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### Accelerating the “Market of the Future”

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Kamal Quadir could have almost any high-tech mobile phone he pleased. But Quadir – the CEO of Bangladesh-based Cell Bazaar and winner of the GSMA’s 2008 Mobile Award for Bridging the Digital Divide – carries a simple low-cost handset with a small black and white colour screen. While visiting him in Dhaka last month, I asked why he chose it over more sophisticated options. He replied: “I keep using this device because I want to remind myself of the interface that my customers are using. Some say this technology is restricting, but I think the only thing that limits us from launching more and more market-changing applications is innovation... and a lack of time!”

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### Smartphones: For More Than Just Checking E-mail

Qualcomm has thrown mobile phone technology into the ring as its offering of bringing technology into classrooms. Current players include big names such as Apple, Google and Dell. However, staying true to what Qualcomm does best, this project is a pioneer in bringing into students’ and teachers’ hands what is already in their pocket – a mobile phone. In a field rife with desktop and laptop computers, the mobile phone is emerging as something more than what students use to text friends.

Furthermore, with the concurrent expansion of mobile phone uses and the prevalence of mobile phone distribution, this portable and potent

device is a logical solution to equipping students with generation-appropriate learning tools. Michael Levine, executive director of the Joan Ganz Cooney Center at Sesame Workshop remarks, “Kids today are spending almost as much time with media as [they are] attending school, so there is an opportunity to create more engaging educational products than ever before.”<sup>1</sup> The 2008 Horizon Report goes on to extend this logic by maintaining that within these educational products, one of the key emerging technologies that will likely enter mainstream use in education is mobile broadband.

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*Students in the Wireless Reach sponsored Project K-Nect demonstrate the program’s capabilities to Qualcomm’s Chairman and Founder, Dr. Irwin Mark Jacobs and Shawn Gross, Project Director for Project K-Nect*

## Advantages of Social Networking for Education



*Damon Jones-Way, a homebound student in Raleigh, NC, connects with fellow classmates via his CDMA EV-DO Rev. A-enabled smartphone*

For 15-year-old Damon Jones-Way, a high school student in Durham, North Carolina, getting 16 instant messages at once from classmates asking for help on a math problem is not unusual. Being good at algebra has made him very popular.

Damon was chosen to participate in the Project K-Nect pilot program, where 100 students were given smartphones with Internet access to supplement their math textbooks. During the course of the initial testing phase, Damon became a homebound student due to an illness preventing him from physically attending classes at school. The smartphone has quickly become an essential tool for keeping Damon connected to his coursework and classmates.

“It makes me feel good that I can help. I know a lot about the phone,” said Damon.

Having never been much of a social butterfly, his mom Tanya Jones-Way, laughs as Damon explains his predicament of trying to help nearly 20 students at one time.

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## New Wireless Reach Partnership with the GSM Association

Wireless Reach announced an exciting partnership with the GSM Association’s Development Fund at the Mobile World Congress in Barcelona Feb. 11-14, 2008. The Development Fund works together with operators and vendors in the developing world to design and launch self-sustainable and scalable pilot projects that are specifically designed to use GSM technologies to bring about social, economic and environmental improvements to the world. Since its inception in October 2005, the Development Fund has worked with 12 operators in 11 countries bringing access, information, employment and income to hundreds of thousands of people globally.

Wireless Reach and the Development Fund have agreed to create three HSPA showcase programs in Egypt, Tanzania and the Philippines in the areas of health care and education.

“By working with Qualcomm, the GSMA Development Fund will highlight how mobile broadband is not just for high income markets, but also can play a critical role in driving social and economic development,” said Dawn Haig-Thomas, director of the GSMA Development Fund. “Together, we will deliver innovative solutions aimed at improving the quality of life for those living at the base of the social and economic pyramid.”

For more information on the Development Fund, please visit:

[www.gsmworld.com/developmentfund](http://www.gsmworld.com/developmentfund)

Photo: Charles Sturge @ www.charlessturge.com



*Low-cost mobile devices have made connectivity more accessible to people in developing nations*

## Education and Technology, the Perfect Marriage



*Math teacher Suzette Kliewer of Southwest High School in Jacksonville, NC, has enjoyed seeing firsthand the benefits of advanced wireless technology in her classroom*

One Friday morning, at the perilous hour right before lunch, Suzette Kliewer, a math teacher in North Carolina, stands before a captivated audience of... freshmen algebra I students? She stands before them not with pencil, paper or even a textbook in hand but a tiny white controller with a delicate band slipped around her wrist. Kliewer, with a slight bend in her knees, swings her arm back and quickly swoops it forward flicking her wrist slightly. This expert move does the trick and the math students cheer as Kliewer clinches a strike on the Nintendo Wii's bowling simulation game. As students begin to alternately praise her and wonder if they could do the same, Kliewer returns to the overhead projector at the front of the classroom. A linear equation quickly appears on a SMARTboard and heads begin to bow as students hunch over their papers to solve the problem.

