



innovation in education

Case Study

Intel and Scholastic Schools of Distinction  
MacArthur High School  
Irving, Texas

# MacArthur High School Puts Technology in Hands of Every Student

MacArthur High School in Irving, Texas, is a large, comprehensive high school that serves a racially diverse population. Some 40 percent of the 2,400 students meet federal poverty guidelines, and more than 60 languages are spoken in students' homes. In a strategic effort to improve results for diverse students and prepare them for success in the Twenty-First Century, the school has brought technology into every aspect of teaching and learning. Technology integration, professional development, and leadership are the school's interwoven strategies for success.

MacArthur High gives each student and teacher a laptop to use at home and at school. A wireless network has turned the entire campus, indoors and out, into an online community. Extensive professional development efforts help teachers get comfortable with new ways of teaching, using distance-learning labs, projection systems, video streaming, multimedia tools, classroom management software, and dozens of other technologies to engage students in more active learning. The school has earned the state's highest academic rating for the past four years and was designated a National Blue Ribbon School by the U.S. Department of Education in 2002.

By eliminating the digital divide, making technology pervasive and equitable, and helping all students acquire Twenty-First Century skills, MacArthur High has set its sights on nothing short of excellence.

Learn how these key strategies for systemic school improvement have led to MacArthur's success:

- **Effective Leadership** .....»
- **Sustained Professional Development** .....»
- **Twenty-First Century Instruction** .....»
- **Engaged Community of Learners** .....»

Finally, some **Questions to Consider** are included to spark discussions in your school about exemplary practices and Twenty-First Century learning.

## Showcasing Excellence

Intel and Scholastic have teamed up to develop the Schools of Distinction Award program, administered by the Blue Ribbon Schools of Excellence Foundation. This program highlights successes of the best schools in the United States, celebrates their effective use of technology, demonstrates the benefits of strong teamwork, and showcases the classroom practices of excellent teachers.

The Intel and Scholastic Schools of Distinction Award recognizes two schools for overall excellence by naming them the Best of Best. For 2004, the two overall winners were selected from more than 1,200 applicants. Judges looked for excellence in the use of technology, involvement of parents and community, professional development, teamwork, and high academic standards. The two Best of Best schools each received a grant of \$25,000 from the Intel Foundation.

This case study provides an in-depth look at the comprehensive approach to excellence taken by one of the 2004 Best of Best winners, MacArthur High School in Irving, Texas. At the end of the case study, you will find some questions to consider, designed to spark discussions about what your school can learn from these exemplary practices.

**“This was a good school when I arrived, but it had every bit of potential to become great.”**

## **Effective Leadership**

### **A New Principal Arrives**

Contrasts abound in the neighborhoods of Irving, Texas, a Dallas suburb of about 170,000. On one end of the city, affluent families live in gated communities of multi-million dollar mansions, and luxury cars line the parking lots of well-manicured business parks. A few miles to the north, rolling suburbs shift to a more urban scene. City streets are lined with aging apartments converted to government-subsidized housing. Brand-new immigrants come here from all corners of the world—Africa, the Middle East, South America, India, Southeast Asia. After arriving at Dallas-Fort Worth International Airport just a few miles away, they follow the bus line to Irving in search of a fresh start in a new country. Migrant workers make their home here for part of the year, too, moving back to Mexico when seasonal work ends.

MacArthur High School, a two-story building of beige and red brick, has become the place where these diverse lives intersect. During the past decade, the school population has shifted to reflect demographic trends in the larger community. Once enrolling a predominately white, upper-middle-class population, MacArthur today serves a student body of 2,400 that includes an almost equal mix of black, white, and Hispanic students. Nearly 40 percent are growing up in poverty, including about 50 students whose families are homeless. More than 17 percent are learning English as a second language, with more than 60 different languages spoken in students' homes.

From 1963, when the school opened, until Tracie Fraley arrived as principal four years ago, MacArthur High had only three other principals. “That tells you something about the value of tradition here,” says Fraley.

The new principal, a 22-year veteran of education, knew it was time for change. “If we kept doing business the way we’d always done it, we were not going to get the results we needed with our students,” she says. Specifically, Irving Superintendent Jack Singly gave her a charge to “boost things academically, tighten up the discipline, and get some innovation going. This was a good school when I arrived,” Fraley adds, “but it had every bit of potential to become great.”

