

HP Tablets Help Schulich School of Business Students at York University Score Higher on Critical Thinking & Collective Learning



“The tablets are unique in that they let students communicate their ideas with pictures and push them to think more visually. As a result, they're more engaged in the learning process because they really have to think about the issues and theories we're covering.”

—Jean Adams, Ph.D., Assistant Professor,
Schulich School of Business, York University

HP Customer
Case Study:
York University

Industry:
Education

Toronto business school improves the classroom experience with HP technology

Objective:

Enhance student success in learning business management soft-skills, such as collaboration and teamwork, and provide opportunities to promote critical thinking.

Approach:

Provide a classroom set of HP Ultralight Tablet PCs with digital pens to students and faculty. Use DyKnow, NewMindsets, Moodle, Microsoft OneNote and other software to promote collaboration in large classes and small group tutorials.

Educational benefits:

- Enhanced sharing and collaboration
- Ability to draw and communicate complex ideas visually using digital pen
- Improved self-assessment scores in management soft-skills development in all focus areas (e.g. critical thinking, teamwork, confidence, persistence, openness to criticism)
- 10% improvement in course evaluation scores (e.g. fostering critical thinking, providing constructive and supportive feedback)

About York University

Based in Toronto, York University is Canada's third largest university, with 50,000 students and 7,000 staff. Among the most respected business schools in the world, York University's Schulich School of Business was the recipient of an HP Technology for Teaching Grant in 2007, and a subsequent 2008 HP Technology for Teaching Leadership grant to expand the project's impact. The Schulich School of Business also holds the HP-endowed chair for Corporate Social Responsibility.

Solution at a glance

Hardware

- HP Compaq 2710p Ultralight Notebook PCs with Intel® Core™ 2 Duo ULV processor
 - Integrated 2 MP camera
 - Ultra-slim Expansion Base
 - 6-cell Ultra-slim battery
 - HP Digital Eraser Pen
- HP Notebook Storage Cart 20-User
- Hitachi CP-X400 LCD Projector

Software

- Microsoft OneNote 2007
- Dyknow (2008)
- NewMindsets online content collection
- Moodle

Operating System

- Windows XP Tablet Edition

Bringing new ideas to the classroom

Technology is transforming the way we teach and learn. It's not a subtle change, but a fundamental shift in instruction. Today's educators are continually challenging themselves to push their own boundaries and trying something new.

Many times each year —all over the world —HP Global Social Investment looks for educators with creative ideas about how to use technology in the classroom, and gives them the tools they need to make those ideas a reality.

"Our grant recipients are really thought leaders," says HP's Global Program Manager for Higher Education Grants Jim Vanides. "They're taking a brave step and discovering that you really can redesign the learning environment so that students can learn better."

"One of the challenges students will face in their future careers is learning how to use new technology. What better way to prepare them than to introduce new technology into the classroom?"

—Jean Adams, Ph.D., Assistant Professor, Schulich School of Business, York University

A collaborative vision

Jean Adams, assistant professor at York University's Schulich School of Business in Toronto, has always been a believer in using technology to enhance the classroom experience. When a colleague told her that HP was inviting researchers to apply for a Technology for Teaching Grant, she jumped at the opportunity

"I had just finished teaching a course called Managing Contemporary Enterprise, with an emphasis on teaching management soft skills to first-year business students, and it struck me that using mobile tablet PCs might be a way to engage students better," says Adams. "Also, one of the primary challenges business students will face in their future careers is learning how to use new technology. What better way to prepare them than to introduce new technology into the classroom?"

Adams also wondered how students would respond to being able to hand-write notes and draw pictures on a digital screen.

"I wanted to get them out of their comfort zone, but in a way that would facilitate collaboration, which is another key element of what I'm trying to teach in a business course: the importance of teamwork," she says. "I wanted to see —and allow the class to see—students' thoughts in real-time."

Putting theory into practice

HP saw promise in Adams' vision and awarded her the grant, which included 21 HP Compaq 2710p Ultralight Tablet PCs with integrated cameras, and HP Digital Pens. The notebooks feature rotating screens which allow them to be used as tablets or as standard notebooks. The grant also included a storage cart for the notebooks, a printer, a digital camera and projector equipment.

Using the tablets, students began working in teams to explore business problems such as breaking out of vicious loops, unraveling mixed messages and improving productivity. Students also worked together using the "shared page" feature of Microsoft OneNote to create shared class notes that Adams used for review purposes. For the very first time, she permitted the optional use of laptops in her mid-term exam because the students' work could easily be graded using the pen-based features offered by the HP Tablets.

"The tablets are unique in that they let students communicate their ideas with pictures as well as words, and push them to think more visually," says Adams. "They're more engaged. You can just feel them leaning forward in their seats when I put one of their drawings on the projector. Immediately I seemed to have their full attention. It was quite a remarkable experience the first time it happened."

The results are in

Although her class emphasizes soft skills, like a true researcher Adams tracked quantifiable improvements in her students' experience since introducing the tablets. She didn't have to look far to document positive changes in the students' abilities, interests and motivators, including creative thinking, action orientation, leadership, persistence, ability to teach, listening skills, and openness to criticism.

Students complete online questionnaires both before and after the course, and at the end of the semester using the tablets, self-assessment scores were uniformly higher in all soft-skills areas. What's more, the degree of positive change in the scores was more pronounced than the previous semester, when Adams was not using the tablets, indicating the effectiveness of the pedagogical approach enabled through the use of the new technology.

When asked in their final course evaluation whether the class encouraged critical thinking skills such as problem solving, decision making, judgment, and evaluation, students usually responded affirmatively. Even so, Adams noticed a 10 percent rise in average course evaluation scores after introducing the tablets.

Advancing education through technology

Adams presented the results of her experiment, which she called "e-Powering Tomorrow's Leaders," at the HP Technology for Teaching Worldwide Higher Education Conference, held every February in San Diego. She was glad to share her findings with other educators from around the world—and pleasantly surprised that the conference kept the focus on education, instead of concentrating exclusively on technology.

"I came back from the conference absolutely energized, because I'd been able to interact with all these people from different academic disciplines who had a real interest in using technology to innovate in the classroom," she recalls. "It gave me some really neat ideas about specific things I could do to make the student experience better."

Improving the "Triple Bottom Line"

York University believes strongly in the concept of the "Triple Bottom Line"—the notion that to be sustainable, an organization must consider the economic, social and environmental component in all its activities.

"The HP Technology for Teaching program aligns perfectly with this ideal," says Adams. "HP is a fabulous example of a company that lives and breathes the Triple Bottom Line. Because this is not about trying to sell tablets; it's about trying to improve learning."

Adams recently received another grant from HP—this time an HP Leadership Grant—which will allow her to expand the project with additional tablets to continue "e-powering" tomorrow's leaders.

To learn more, visit www.hp.com/go/hpteach-hied,
<http://hpresearch.schulich.yorku.ca>, www.hp.ca/education