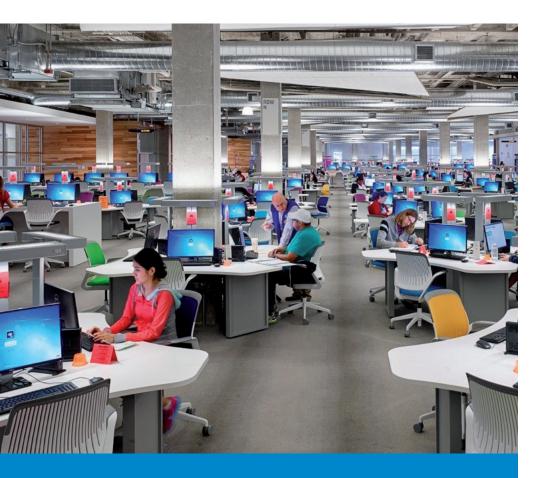# Helping students succeed by personalizing learning

Austin Community College improves outcomes with personalized courses, one-to-one instruction, Dell VDI, and the nation's largest learning lab: the ACCelerator

"We were able to make this major shift in how we use technology by engaging Dell. Its engineers worked with us over a long time frame to help us get comfortable with the solution so that we could try something new at the magnitude of the ACCelerator."

Stacey Güney, ACC Highland Campus ACCelerator Director, Austin Community College

Business need

To help more students achieve their goals, Austin Community College (ACC) needed to evolve its educational model to include the strengths of both traditional and online classes.

Solution

ACC built the nation's largest technology-rich learning environment, the ACCelerator, with Dell virtual desktops so that students have computer-aided guidance on campus with full access to instructors and tutors.

Benefits

- ACC can help more people achieve their educational goals
- Students complete classes at a pace that is appropriate to their unique needs
- Instructors can provide more personalized instruction
- College has a flexible and reliable IT model that's easy to evolve
- IT staff save time and money updating over 600 desktops in minutes

Solutions at a glance

- Cloud Client-Computing
- Storage

Students achieve more when they're fully engaged in their learning and have ample one-to-one interaction with instructors. However, the demographics at higher learning institutions have changed to include more nontraditional students who are over 21, live off campus, work full time, have families or are returning to school after taking years off. To meet students' diverse needs and improve learning outcomes, educators deliver new ways to personalize the learning environment.

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> *Melanie Dickerman, Senior Systems Administrator, Austin Community College*

Austin Community College (ACC) provides numerous adult and continuing education options as well as general education for transferable credits and career-technical degrees and certificates. Although the college offers classroom and online courses, it wanted to evolve its educational model to meet the diverse needs of traditional and nontraditional students. Stacey Güney, director of the ACC Highland Campus ACCelerator, says, "Our students were not being as successful as we would like to see, so we needed to change the way we were providing education in the 21st century. We looked at what really makes learning work, and that's one-on-one faculty interaction."

ACC decided to offer classes that combine the flexibility and personalization of an online adaptive-learning software, the connectedness of an at-school setting, and the improved results from faculty interaction. To achieve this, ACC developed the ACCelerator, a technology-rich, on-campus learning environment where students can work independently and collaboratively using a personalized learning platform — and at the same time, have on-demand assistance from faculty, staff and tutors.

Thinking outside of the box to meet new requirements
With 604 computer stations, the ACCelerator opened as the nation's largest computer lab. "This is Texas, so we like big — but the ACCelerator is extremely big," Güney exclaims. "Building it was a huge challenge and opportunity." Melanie Dickerman, senior systems administrator at ACC, adds, "When I first heard about the ACCelerator, I thought, 'How are we going to support that? How are we going to be able to keep the technology up all of the time?'"

Designing the nation's largest computer lab
When the lab was proposed, IT staff didn't feel that managing traditional PCs at that scale would be the most efficient use of resources. Instead, the college adopted a virtual desktop

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Products & Services

Services

Dell ProSupport Plus

Hardware

Dell EqualLogic PS6210 arrays

Dell PowerEdge R720 servers

Dell Wyse D10DP thin clients

Partner

Intel® Xeon® processors

NVIDIA GRID™ K1 vGPUs™

VMware® Horizon 6.1 with View™

infrastructure (VDI). Rather than running independent software stacks on individual workstations, VDI (or cloud client-computing) runs users' virtual desktops on servers. Students can access instructional software from most any device, including thin clients.