Rather than mandating top-down reforms or using an off-the-shelf school improvement model, Fraley has succeeded by taking a collaborative approach to school leadership. One of her first steps was to engage every member of the school faculty in an intensive self-study process. The principal sat with the faculty as a whole and with small groups of teachers, asking: “What’s working? What are our challenges? Of these challenges, what factors can we control? What can’t we change?” They dug into research to find answers. The results gave the school a solid assessment of its strengths and weaknesses.

Several factors indicated the need for new approaches to teaching and learning, including:

- **Accountability:** The state accountability system was changing to reflect more rigorous standards. The Texas Assessment of Academic Skills (TAAS) was being replaced by the Texas Assessment of Knowledge and Skills (TAKS). “The old system was a one-time test that measured minimum kinds of skills. The new one includes 10 tests across three grades,” Fraley explains. “The content is much more rigorous, not only in terms of what students need to know but also the thinking processes and problem-solving skills they are expected to be able to use.”
- **Career skills:** Business leaders wanted more from the school system. When Fraley and district leaders met with business leaders, she says, “They kept telling us that kids are not ready when they leave high school. They may know how to read, write, and do math, but they lack the skills that will prepare them for the workplace. Knowing how to use technology is just one part of it. Our students also need to be able to work as a team, to collaborate, to communicate—all of those Twenty-First Century skills.”
- **Risk factors:** Demographic shifts in the community have brought new challenges into the classroom. Research shows that students from low-income families face a variety of risk factors that can interfere with academic success. Fraley admits that some factors—high mobility rates, family poverty, parents with little formal education themselves—are beyond the school’s control to change. Other factors, however, offered a place to focus. As Fraley explains, “The students who are most successful tend to have certain resources at home. They have computers, access to the Internet, access to research. We decided to level the playing field and give everyone equal access to resources which would enhance their education.”

The self-study process culminated in the school’s successful application as a National Blue Ribbon School in 2002. Another lasting outcome has been the establishment of several stakeholder groups to foster ongoing collaboration and keep the entire learning community focused on improvement. Study teams have explored research, looking for model solutions and research-based strategies. For example, MacArthur opened its ninth-grade academy two years ago to help freshmen make a successful transition into high school. MacArthur teachers have visited other schools to see examples of classroom technologies in use.

Through its collaborative approach, MacArthur High has crafted a blueprint for school improvement that has buy-in from teachers, administrators, and the broader community. Fraley continues to meet regularly with the Principal’s Council, Campus Instructional Leadership Team (CILT), Campus Improvement Committee, Student Leadership Forum, and other groups of cohorts. “Each one has a different focus and mission,” she explains. Every constituent group on campus is represented, and the larger community also has a voice.

The school district, local business leaders, and the broader community have shown their support for the improvement efforts at MacArthur High and also across the district. In 2001, voters approved a generous bond issue to pay for new technologies and remodeling to help educators in the Irving School District realize their vision. Fraley was elated, but she knew that equipment alone was not going to be the answer. “I had to convince the faculty that they were better than they even realized,” she says. Bottom line, according to the principal: “We never think we have arrived. We are constantly looking for ways to do things better.”

**Next step:** Professional development to help teachers develop new classroom practices …»

## What Others Say

### What do others in this learning community have to say about Principal Tracie Fraley’s leadership style?

**Connie Riley, associate principal:** “She has provided so much opportunity for teacher engagement. When she came in, teachers looked around and asked themselves: ‘You mean, you want to hear my opinion? You trust me to make recommendations?’ That openness has helped get everybody on board with change.”

**Brandy Avant, teacher:** “I’m excited because I’m learning. The changes she has helped us make and the opportunities she has created have rejuvenated me as a teacher.”

**Brenda Williams, truant officer and dropout prevention specialist:** “She has a knack—she is so positive. By complimenting you, she makes you want to do a better job.”

**Sherry Boone, parent volunteer:** “The principal’s door is always open. She’s always available and interested in what you have to say. It’s a very nurturing environment.”

**Paula Barnhouse, counselor:** “This principal has done a good job of educating the faculty about the needs of our student population. She has helped teachers and staff understand how to work with diversity. The more we know about our students, the better job we can do to help them all achieve.”



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## **Sustained Professional Development Helping Teachers Embrace New Tools and Strategies for Learning**

In 2001, the year MacArthur High began expanding its technology infrastructure, Principal Tracie Fraley posted a picture of herself on the school Web site. “There I was, holding a laptop, PDA, cell phone, two-way radio—all of it,” she recalls with the easy laugh that her colleagues have come to know well. The photo was a joke, but only in part. “We have tried hard to model the effective use of technology for our teachers,” says the principal.

