



Intel Education: Worldwide Reach, Individual Impact

As world leaders gather for the 2007 Clinton Global Initiative, Intel is an active participant, rededicating itself to teaching the teachers in over 40 countries.

The global workforce constantly faces new challenges: economic shifts, industrialization, the requirements of multinational employers, social and political initiatives. But no force is more inexorable than technology. It can make an industrial infrastructure obsolescent overnight or can raise an entire country's standard of living far faster than economic indicators would project.

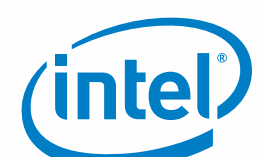
Technology places unique demands on the workforce and creates shortages in professional, clerical and craft positions. Technology can be its own impediment to adoption, economic growth and prosperity, and the only way to satisfy those demands is through education. Literacy and knowledge have the power to enrich lives, and raise standards of living. They are the underpinnings of critical thinking and productive collaboration; they begin in the classroom.

As with everything else, technology affects the classroom. It places unique demands on teachers. Rather than being seduced or overwhelmed by technologies, teachers must learn how to master and apply them so that they engage students and motivate them to learn, retain and apply their skills—in class and in life.

Intel's Teach Program trains teachers how, when and where to use technology to create active learning environments for their students. Intel has already taught over 4 million teachers in 40 countries.

■ The blue regions on the map above represent places where Intel Education is making a difference.

To gain a deeper appreciation for Intel's commitment to education, please turn the page.



Intel Prepares Millions of Teachers for 21st Century Challenges

Dr. Craig Barrett, Intel Chairman of the Board, commits major Intel resources to teaching and equipping teachers to use technology effectively.

The Clinton Global Initiative brings together world leaders to devise and implement innovative solutions to some of the world's most pressing challenges: Education, Energy and Climate Change, Global Health and Poverty Alleviation. Barrett is a recognized expert on ICT (information and communication technology) and is engaged as an advisory board member of the CGI Education initiative. As chairman of the UN Global Alliance on ICT and Development, he is keenly aware of the way technologies affect the way people live, work and play—and learn. Barrett is an outspoken advocate of higher standards in schools, worldwide.

Few companies are closer to the heart of the revolution in technology than Intel. From their unique perspective, Intel executives, led by Dr. Barrett, have determined that education is the area with the most leverage to effect worldwide

change, the changes necessary to prepare today's children to be tomorrow's educated, informed workers, equipped to cope with the inevitable changes taking place across the globe. Indeed, some of the most desirable changes, the ones that improve standards of living and economic standards, cannot happen without education. Teaching the teacher is the highest-leverage point to make a positive difference, and the information interchange among world leaders through CGI has strongly reaffirmed Barrett's commitment to maximizing teacher impact and productivity.

While fully committed to the benefits of technology, Barrett is not overawed by it. "Computers aren't magic," he says. "Teachers are."

The Intel Teach Program uses a "train the trainer" model, incorporating both face-to-face and online instruction. The program comprises a suite of courses,

resource materials and enhancements, tailored to many different educational and social environments. It takes a student-centric approach to creating involvement and interest. The Program has been phenomenally successful, having reached over 4 million teachers in 40 countries. Technology is inherently disruptive, but the Teach Program controls and redirects the potential for disruption into constructive, creative techniques that teachers can use to engage their students. Teachers create lesson plans that can be immediately implemented and that meet local and national education goals and standards.

Teachers additionally need proven techniques to engage students, help them retain and apply what they've learned. The Intel Teach Program shows teachers how to create active learning environments where students can develop and strengthen skills such as critical thinking, problem

solving and collaboration. These skills are essential for success in the global economy, and the grounding must begin in school. A global, educated workforce is necessary for economic growth and development, as shown by microeconomic data from multiple countries: Both the quantity and quality of education have a dramatic, positive effect on personal income and national GDP. By teaching the teachers, Intel helps to equip developed and developing countries for the challenges that lay ahead.

Intel works with governments—national, regional or local—worldwide, and introduces the program into interested countries and communities, which are selected based on the strength of their commitment to the program. An initial group of teachers is selected; they become Intel Teach trainers. They are then responsible for sharing their new skills with other teachers in their region. Intel

continually conducts research and gathers feedback on the effectiveness of the program, its suitability to local cultures, societal and educational needs. Revised and updated materials are provided regularly to the Intel Teach trainers.

Intel's commitment to the Teach Program continues to grow. The company says it will reach an additional 9 million teachers by 2011. Success, however, is not measured in millions of teachers or even tens or hundreds of millions of students. Statistics are important for keeping track, for measuring milestones, but success is told in stories. These that follow are but a few of the many stories that can be told about the importance of the Intel Teach Program.



