

Enhancing the Educational Experience with Intel® Processor-based Tablets

The District School Board of Niagara helps improve understanding and boost student confidence by deploying tablets as part of a math pilot program



“The Intel® Atom™ processors deliver the battery life to maximize student mobility while still providing the performance for accessing resources and working on math lessons.”

– Dino Miele,
Chief Information Officer,
District School Board of Niagara

The District School Board of Niagara is dedicated to fostering a collaborative environment in which the district's multiple divisions work together to define the right goals and programs for students and teachers. To help strengthen math skills among secondary-school students, the district launched a pilot program in which select teachers and students use tablet computers to supplement work in math classes and facilitate individualized instruction. Samsung ATIV* tablets based on Intel® Core™ i5 vPro™ processors and Lenovo ThinkPad* 2 tablets based on Intel® Atom™ processors played a key role in delivering a personalized learning experience, enabling students to continue math work beyond the classroom and increasing student confidence in math skills.

Challenges

- **Improve math skills.** Help secondary-school students strengthen their math skills and increase their confidence in math.
- **Create a personalized learning environment.** Enable teachers to quickly provide individual feedback and tailor assignments to each student's precise needs.
- **Expand the learning experience beyond the classroom.** Provide students with the mobility to continue studying math after the school day ends. Facilitate online social interactions where students can find math assistance and collaborate with peers.

Solutions

- **Samsung and Lenovo tablets with Intel® processors.** As part of a math pilot program, the district deployed Samsung ATIV tablets equipped with Intel Core i5 vPro processors to 20 teachers and Lenovo ThinkPad 2 tablets with Intel Atom processors Z2760 to 120 ninth- and eleventh-grade students. Tablets run a variety of applications on the Microsoft Windows* 8 operating system.
- **Intel® Wireless Display (Intel® WiDi) technology.** The IT group enabled Intel WiDi technology so teachers can use their tablets wirelessly with classroom displays.

Business Value

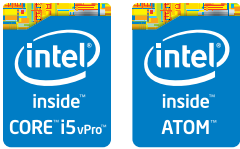
- **Increased student understanding.** Seventy-five percent of students using tablets reported they were able to understand math lessons well, compared with 45 percent before the math pilot.
- **Greater student confidence.** More students rated themselves as having stronger math skills than previously. The district expects greater confidence and understanding will lead to better test scores in the future.
- **Tailored educational experience.** The number of students completing math work online increased by 12 percent. As a result, teachers could grade work faster and more efficiently, and then create more individualized assignments targeting each student's individual needs.

“Technology has helped complement the curriculum in our school district for many years,” says Dino Miele, chief information officer for the District School Board of Niagara. “We progressed from providing desktop computers in computer labs and libraries to installing networked PCs in classrooms. Now our goal is mobility. We want to enable teachers to use technology as they move about the classroom and give students an opportunity to augment the traditional learning experience within the classroom and beyond.”

To bolster math skills for secondary-school students, the district launched a pilot program that involved providing tablet computers to

teachers and students. “As part of our ongoing efforts to support pedagogical goals with technology, the district used funding from Ontario's Ministry of Education to purchase tablets that could be used in the classroom and at home,” says Miele. “We selected ninth- and eleventh-grade students for this pilot because these grades needed the most improvement in math, and the technology could be integrated particularly well with their curriculum.”

The district had multiple goals for the math pilot. “First, we wanted to create a personalized learning environment that could improve understanding,” says Miele. “Second, we wanted



Combining performance with mobility using Intel processor-based tablets

to extend the school day for students, enabling them to access school resources and do online math assignments from home. Third, we wanted to give them social media capabilities to let them create study groups so they could help each other while working from home.”

Launching the Math Pilot with Tablets Based on Intel Processors

After doing their homework on different devices and operating environments, the district’s IT group selected Samsung ATIV tablets equipped with Intel Core i5 vPro processors for teachers and Lenovo ThinkPad 2 tablets with the Intel Atom processor Z2760 for students. “The Intel Core i5 vPro processors give the teachers the performance they need for a wide range of tasks, from creating materials to producing classroom presentations,” says Miele. “The Intel Atom processors deliver the battery life to maximize student mobility while still providing the performance for accessing resources and working on math lessons.”

The district also implemented Intel WiDi technology in classrooms so teachers could easily connect their tablets to displays, sound systems, and other wireless systems. “We didn’t want teachers to be tethered to wired PCs,” says Miele. “With Intel WiDi technology, they can move around the classroom freely to work with students as they project lessons or share displays. Using Intel WiDi technology with the Intel processor-based tablets helps enable some new teaching strategies.”

The IT group selected Windows 8 as the operating system for the tablets. “Windows 8 enables teachers and students to use best-of-breed educational applications that are aligned with the curriculum as well as industry-standard Microsoft software, Google Docs*, and more. As a result, we can capitalize on the software investments we’ve already made,” says Miele.



“In addition, the Windows 8 touch-based interface is easy for students to learn. Overall, Windows 8 provided the best fit for our users and integrated well with our existing environment.”

In the future, the IT group will consider using Microsoft System Center Configuration Manager* (SCCM*) in conjunction with Intel technology to streamline device management. “Running a Microsoft environment on Intel processors will allow us to deploy and control apps directly with devices so we can make sure teachers and students are using the most up-to-date software,” says Miele.

Tailoring Lessons to Individual Student Needs

The new tablets were distributed at the start of the spring semester, and by the end of the term, several benefits became clear. For example, the tablets enabled teachers to better cater to individual student needs. “Using the tablets, more students completed assignments online than in the past. As a result, teachers received immediate feedback on what was and wasn’t working,” says Miele. “They were able to quickly assess and respond to the individual needs of students.”

The tablets provided the performance for a full range of teaching tasks and the mobility to foster direct engagement between students and teachers. “A teacher can link into a student tablet from her tablet and provide one-on-one assistance,” says Miele. “The technology provides vital support for teaching, but at the same time, it is so lightweight and mobile that it doesn’t get in the way of interactions.”

Extending Lessons Beyond the Classroom

By allowing students to take the tablets home, the district enables students to continue online lessons well after the bell rings. “A student can work on homework after school and access lessons from class to review areas that were difficult,” says Miele.

Students can also collaborate with their peers. “Students can form study groups or seek assistance through social media,” says Miele. “They don’t have to be on their own in taking on challenging concepts.”

Lessons Learned

Through the math pilot, the district gained some important ideas for improving the value of technology for teaching. “In the future, we plan to conduct additional teacher training on new technology,” says Dino Miele, chief information officer for the District School Board of Niagara. “As we continue the tablet program, we need to make sure that teachers are comfortable with the operating environment and are fully aware of everything they can do with powerful Intel® processor-based devices.”

Increasing Student Confidence and Improving Understanding

Many students found it easier to learn math with the tablets. “Seventy-five percent of students reported that the technology made it easy for them to understand math concepts, compared with 45 percent in the previous year,” says Miele. “In addition, more students rated themselves as very strong in math than in the past—they gained confidence in their abilities.”

The district anticipates that greater understanding and confidence will yield better scores on standardized math tests. “Even in just a few months, we were able to see the start of improvements in student math scores,” says Miele. “We expect those improvements to increase as we provide access to tablets over a full school year.”

Expanding the Math Pilot

Given the positive results, the district is planning to continue the math pilot in the future. “The district is committed to continuing the pilot next year, and if we can secure additional funding from the provincial government, we will expand the deployment of these Intel processor-based tablets to additional classrooms,” says Miele. “The pilot has demonstrated the strong value of using technology to support pedagogical goals.”

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