At faculty meetings, Fraley and other administrators began making electronic presentations and showing videos to introduce new resources. Electronic management tools for tracking grades and attendance began to replace paper-and-pencil tasks. A new electronic tardy system was introduced, leading to a drop in daily tardies from 500 to 42. Even the staff handbook, traditionally distributed as a notebook, was handed out on a CD.

In the first phase of technology integration, teachers also received their own laptops and projection systems for their classrooms. An advocate of using data to guide decisions,

Fraley conducted a survey and learned that most of her teachers were uncomfortable, at best, with using these new tools. The majority of the more than 150 teachers rated themselves as beginning users “who didn’t even want to turn on the computer,” Fraley says. “About 40 percent said they’d try, but weren’t sure it was a good idea.” Only a handful—fewer than 10 teachers—were enthusiastic. “These were the few who already embraced technology and saw a million ways to start using it in their classrooms,” Fraley says. That information, coupled with research about teachers as learners, reinforced the decision to make professional development widely available, ongoing, and tied directly to classroom instruction.

Teachers felt a sense of urgency to acquire technology skills. In 2002, freshmen and sophomores would get their own laptops; in the fall of 2003, juniors and seniors would receive theirs, making technology pervasive on campus. “We got the sense there was no turning back,” says one teacher, “so we’d better get ready.” A few veterans chose to retire rather than adapt. “A handful saw the door,” says one teacher, “but most of us saw the light.”

**Overall, Fraley says, the wide range of professional development offerings is helping innovative ideas take root and become part of the school culture. “I’m seeing teachers change their instructional style. They are moving away from being the sage on the stage to facilitated learning. Students have ownership of their learning and their products, as opposed to just regurgitating what the teacher says. The level of understanding and higher-order thinking we’re seeing our students produce is astounding.”**

**Professional development offerings at MacArthur have steadily expanded to include:**

**Summer institutes:** Summer institutes have helped to build a shared foundation and raise teachers' comfort level with classroom technologies. A comprehensive five-day technology institute took place in the summer of 2002, just before laptops were distributed to ninth- and tenth-graders. Another institute was offered the following summer, before laptops were given to eleventh- and twelfth-graders. Additional summer offerings have focused on using tools such as Blackboard Learning System\*, a classroom management system that allows teachers and students to keep assignments, interactive lessons, research materials, and other resources online. Since the system was introduced, teacher participation in Blackboard has increased from four to 108. As more resources become available through the district, such as Thinking Maps\* to create visual representations of student thinking, new professional development sessions are offered. For example, when an academy for ninth-graders was established two years ago, faculty and administrators received special training to help them meet the needs of incoming students.

**Instructional technology specialists:** Two former classroom teachers provide the staff with ongoing, collegial support in designing effective lessons that are supported by technology. Rhonda Jones and Richard Rodgers work one-on-one with teachers as instructional technology specialists (ITS). "We start by asking about their learning goals. What do they want to accomplish with students?" Jones explains. "Then, we help them bring technology into that." Their focus is squarely on teaching first, with technology as a supporting tool. For example, a statistics teacher wanted to develop a project where students would conduct surveys, test hypotheses, make inferences and predictions, and analyze results. Rodgers found the appropriate software package and helped design the challenging project. "The software makes the learning process more enjoyable and more visual, but there's no way you can use it without understanding the fundamentals behind it," Rodgers says. "This is the kind of project that gets students to use higher-order thinking to solve a problem."

**Technology mentors:** Mentors work with their colleagues in each content area, answering questions, modeling effective lesson plans, and making sure good ideas get shared.

**Tech Tuesdays:** A weekly forum with instructional technology specialists and tech support staff gives teachers ongoing opportunities to exchange ideas and ask questions about technology. A key, says Jones, is making sure "teachers are comfortable asking any question. We're here to help them find the resources they need. We're fixers."

**Teachers as leaders:** As teachers get more comfortable integrating technology in new ways, they are taking on the role of instructional leader. Brandy Avant, a world geography teacher who is widely known on campus as a technology innovator, appreciates the change. "This year's summer technology conference will be taught by our own teachers. Instead of someone coming in to give a workshop who knows about technology but maybe has not been in the classroom, we now have our own teachers sharing ideas with their colleagues. Our teachers are at the point where maybe they have tried, failed, and succeeded with technology, and now are at the next stage of sharing what they have learned."