Newly Empowered Teachers Credit Intel Teach Program

Mercy Ntlemo, a languages teacher in South Africa, teaches in a semirural region of the Limpopo province. Her high school is fortunate to have a room equipped with computers, donated a few years ago by Telkom, the country's telecommunications provider. Although the teachers had introductory training and were beginning to take small steps, the facility was heavily underutilized.

"The teachers were using ICT to prepare their classroom activities and to type exam papers," explains Ntlemo. "In some cases, teachers were using spreadsheets for marks administration, and in fewer cases, teachers were taking students to the computer room. These activities with students were largely limited to information retrieval and simple word processing. There was little evidence of systematic planning and implementation of lessons that required students to critically think, work collaboratively, and integrate ICT in support of this kind of learning. I felt that it was time for something more than that."

Ntlemo enrolled in the Intel Teach Program and learned from other teachers how, when, and where to incorporate technology tools and resources into lesson plans. The instructor was exposed to new approaches for creating assessment tools and aligning lessons with educational learning goals and standards. Additionally, she discovered new ways to incorporate the use of the Internet, Web page design,

and student projects as vehicles for powerful learning.

Ntlemo was so impressed with the Intel Teach Program and the effect it had on her approach to teaching that she wanted her colleagues to benefit in the same way. So she became trained as an Intel Teach Program facilitator and organized courses at her school for her colleagues. Despite the fact that these courses were offered in the evenings, during personal time, many teachers still signed up for them, and Ntlemo found herself teaching 4 separate classes, each with 16 teachers, 4 nights a week. Ntlemo's belief in the value of the Intel Teach Program curriculum was so strong that she continued to teach while she was pregnant.

"Before teachers studied the Intel Teach Program, they did not plan their lessons well, nor did they consider how work was to be assessed other than through the traditional examination methods," says Ntlemo. "Some teachers would enter their classrooms completely unprepared for the topic they were about to teach. [Now] they are planning units of work well ahead and even starting by planning the assessment."

Ntlemo feels that the program has not only completely changed the way she and her fellow teachers can use the donated computers, but has made them better, more effective teachers overall. "The Intel Teach Program has revolutionized the way we teach," she says.

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~Mercy Ntlemo

Student Performance Soars

Half a world away, Costa Rican educators have incorporated the Intel Teach Program training curriculum as part of its mandatory professional development for all teachers. Costa Rica's education landscape is diverse, with a mix of large urban schools and small rural schoolhouses. Of the country's approximately 5,000 schools, about half are urban schools with large, crowded classrooms and half are remote one- or two-room schoolhouses, where one or two teachers serve a multi-age, multi-grade population. Instruction throughout Costa Rica is still fairly traditional; teachers lecture from the front of the classroom and students take notes and exams on the information presented. The Ministry of Education provides a national curriculum for teachers, though it is more of a guide of what subject matter and content is to be covered, rather than how it should be taught in the classroom.