"Psst, is this what you have," one student asks another. The other student shakes her head and they move on to compare with yet another student. Kliewer, in the meantime, is moving through the classroom checking students' work and observing carefully which step seems to be most troubling the students. As the noise level increases with students comparing answers, Kliewer quietly begins work at the SMARTboard. She is able to pinpoint exactly where the problem was leading to an audible groan as one student vocalizes the error, "Oh, right, multiplying two negatives makes a positive." The next equation, however, is conceptually familiar and before long hands shoot into the air waving frantically for their answer to be checked. Kliewer chooses a student, affirms the answer and the girl runs up to the front and slips on the Wii controller to claim her prize of bowling a frame virtually.

Technology in education is quickly growing to become a multi-billion dollar industry with highly innovative ideas coming from all areas of both public and private sectors.<sup>1</sup> Large corporations like Apple have launched iTunesU where students and teachers use the familiar face of iTunes to organize podcasts of lectures, hold discussion forums and even learn languages through lessons downloaded through the application. In public schools in the United States, with both federal and state governments placing varying versions of technology integration challenges in schools, there is mounting incentive to immerse technology in classrooms rather than using devices as ancillary items.



*Students at North Carolina's Southern School of Engineering use Qualcomm's 3G technology to help them learn algebra*

One program in Texas funded by both the state and federal government has found large success in giving students their own laptops and providing secure wireless Internet access on school campuses and within a certain perimeter around the school. Schools have

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already seen fewer disciplinary actions taken against students, higher attendance rates and, in some schools, lower drop out rates with more students graduating high school than before the three-year-old laptop program was put in place.<sup>2</sup>

“There is a new fervor in American education and a new creativity that’s being driven in part by this generation of tech-savvy students,” said former U.S. Secretary of Education Rod Paige. “We are already seeing some remarkable results, and I believe this trend bodes well for the future of our country...America’s students are our ultimate constituents, and we need to listen to them.”<sup>3</sup>

With an undeniable global economy and falling tests scores in the United States, especially compared on an international level, the use of technology in education has become the crux of developing this next generation of workers’ curriculum. *BusinessWeek* reports that “ensuring that our students are proficient in reading, math and science is critical to their academic and employment futures, their ability to use technology tools, mine the resources of the Internet and collaborate virtually with peers around the world are skills that high-paying employers seek.”<sup>4</sup>

So the question has no longer become whether technology should be integrated into the curriculum, but rather, what this technology should look like in order to be most effective. Vision 2020.<sup>5</sup>, a survey released by the U.S. Department of Education’s Office of Technology, surveyed thousands of K-12 students to gain a better understanding of what devices and applications would be most effective in the classroom. One of the overwhelmingly popular responses was to have a “small, handheld wireless computer” that was multi-functional, kid-friendly and had Internet access.

Slowly, classrooms in the United States are being connected to catch up to the 21st Century. Teachers understand that technology is a key solution to providing current, relevant information keeping their students competitive in the global economy. They are also finding ways to engage students, appreciating that this generation is growing up with unusually dexterous thumbs from sending hundreds of text-messages a day. Kliever, with impressive virtual bowling skills, has found creative ways to integrate technology into her daily lesson plan. Her success can be measured in the attentive look in her students’ eyes as they scramble to solve just one more linear equation in spite of a ringing bell signaling the end of class and the start of lunch.

Sources:

- <sup>1</sup> Heineke, Walter and Blasi, Laura. *Methods of Evaluating Educational Technology*. Volume 1. Charlotte, NC: Information Age Publishing, 2001.
- <sup>2</sup> Texas Center for Educational Research. *Evaluation of the Texas Technology Immersion Pilot*. May 2007. [http://www.etxtip.info/images/eTXIIP\\_Year2EvalRptSumm.pdf](http://www.etxtip.info/images/eTXIIP_Year2EvalRptSumm.pdf)
- <sup>3</sup> U.S. Department of Education. “U.S. Department of Education Releases National Education Technology Plan” 07 January 2005. <http://www.ed.gov/news/pressreleases/2005/01/01072005.html>
- <sup>4</sup> Kind, Ron. “A Flawed Measure of Ed Tech” *BusinessWeek* 10 April 2007.
- <sup>5</sup> U.S. Department of Commerce and Department of Education. *Visions 2020.2: Students Views on Transforming Education and Training through Advanced Technologies*. Washington, D.C. 2004.