**Individual plans:** Each teacher maintains an Individual Development Plan, outlining goals for his or her future learning. That means teachers are empowered to chart their own course and choose professional development that meets their needs. Says one teacher, "We used to sit through professional development where someone would lecture at you. You'd sit there thinking, why am I here? Now, we get to decide what we need to learn. It's useful."

What does Twenty-First Century instruction look like?

[Read more .....](#)



**"This is the kind of project that gets students to use higher-order thinking to solve a problem."**

## Twenty-First Century Instruction

### In Every Classroom, Technology Opens New Doors

What does Twenty-First Century instruction look like? Here's a sampling from MacArthur High classrooms:

**Anatomy:** In the Distance Learning Center, anatomy students watch on the wide screen as an orthopedic surgeon performs a total-knee replacement—in real time. Students from three other cities are also observing via videoconference. At one point, a MacArthur student asks a technical question that causes the surgeon to stop what he's doing, peer into the camera, and ask: "Where do you go to school? Do you plan to go into medicine?" The heightened student engagement and mastery of content are among the signs of success for the distance learning resource.

**Music:** Choir Director Michael D'Spain, one of MacArthur's newest faculty members, pauses to tell a group of students about the music theory class he is planning for the coming school year. A new music technology lab will enable students to make their own recordings, and students know that D'Spain will let them choose the genre. "Rap, hip-hop, traditional—whatever grabs their interest," he says. "You have to meet students where they are." His approach is working. During the 2003-04 school year, choir participation grew from 90 to 140 students. Next year, he predicts the number will grow to 260. D'Spain is ready and eager for the challenge of using new technologies in a growing program. He says, "This school is willing to trust me to select the resources that will benefit my students. I can't wait."

**Senior English:** Dr. Pat Munro, a 40-year teaching veteran, is respected as a master teacher by students and colleagues alike. She admits that she was initially "more than skeptical" when it came to using laptops in her classroom. Now, she regularly watches students make multimedia presentations that hold their classmates' attention. She sees technology supporting students throughout the writing process. Students save multiple drafts of works in progress. The teacher or peer editors can offer feedback at various stages, not just at the end of an assignment. "It's been surprisingly easy to adapt to technology," she says. "The students are already comfortable and knowledgeable. They're so ready and willing to show you what they know. As a teacher, nothing motivates you more than your students' desire, interest, and curiosity. We're better teachers when we have the means to inspire our students."

**World Geography:** Brandy Avant's world geography class includes a wide range of learners, including gifted, special education inclusion, and English as a second language students. In an culminating project, each student is creating a Web page to showcase what he or she has learned about a specific country, including a variety of maps to represent population, physical features, and other information. Some students have decided to expand their pages and add video

clips and recordings of national anthems. In this self-paced learning environment, Avant observes, "No one's getting bored." When students have questions, they are just as apt to consult one another as to ask the teacher. This is a different kind of classroom than Avant remembers from even a few years ago. "I used to be more teacher-focused. I would lecture and then have the students do activities that I planned. I don't do that anymore. I ask them questions and have them go find the answers. I give hints and facilitate, but it's more student-centered learning." Integrating technology in deeper ways has meant letting go of some old teacher habits, she admits. Desks are no longer lined up in neat rows. And there's plenty of chatter. "Letting go of the silence was the hardest thing, but I realized we have to let students work together and help each other. Now, I get uncomfortable if my class gets too quiet."

**Home Economics:** Longtime teacher Patsy Parrish listens to two students discussing a clothing design: "One describes a piece of clothing she wants to make. The other says, 'I know just what you have in mind.'" He goes to the Internet, downloads a pattern, and begins adapting it and customizing it on the computer screen." In home economics, as in every other content area, technology is creating new opportunities for collaboration and problem solving, she says. Her favorite teaching moment? Pulling up a chair next to a student who has asked an interesting question and saying, "I don't know. Let's find out together."

**Football:** The school day is winding down, but Coach David Beaty is just warming up. In a technology-enriched athletics meeting room, he downloads video clips for his football players to study before the next game. He uses a projection screen to go over plays and does statistical analysis to predict which plays their opponents are most likely to call. His winning football program is strongly linked to academic success. Students who fall below 75 percent in any class are required to attend academic tutoring sessions after school. Other teachers email him if they have any concerns about a player's academic progress. In the past two years, he has lost only two players to academic ineligibility, and his goal is nothing short of 100 percent success in the classroom. When it comes to technology, the coach says, "We've just begun to scratch the surface with these tools. It's almost ridiculous how deep this goes. There's no turning back."