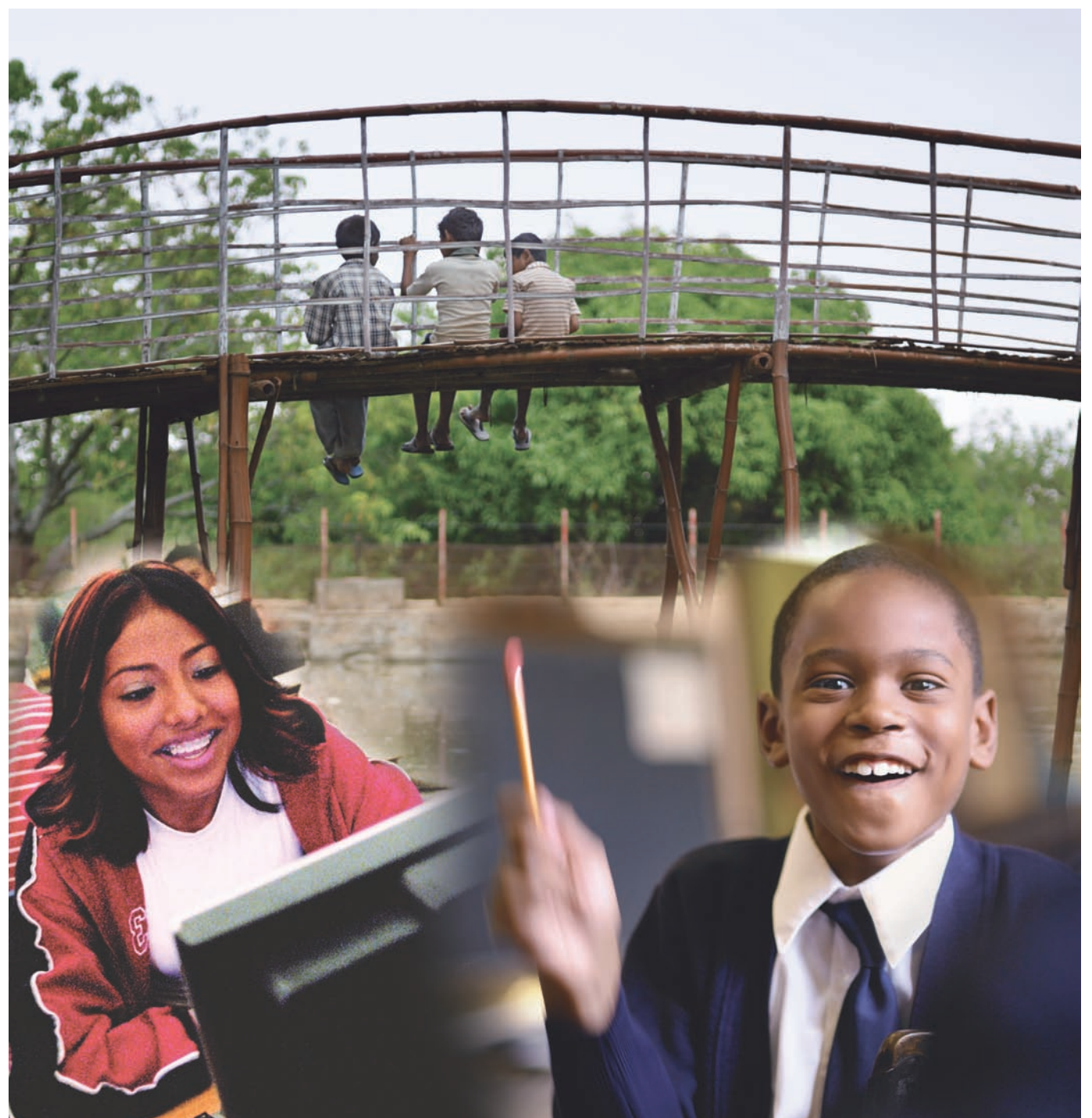
Julietta Rodriguez once described herself as a fairly traditional teacher, having relied on blackboard and chalk for her lessons. Now she employs new methodologies and is more creative in her teaching approaches and uses a lot of tools, including project-based learning and the Internet, to make her classes more engaging. "No longer can I be classified as

a 'traditional' teacher," Rodriguez says with a smile.

Rodriguez is currently a teacher at Mario Quiros Technical High School, which is located in Tres Rios, in the province of Cartago, just 20 kilometers from San Jose's city center, and serves some of the area's most economically challenged families. Opportunity does not come easily for many of the school's 1,300 students.

The benefit to Rodriguez's students has been significant. Since her participation in the Intel Teach Program, student performance has soared. "The final promotion rate in math rose from 40 percent to 70 percent in the last two years," says Rodriguez. "This is huge and important for us."

Rodriguez recently opened a math lab in the school, the first of its kind in the country. The lab has created a great deal of excitement among students, who are now competing in, and even winning, innovation competitions. "The technology and the training helped me to break the 'math is hard' myth in the school, and now all the students think that math is fun and easy," she says.



Child Learning, not Child Labor: Students' Education Projects help Break Poverty Cycle, End Dropouts

Demanding physical labor and low wages are the all-but-certain future of children who drop out of school in the agrarian village of Karakottai, India. In this rural community, roughly 90 percent of the population works as farm laborers in the surrounding paddies and fields. Because many of the families in Karakottai struggle economically, they often kept their children out of school—or forced them to drop out—so that they could work in the fields alongside their parents to earn money for the family.

When B. Magdalene Premalatha, a teacher at Panchayat Union Middle School in Karakottai, became involved in the Intel Teach Program, it was with the vision of expanding future opportunities for her students.

One of the key elements of Intel Teach is a project-based learning approach—that is, integrating learning into projects that make the work relevant and more meaningful for students. Premalatha says her pupils were motivated by the process and, as a result, their skill set rapidly grew. Before long, the teacher reports, they voluntarily gave up play time to engage in schoolwork, particularly when a project involved using technology in the school's computer lab.

The students were further inspired when they had the opportunity to take on a social science project focusing on child

labor, the issue so central to their own community. Premalatha and the school principal had tried repeatedly to persuade the parents and members of the village council to allow these children to return to school. Unfortunately, few listened. The problem continued to exist. But that all changed when Premalatha's students took the issue into their own hands and made it their mission to make a difference in their community.

