes necessary as the widespread use of laptops, tablets and mobiles, which are more prone to issues and can strain campus helpdesks."

Of greater potential concern is investment in infrastructure that proves redundant or of little use to students and administrators. "Issues arise when educational institutions invest in IT without understanding how they best fit into their overall infrastructure," says Omar Amjad, technical solutions manager for eHosting DataFort. "Certain technologies may not be required, and in some cases can even prove counterproductive. An lack of planning is the main challenge in this regard."

Emirates College for Advanced Education's head of IT Ian McKenzie also warns those working in the education of the perils associated with pursuing a particular IT strategy without the support of management.

The university uses the facility on a daily basis, explains Cheong Eng Siong, Georgetown University's audio-visual manager. "Most afternoons you can't get a slot," he jokes. "It's definitely proven its value. In addition to working with our main Washington campus, we also regularly link up with universities in Afghanistan and Iraq. It is difficult in terms of securing quality broadband links within these countries, but quite often we'll try and locate satellite links to ensure we don't have any drop-outs. Ideally, we'd run a 4Mbps line."

Siong believes videoconferencing technologies such as the RPX system are forcing a seismic shift in the delivery of higher education services in the Middle East. "Students here are collaborating with their peers based in the US on tutorials, and receiving lectures from US-based professors all in a real-time virtual environment. With this type of technology available locally, it means Qatari students are provided access to the same standards of training and education as they would if they relocated overseas for their studies," he adds.

The increasingly pervasive nature of these and other cutting-edge technologies has forced many education providers to address existing network limitations, claims Mahesh Vaidya, CEO of ISIT Middle East. "IT requirements in terms of technologies and storage capacity are changing in the education sector," he says. "Demand for capacity is growing and network enhancements are often required... most institutions would do well to maintain 25% excess capacity."

Ian McKenzie, head of IT at Emirates College for Advanced Education (ECAE), agrees that ensuring network scalability has become a core priority for most education institutions. "In addition to be being stable, secure and sustainable there is a much greater need for systems to be scalable. The days are long past when a fairly rigid plan could be devised where a yearly calculation was performed to give the number of servers and amount of storage required," he says.

McKenzie says ECAE is also considering deploying desktop virtualisation to improve

4Mbps
The speed required to maintain a decent video conferencing connection

25%
The recommended excess network capacity universities should maintain

its responsiveness when updating and maintaining classroom and lab PCs. "Moving to desktop virtualisation will allow us to make newly acquired software available in days as opposed to having to wait until the next round of desktop imaging," he says.

Cloud computing also looms large as a priority for institutions across the region, particularly given the long term cost savings the platform promises when compared to wholesale infrastructure development.

"Many institutions are moving towards cloud based e-learning and web-based collaboration applications, such as SaaS," says Guru Prasad, general manager of Strategic Partnerships for FVC. "The use of social media and YouTube is also gaining popularity as a means of driving educational initiatives.

Ultimately, while IT technologies are in many cases changing the face of modern education, McKenzie stresses that institutions should not lose sight of the fundamental practice of delivering learning to students.

"I think it is important to remember IT is simply a tool and how it is applied will essentially govern its impact on education. The idea of constructivist learning is supported by technology by involving students in creating and interacting as part of the learning process," he says.

"That said, a good teacher doesn't need technology to make this happen. IT just opens up a new level of potential for students to engage in learning on and off campus and in realtime or asynchronously." **ACN**

"CIOs need to find that compromise between risk reduction and spending and accept that risks cannot be truly eliminated.