When Principal Fraley observes these classroom scenes, she knows the school is moving toward more effective teaching and learning. The biggest eye-opener, she says, came at the end of the 2003-04 school year, when all students had to turn in their laptops. There were still several school days remaining. The same teachers who began the year voicing reluctance about laptops were now outspoken advocates of the technology. "It was a dramatic shift. They went from saying, 'We don't want it,' to asking me, 'How dare you take this away? How am I supposed to teach?'" Fraley adds with a smile, "I never expected we'd be there."

## Engaged Community of Learners

### Giving Students 'What They Need for Life'

What do students say about their Twenty-First Century learning experience at MacArthur? "Teachers are broadening what they teach, accessing resources we've never had before," says one student. Another says she likes the way teachers use an electronic assessment tool, called Class Performance System\*, for content review and immediate assessment. "We find out what we know, what we need to review, where we need help. And it's fun," he says, comparing the "clicker" that students use to a game show remote control. Yet another student says she understands math better this year, thanks to an online visualization tool. In a U.S. History class, students use an online textbook. "In the past, our textbooks have been out of date or even missing pages," says a student. "This gives us current information."

Across campus, at all hours of the school day, technology is opening new doors to learning. Ulyses Childs, an ROTC teacher and also a MacArthur parent, arrives on campus at 6:30 a.m. daily, and says he sees students sitting outside on the gym steps, using the wireless network to do research or submit homework electronically. It's the same story late in the afternoon, when students linger outside the school entrance to log on for email or to complete assignments. For students without access to the Internet at home, the school's wireless network provides connection to resources at all hours. Childs adds, "Students get everything they need here—for life."

Students have adapted quickly to the technology at MacArthur, not only in academics but also in the wide range of activities that draw active participation here. The student council uses digital video gear to make public service announcements. A daily television news show is produced by students. Even the school Web site is student-run.

Parents have also become more connected to their students' learning. Students who are learning English as a second language, for example, have begun sharing online resources

with their parents, helping these new members of the Irving community build their English skills. Parents use email to stay in touch with teachers. Counselors also make use of the school Web site to share important information with parents. Parent volunteer Sherry Boone says parents feel more connected to the school and, thus, more likely to get involved. "This is a place where, when they see something that needs to be done, parents put their boots on and go to work," she says.

What else makes MacArthur special? "We stand out—in a good way," says a senior who has been an active participant in student leadership. "When we go to conferences, we are always the most diverse group." Adds Childs, whose son is a star on the football team and an aspiring visual artist, "This is a school where every student can find a place to fit in." Counselor Paula Barnhouse says, "It's easy on this campus to feel part of the group. We work hard to make sure all kids have a place."

What will students remember most about their time here? "Definitely the teachers," says one senior boy. "We can tell they care about us." A girl who had to deliver a speech before a state student leadership conference of 5,000 delegates says that experience "makes me feel like I can do anything. This school gives you so many opportunities to grow."

What inspires this diverse community of learners to keep working harder, aiming for excellence? "We have gone through years when we weren't the best," says one boy. "That just makes us push harder, whether it's sports or ROTC or academics." Another student chimes in, "You look back on the past and say, I think I can do better. When we leave here, we can tell people: 'This is how determined we are. We're from MacArthur. We don't give up.'"



**"This is a school where every student can find a place to fit in."**

## Questions to Consider

**Once you have read about MacArthur High, you may want to explore the strategies your own school is using to address similar challenges. Here are some questions to help spark discussions about effective practices within your school community. Recognizing your own strengths will help you get ready to apply for the Intel and Scholastic Schools of Distinction Award.**

### Effective Leadership

- What are the benefits of MacArthur High's collaborative approach to school leadership?
- Would a similar strategy work in your school?
- What is your school doing to build buy-in for school improvement efforts from teachers, students, parents, and the larger community?

### Professional Development

- How has MacArthur High met teachers' needs for sustained professional development, focusing on technology integration?
- What are the benefits of encouraging teachers to become instructional leaders?
- How does your school provide ongoing professional development to improve classroom practice?

### Twenty-First Century Instruction

- How do the classroom examples featured in this case study meet students' learning needs?
- Are teachers at your school developing similar, technology-rich projects?
- Do you and your colleagues create opportunities to share effective project ideas with each other?

### Engaged Community of Learners

- What has MacArthur High gained from reaching out to the broader community?
- What is your school doing to build connections with students, parents, businesses, and other community members?