They started by conducting research on child labor via the Internet, says Premalatha, and discovered a wealth of information, including that "the reasons for child labor were poverty and a lack of awareness."

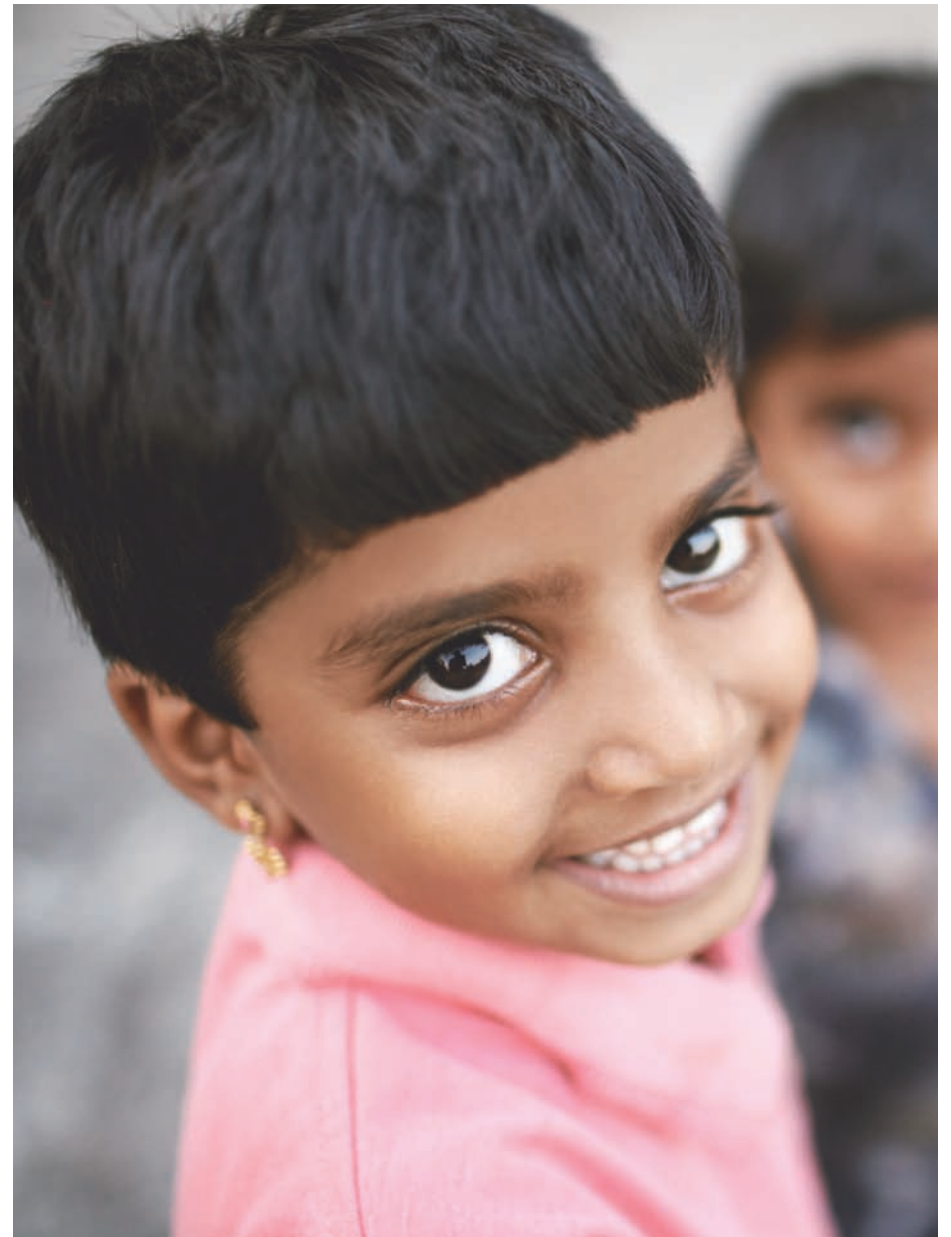
As a result, the students used their new skills to create an awareness campaign. They developed public presentations, including dramatic plays and songs expressing "the condition, emotion, and unfulfilled dreams of child laborers," reports the teacher. They conducted public rallies where they carried educational placards they'd made using presentation and word processing software, and spoke out against child labor, using slogans they had discovered during their research. Because the students knew their audience would not attend events at the school, they conducted these performances on the streets during evening hours. The

students even visited the homes of the dropout children, sharing news of the computer facility at school, as well as their excitement about learning and their hopes for the future.