“...the use of technology in education has become the crux of developing this next generation of workers’ curriculum...”



*Project K-Nect's smartphones utilizing Qualcomm's CDMA EV-DO Rev. A wireless technology help to define the future of education by allowing students to network, collaborate and help each other learn like never before*

“Pioneering socially-beneficial business models is now often seen as the best way to reach new users...”

### Accelerating the “Market of the Future” (continued from page 1)

Time is certainly hard to come by for Quadir and his colleagues these days, as demand surges for Cell Bazaar’s services across Bangladesh. Launched just six months ago in partnership with Grameenphone, the SMS and WAP-based classified advertising service (similar to craigslist.com or other web sites that are popular in developed countries) already has over 100,000 users, posting products for sale such as milk, mutton and refurbished mobiles (all the activity can be followed in real time at [www.cellbazaar.com](http://www.cellbazaar.com))

In early January, the prominent Bangladesh newspaper The Daily Star published a cover story which dubbed Cell Bazaar “The Market of the Future.” At the GSMA Development Fund, we couldn’t agree more. Through our projects with operators, vendors and entrepreneurs across the developing world, we see the market of the future unfolding everywhere. The opportunities to generate social and economic benefit through mobile are seemingly endless. From clients of Cell Bazaar in Bangladesh, to the 25,000 entrepreneurs earning income through our Shared Phone program with MTN Uganda, to hundreds of Lady Health Care workers in Pakistan providing mobile patient care through our program with Mobilink—we know that customers in these markets are benefiting in dramatic and commercially sustainable ways.

Our purpose is straightforward: to help the “market of the future” develop as quickly as possible. Market acceleration for low-income people was the original impetus for our work: the Development Fund was initiated in 2005 through a GSMA initiative called the Emerging Market Handset Programme, which helped lower the costs of handsets to US \$40 (and then again to US \$30) so that millions of new low-income customers could afford their own phones. Since then, the Development Fund set out to help catalyze new business models as well as replicate ones already working to new geographies—for example, taking Shared Access models pioneered in Bangladesh to Pakistan, India, Uganda and Kenya.

Over the past few years we’ve conducted over 20 projects with network operators, and our approach has been refining alongside that of our members. We increasingly see our members embracing the notion of “social investment” which recognizes that the time and money spent on social initiatives is not just a moral or public obligation. Pioneering socially-beneficial business models is now often seen as the best way to reach new users, test new value-added services, and extend network coverage. Thus social investment is more akin to venture capital or R&D than conventional corporate social responsibility.

That’s why we are expanding the work of the Development Fund and honing our approach to focus on what we believe are the key bottlenecks to the growth of the industry. Going forward, we will focus on three industry issues. Firstly, access – to lower the total cost of ownership and spread voice and data services to those even lower on the economic pyramid, such as to refugees in settlements in Uganda. This also means piloting the newest mobile technologies early on, to explore their utility in emerging markets and help make the business case for commercial scaling—such as our forth-



Photo: Charles Sturge @ [www.charlessturge.com](http://www.charlessturge.com)

Wireless connectivity is making a positive impact in countries like Uganda

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coming joint projects with Qualcomm which will pilot HSPA networks in Egypt, Tanzania and the Philippines. Secondly, energy – to accelerate the business case for cost-effective, renewable power solutions for base stations and handsets, such as wind, solar and biofuels. Thirdly, applications – to launch new services that will increase network usage while adding additional value to mobile subscribers, such as m-banking, m-health and m-agribusiness.

It is clear that for the developing world, mobile is indeed the “market of the future.” Our goal—both for the benefit of the mobile industry and for low-income subscribers around the world—is to help the future arrive as soon as possible.

Photo: Charles Sturge © www.charlessturge.com

*A new generation of entrepreneurs are taking advantage of more readily available wireless technologies in remote parts of the world*

### **Smartphones: For More Than Just Checking E-mail** *(continued from page 1)*

The study notes “each year more than a billion new mobile devices are manufactured – or a new phone for every six people on the planet...mobile phones are quickly becoming the most affordable portable platform for staying networked on the go.”<sup>2</sup>

Project K-Nect, a Wireless Reach pilot program giving students CDMA EV-DO Rev. A-enabled smartphones that provide mobile broadband Internet access both on and off school campus, was launched in February before an audience of educators, government officials and representatives from the private sector and students. During the event, the capabilities of the phone were demonstrated both on stage and later in a classroom lab, providing Project K-Nect’s participating students and teachers an opportunity to give a hands-on tutorial to the event attendees. The demonstrations showcased the math applications aligned with the current lesson plan, the social networking platform including forums and teacher and student blogs, and the instant messaging allowing students to connect with each other and access after-school tutors.

