

September 16, 2010

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Marlene H. Dortch, Secretary  
Federal Communications Commission  
Office of the Secretary  
445 12th Street, S.W.  
Washington, D.C. 20554

**RE: Ex Parte Notification – CC Docket No. 02-6 (Schools and Libraries Universal Service Support Mechanism) – GN Docket No. 09-51 (A National Broadband Plan For Our Future) – Qualcomm Incorporated (“Qualcomm”)**

Dear Ms. Dortch:

In accordance with Section 1.1206 of the Commission’s Rules (47 C.F.R. §1.1206), the undersigned counsel hereby provides notice that on September 15, 2010, Dean R. Brenner, Vice President - Government Affairs, Qualcomm, John W. Kuzin, Senior Director – Government Affairs, Qualcomm, and the undersigned met with Christine Kurth, Policy Director and Wireline Counsel to Commissioner Robert M. McDowell, to discuss Qualcomm’s position regarding the Commission’s proposal to provide E-rate support for wireless Internet access services outside of school grounds, as reflected in Qualcomm’s comments and reply comments filed in this proceeding.

Qualcomm stressed the justifications for a permanent authorization for such support and the need for any pilot or test program that might be considered or approved to include a meaningful financial commitment. Qualcomm provided a copy of the attached Education Week article “Solving Algebra on Smartphones” concerning Project K-Nect.

Sincerely,



Paul C. Besozzi  
Counsel for Qualcomm Incorporated

## EDUCATION WEEK

TECHNOLOGY COUNTS 2010

**POWERING UP** Mobile learning seeks the spotlight in K-12 education

Sponsored by:

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**Solving Algebra on Smartphones**

**Research shows that a project to use the devices as teaching tools in some N.C. districts has had a measurable impact on student achievement in math.**

By **Michelle R. Davis**

If North Carolina high school junior Katie Denton struggles with her Algebra 2 homework, she knows she's not on her own.



Denton can use her school-issued smartphone to send instant messages to her teacher or classmates for help. She can use the same device to connect to the Internet and post an algebra question on a school math blog. Or she can watch student- or teacher-created videos demonstrating algebra concepts on her smartphone screen.



Her math class is taking part in **Project K-Nect**, a grant-funded program that has adopted smartphones as teaching tools in some math classes in a handful of North Carolina school districts. Research on the program has shown a measurable effect on students' math achievement, and the organizers of Project K-Nect say students have driven the program to heights they never imagined.

"Most adults laughed at the idea that students would create a blog on solving linear equations," says Shawn Gross, the managing director for Digital Millennial Consulting, an educational technology consulting firm based in Arlington, Va., that oversees Project K-Nect. The first week of the program, students posted 75 video blogs on just such a math topic.

"We put the blog up there," Gross says, "without any understanding of how students would take advantage of it."

The smartphones, made by the Bellevue, Wash.-based mobile-technology company **HTC**, are a step beyond cellphones, providing Internet access, video-camera technology, and instant-messaging options.

**Technology Counts 2010:  
Powering Up Change**

Overview

[Mobile Learning Makes Its Mark on K-12](#)

Profiles

[Learning Benefits Seen in Laptop Initiative](#)
[Educators Embrace iPods for Learning](#)

## The Learning Connection

Project K-Nect began in 2007 with a million-dollar grant from another mobile-technology company, Qualcomm, based in San Diego, and a plan to use smartphones to boost students' skills in the so-called STEM areas of science, technology, engineering, and math. Qualcomm has contributed or pledged an additional \$550,000 to keep the program going through January 2011, Gross says.

Before choosing the smartphone, Gross surveyed about 300 Washington-area high school students about the mobile technology they'd prefer to use. To his surprise, 90 percent chose the phone over other technologies he offered, including an iBook, a digital camera, or a Sony PSP, or portable play station.

The program kicked off with a pilot effort in 2007 and expanded to three North Carolina districts. Next school year, program officials anticipate, it will have 3,000 participating students in 10 additional districts across the country. The schools chosen are urban or rural and have at least 50 percent of their students receiving free or reduced-price lunches.

Project K-Nect began with a 9th grade Algebra 1 course and has since expanded to include other courses, such as geometry, precalculus, and biology.

Students, some initially skeptical that a phone would help them do better in math, have been quick to embrace the idea of using the mobile device to learn, says Denton, who attends Dixon High School in the 24,000-student Onslow County, N.C., schools.

"At first, I was trying to figure out how a phone was going to help me with math," she says. "I didn't see a connection."

But Denton, who started in the program with Algebra 1 and has since taken geometry and is now taking Algebra 2 through Project K-Nect, says she and her classmates soon saw many advantages provided by the phone, particularly being able to get help at any hour and using instructional videos for assistance.

Each student in a Project K-Nect math class is issued a smartphone, but the text and voice capabilities are disabled so students can't use the devices to text or speak to one another. Students can use the instant-messaging

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function, though, to contact anyone participating in Project K-Nect, even students at other schools.

For some math classes, particularly Algebra 1, Project K-Nect had mathematicians at Drexel University in Philadelphia develop short animated video math problems that teachers can assign to students as homework or classwork.



Freshman Dustin Rhodes reads his school-issued smartphone during an Algebra 2 class at Dixon High School, part of the Onslow County, N.C., district.  
—Sara D. Davis for Education Week

Project K-Nect also has various blogs where students can post to request or give help. Students often videotape themselves solving problems to demonstrate techniques to their peers, and post them on the blogs, or sometimes videotape their struggles and ask for advice.