Of course, the students faced challenges along the way. Initially, the reception for their efforts was quite frosty, says Premalatha, who reminded them, "Rome wasn't built in a day." Recognizing the importance of their mission, the students overcame their frustrations and kept working toward their goal: a village free of child labor.

At last, things began to change. "The villagers started realizing the importance of education," says Premalatha. The village council decreed that they would work toward Karakottai becoming a child-labor-free village. Parents of the dropout children realized that a shift in priorities and some sacrifices were necessary to give their children the chance for a future without poverty. And one by one, the dropout children started returning to school.

Not only did Premalatha's program make dramatic changes in Karakottai, but the story has inspired other teachers in other villages and has helped villagers see education as an investment in their and their children's future.



Students Tour EU from their Classrooms, Learn Collaboration, Problem Solving, Real-world Skills

Teachers at Handorf Primary School in Lower Saxony, like other educators across Germany and around the world, recognize the importance of helping youth acquire digital literacy skills. Until recently, however, a number of teachers at the school utilized technology for lesson planning, but few used technology with the students in the classroom.

That was before the teachers got involved in the Intel Teach Program, which has been a firm component of professional development offered by Germany's Federal States since 2000. Led by the school's headmaster, Karol Lally, the faculty at Handorf Primary signed on, taking advantage of both face-to-face and online training opportunities offered through the program. In addition to learning how to use technology as a tool for learning throughout all subject matter, the teachers also gained other research-based strategies and tools to improve their practice. This included a shift to more student-centered approaches, including more project-based learning in the classroom. By involving their students in projects with real-world relevance, they saw that students became more engaged in the learning process, utilizing technology and other important learning skills in their course of study.

Recent projects conducted at Handorf Primary School have included: "Europe, A Journey," where students collaborated with peers in other European Union countries – specifically, Poland, Northern Ireland, and Denmark – to learn about the differences and similarities in their cultures; and "Breakfast Around the World," where students embarked on a study of breakfast habits in Germany and around the world. The students learned about nutrition through various media, conducted surveys on local breakfast traditions, created a campaign to encourage healthy breakfast choices, compiled a cookbook of recipes, studied breakfast practices around the world, presented their findings via the Internet, and finally, planned an "international breakfast feast" where they prepared a variety of breakfast dishes to share with family and friends. "This activity was the climax of the school year," notes Handorf teacher Rosina Töpelmann.

Through projects like these, teaching and learning have become enriched, report teachers. Not only have students acquired technology skills, but they have also honed other 21st century learning skills, such as thinking critically, problem solving, and working collaboratively.



Entrepreneurial Approach to Special Education

The Intel Teach Program has also empowered some teachers to apply what they've learned entrepreneurially, to start their own education-oriented businesses. Lalitha Bilgi created Swayam, an organization dedicated to special-needs children and their parents. As the parent of an autistic child, Bilgi sought resources to help her child cope with the world, but found few. She realized, however, that the principles she had learned in the Intel Teach Program could be applied to her son and to others like him. She further realized that other children and their families could benefit from the techniques.

Swayam makes learning fun for the children. They learn to communicate through paintings, drawings, songs and, of course, computer applications. It also provides a support structure for parents,

who learn how to address special needs, meet with other parents, and share experiences.

"It is a slow process, but these kids are taught drawing using computer tools, printing their pictures and gradually they will be taught data entering. These activities make learning and teaching a lot more enjoyable," says Bilgi. In addition to running Swayam, she now lectures to educational and parent groups about special needs and the success of her program.

She credits the Teach Program with giving her the impetus to be successful in her pursuit. "It exposed me to a new outlook that made me believe that I can grow individually and institutionally," she says.



Many Stories, Much to be Done

Events like the annual meeting of the Clinton Global Initiative help to focus attention on the critical agenda items that challenge our world's leaders. Intel is firm in its conviction that improved education is the single best way to increase international participation in the global economy and to raise the standard of living everywhere. These few stories, chosen from the millions of teachers who have been exposed to the Intel Teach Program, put a

human face on the numbers and show what is possible among the millions more teachers and multiple millions of students who will benefit from the training in the coming years. Moreover, they show how the Teach Program gives teachers the tools to engage students and teach them the essential 21st century skills they need, including problem-solving, critical thinking and collaboration.

"Intel has been involved in education since its foundation and I firmly believe that you have to invest in the future and nurture talent."

~ Dr. Craig R. Barrett

Learn more about how teachers are helping students to better develop the skills needed for success in the global economy.

Please visit www.intel.com/educate.