But perhaps what will prove to be one of the most valuable outcomes of this project as it continues to run its course, are the stories that have already begun to unfold. Debra Bryan, principal of Southwest High School – one of the four North Carolina schools participating in Project K-Nect and the site of the event in February – commented about one student in the school’s English as a Second Language program who had never used a mobile phone before she participated in the testing phase of Project K-Nect late last year. For many others, the smartphone gave students regular, dependable access to Internet at home. Bryan points out many students in her school have limited Internet access outside of school and often have to share computer use with other family members. Students have also learned to use the tool in an innovative way, one student posted a video clip on the classroom blog of her solving a math problem on a whiteboard, another student recorded this post with the smartphone.

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In spite of all the initial success, one question that inevitably arises is, “What’s next?” Bryan asks, “What happens after algebra I when students go from smartphones to learning geometry with a textbook, pencil and paper?” Although the answer is uncertain until the pilot is complete, there is an excitement that naturally ensues. In June of this year, the Project K-Nect team will put together a report based on the research and findings that emerge during the course of this six month pilot.

Dr. Irwin Mark Jacobs, chairman and founder of Qualcomm, foresees a bright future should this pilot program succeed. Based on the knowledge that the mobile phone is in essence a powerful computer, Jacobs touts the benefits of the mobile phone such as always having connection to the Internet at a high data rate, with the device itself being reliable and needing relatively low maintenance and, with so many different types of phones on the market, being quite affordable. With these advantages in mind and with the potential success of Project K-Nect, the integration of smartphones and ensuing technology in education creates a broad horizon, be it attracting software companies to developing suitable applications to run on a mobile computing platform to, hopefully, more educators excited to see an innovative solution for bringing their students up to a globally competitive level. With a leading edge idea in hand built on partnerships with the North Carolina Department of Public Instruction and Digital Millennial Consulting, Qualcomm’s Wireless Reach initiative along with partners in the education and private sectors celebrated a milestone in February not only in the project’s history, but a potential marker in changing the face of education curriculum.

Sources:

<sup>1</sup> “D is for Digital...” T.H.E. Journal February 2008. <http://thejournal.com/articles/22011>

<sup>2</sup> Educause Learning Initiative and the New Media Consortium. 2008 Horizon Report. <http://www.nmc.org/pdf/2008-Horizon-Report.pdf>

### **Advantages of Social Networking for Education** *(continued from page 2)*

“Damon didn’t socialize as much as he does now,” said Tanya. “He has online friends, as well as friends at school, which has helped his social skills a lot. He’s become a little popular behind this phone. He’s a wanted man when it comes to math problems.”



*Damon Jones-Way, his Mother Tanya and sister Tanea discuss the benefits of participating in Project K-Nect*

Damon regularly visits his favorite web sites including those that are useful to his schoolwork like algebra.com. He is able to access tutors, post on blogs and send instant messages to his friends.

Damon and his classmates are all members of “Generation M” (Millennial born circa 1980 to 2000). According to the Pew Internet & American Life Project, 87 percent of 12- to 17-year-olds in the U.S. are regularly online, 11 million at least once a day. Critics say that there is a point where kids can become “over connected” spending most of their free time sending instant messages and visiting social networking sites. According to a study by the Kaiser Family Foundation, 2,000 8- to

18-year-olds were surveyed and on average spent 6.5 hours a day switching among computers, TVs, movies, video games, books, iPods, cellphones and texting. Moreover, those 14 and older spent additional hours on social networking sites.

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But for Project K-Nect, the social aspects of the program are proving to be fruitful for students, parents and teachers.

“This is a great program,” added Tanya. “I didn’t know that this phone would make him achieve as much as it has in the last two months. He sleeps with his phone.”

Being homebound comes with its own set of challenges, not the least of which is continuing to teach students good social skills. Thanks to the smartphone, it’s not as difficult as the Jones family anticipated as Damon still gets to interact with his peers, something his family didn’t want Damon to miss out on by being homebound.

“I knew he was good at math. Seeing the grades, he’s achieved a lot more,” added Tanya.

Other students in the pilot have made videos of themselves to demonstrate the answers to problems and post them to a blog within the Project K-Nect system. They may be too embarrassed to ask a question in class, but now they can pose the question to their peers.

Being a part of the project has helped boost Damon’s confidence and he believes he will reach his goal of attending Massachusetts Institute of Technology (MIT) and majoring in civil engineering so he can build his mom a new house.

“As a parent, I’m all for getting any tool that’s going to help these kids achieve,” explained Tanya. “Not just Damon or my daughter, but any child. We have to go with modern technology and cell phones are always on the hips of kids.

“If they have other programs that would roll out on the phone, I would be the first person to support it. I would support any subject.”