Some students have taken the technology a step further and created movies with graphics, student actors, and stories highlighting math. Particularly popular are student-created movies with a “CSI” theme in which the drama uses math to solve a crime. One student produced and posted a rap song on polynomials, which was ultimately posted to YouTube and spawned thousands of imitators, says Gross of Digital Millennial Consulting.

Students use the Internet function in a variety of ways. They might use the Web to view their math textbook online while riding a school bus to a sporting event; to consult the long list of “best math sites” compiled by both students and teachers as a repository; or to find helpful information about various math subjects.

“It has changed the way I feel about math,” says Janet Cagle, a sophomore at Dixon High School who took geometry through the Project K-Nect program during her first semester this school year and now uses her smartphone for Algebra 2. “I used to think it was just letters and numbers—you get an answer and move on. Now I can look up why you do things or who came up with different ways to do the math problems.”

### **Understanding and Explaining**

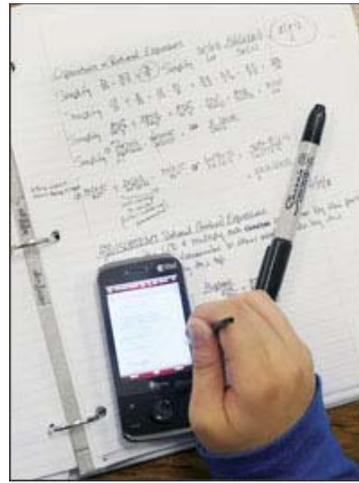
Teachers say one of the biggest benefits they’ve seen from the use of the technology is that students’ confidence levels and ability to truly understand and explain the math they’re doing have risen. Because students are often helping their peers on the blogs and through instant messaging, they have to clarify just how they solved a problem, says Homer Spring, who teaches math at Dixon High.

“They’re better able to articulate how they get their answers,” he says. “You never know anything quite as well until you have to teach it, so it drives it home better.”

Project K-Nect also features a rewards system. Students get points for various activities, including solving problems, helping other students online,

or posting blog entries. Points give them access to different video games that can be loaded onto the smartphones, or allow them to download music or give them extra digital storage space, Gross says.

For teachers, a plus is that the smartphone allows them to track students' actions with it; teachers can tell how long students spend on a particular problem, for example, and whether they're posting questions and answers or communicating with classmates via instant messaging.



Gross says results from students' experiences in 2007 found that all of the classes using smartphones in 9th grade Algebra 1 outperformed the other Algebra 1 classes at the school taught by the same teachers on the North Carolina end-of-course exam and on their final class grades. In addition, students reported they used their phones for at least an hour every day to do their algebra homework; that they had more communication and collaboration with both their peers and teachers; and that because they had continuous access to math resources on the smartphone, the time they spent working on algebra increased significantly.

Students participating in Project K-Nect math classes at Dixon High School in Holly Ridge, N.C., are issued smartphones to use for school assignments.  
—Sara D. Davis for Education Week

Results from a survey in 2008-09 produced similar achievement results.

### Project K-Nect

This video provides the viewpoints of different stakeholders participating in Project K-Nect. For more videos of Project K-Nect in action, visit [DigitalMillennial's YouTube channel](#).

### Potential Problems

The program isn't without its challenges, however.

Intensive training for teachers—at least nine hours—is essential, says Gross, the technology consultant. Students need about four to six hours of training, he says.

Some school districts that wanted to sign up didn't have the necessary wireless networks in place, says Neill Kimrey, the director of instructional technology at the North Carolina education department, but were able to tap state money or federal **Title I** and **E-rate** funds to beef up their networks, he says.

Initially, some technical glitches cropped up. Students at one school, for example, all pulled up algebra problems on their phones at the same time, causing them to crash, says Suzette S. Kliewer, a math teacher at Southwest High School in the Onslow County district, who has taught students through Project K-Nect for five semesters. But Kliewer says the few kinks that arose at her school were worked out quickly, either by students themselves or by on-site technical help from the district's information-technology department.

In addition, teachers throughout the project had to make it clear that students were constantly being monitored on their phones. At any time, a teacher can see what a student is doing on his or her phone; using special software, the teacher can even take over the device or shut it down.

Students learn quickly that teachers are keeping track of their actions, says Spring, the Dixon High math teacher. He cites one student who was sending instant messages that had nothing to do with math to another student in the program until the wee hours of the morning. The following day,

Spring placed a 12-page printout of the entire conversation on the student's desk.

"He realized quickly that was not a good idea," Spring says.

Generally, teachers say students are excited about the devices and respectful of their uses. But use of the phones does sometimes create a need for districts to revamp their cellphone policies so that use of the devices is not banned inside schools.

And teachers do have to make adjustments, says Gross. New teachers appear to have the most difficulty incorporating the smartphone into their teaching methods, he says.

In addition, teachers have had to accustom themselves to being on call after typical school hours.

Steve Clark, a math teacher at Richlands High School in Onslow County, says the phones change the dynamic between the teacher and student—in a good way, in his opinion. The teacher becomes more a facilitator and less a lecturer, he says.

"It would be very hard to go back" to teaching math in a traditional way, says Clark. "To be honest with you, I don't know if I could do it."