Because VDI was new for the IT staff, they spent significant time researching technologies. They chose a Dell VDI solution because it's reliable and easy to manage. Dell also provides excellent guidance and support. "The virtual desktop infrastructure is a very flexible way of putting a desktop in front of a student," explains Dickerman. "Dell and its solutions center were just incredible. Engineers came out here and pointed out options that we had."

Updating any number of desktops in minutes versus days

Today, IT employees maintain a master desktop image with VMware® Horizon 6.1 software. The image includes an operating system and applications. Students can log into a desktop via any of the Accelerator's 1,334 client devices. These include 604 Dell Wyse 5012-D10DP thin clients and 730 Dell workstations that have been repurposed to present only virtual desktops. Nine Dell PowerEdge R720 servers run the desktops, which access application and user data from a hybrid flash storage area network (SAN). That's based on two Dell EqualLogic PS6210 arrays, which currently store 14TB of data. (The SAN can scale to hold 27TB.)

To install or modify software, IT staff simply update the master desktop image. "It would take almost 70 hours for one person to manually reimage traditional desktops in the ACCelerator," says Dickerman. "That number does not take into account any hardware repairs, creation of images or failures in the imaging process. With our Dell VDI solution, we can instantly update hundreds of desktops without even touching a client. We just make the new

image on VMware Horizon View and then reboot."

Providing reliably fast desktops while saving money

All the desktops in the ACCelerator are consistently fast and reliable, even when people use computer-intensive applications. That's because every virtual desktop runs the same software stack that only administrators can modify. Plus, servers feature dual Intel® Xeon® processors and NVIDIA GRID™ K1 vGPUs™. If a server goes offline, desktops continue to run. "On our other campuses, if a desktop goes down, it will be offline until someone can fix it," Dickerman explains. "Here, if one server goes down, the desktops run on the other servers, so students won't even know there's an issue." To get quick assistance with any question, ACC uses Dell ProSupport Plus.

The college also speeds desktop performance and saves money by using automated data tiering and two types of disks on the SAN. "Student login times are really fast because our Dell EqualLogic SAN automatically moves data that is used the most from slower SAS drives to faster SSD drives," says Dickerman.

Completing a three-semester class in weeks or months

With its innovative learning environment in place, ACC developed a new approach to developmental math. The ACCelerator course is an alternative option that encompasses the three levels of developmental math. Students have access to the college's adaptive-learning platform, ALEKS®, as well as one-on-one faculty instruction at the ACCelerator. Traditionally a three-semester class — Basic Math, Elementary Algebra and Intermediate Algebra — the ACCelerator course can be completed at each student's pace. However, students can't move on to the next module until they're proficient in the material. Güney says, "We had a student complete three

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semesters of work in seven weeks at the ACCelerator. Students who need extra time can take it. They're more inclined to stay with us for the next semester because they can see the progress they've made. And if students need to take a break from school, they can do so and just pick up where they left off."

Improving teacher effectiveness and student achievement

The ACCelerator is providing the comfortable space, easy-to-use desktops and faculty accessibility the college wanted in order to help more students achieve their educational goals. Güney says, "This type of learning environment that we've created at the ACCelerator is allowing students to come in and spend more time on campus. We're seeing students coming early before class, staying late and coming back on days that they don't have classes. The more they engage in learning, the more likely they're going to be successful."

John Thomason, professor at ACC, says, "There's greater opportunity at the ACCelerator for faculty to get involved one-to-one with students compared with lectures. Students seem to be learning and retaining at a better rate. Some students who have had multiple failures are advancing far beyond what they got through before."

Agile educational model meets changing student requirements

With measurable student results and an IT infrastructure that's easy to modify and scale, ACC is redesigning curriculum for additional courses. This includes using online assessments and online lessons in traditional classes. "A common misconception about using more technology in education is that it's going to replace the need for good instructors," says Güney. "Our experience has shown the exact opposite. It has allowed professors to elevate what they're doing to make a more personalized learning environment for students, connecting with them even more than they did in the past. It's really all about meeting students where they are at that moment, and giving them hope to follow their dreams."

ACC is revolutionizing how students learn with its Texas-sized vision. Güney says, "We were able to make this major shift in how we use technology by engaging Dell. Its engineers worked with us over a long time frame to help us get comfortable with the solution so that we could try something new at the magnitude of the ACCelerator. Our partnership with Dell is invaluable."

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Melanie Dickerman, Senior Systems Administrator, Austin Community College

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