"I always believed that my son Jordan, who has autism, could understand more than he could express. Thanks to the HP TouchSmart PC, now he has his own voice."

—Russ Ewell, chairman, Hope Technology Group, Palo Alto, Calif.

HP customer case study: Students with special needs at Hope Technology thrive using HP TouchSmart PC

Industry: Education

Objective:
Provide an enriching and productive learning experience for children with special needs
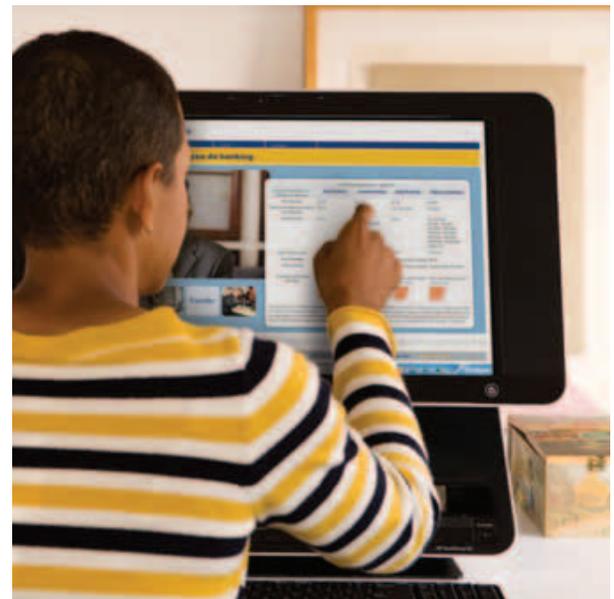
Approach:
Deploy HP TouchSmart PC

Improvements:
- Students provided successful solution to keyboard obstacles
- Built-in tools include microphone and webcam
- Easy to manipulate video, images and voice
- Produces natural vs. synthesized voice playback

Business benefits:
- Costs substantially less than some previously used assistive technology
- Opens opportunities for students with special needs to interact socially
- Potential to speed verbal progress in some cases from months to days
- Creates platform for nonproprietary software development

Russ Ewell always felt that his autistic son Jordan had a rich inner life that he could not express to others. Jordan would occasionally speak words like "apple," or for short phrases use an assistive device that produced a synthesized voice. Then Jordan started using an HP TouchSmart PC—and everything changed. With its advanced touchscreen technology and built-in microphone, the device opened a world of communication possibilities for Jordan. For the first time, Ewell heard his son speak phrases in his own voice. And now Jordan can participate in group activities and feel like he belongs.

Jordan is not alone. All 120 students at Hope Technology School (HTS) in Palo Alto, Calif., use TouchSmart PCs to accelerate learning, participate in group activities, and unlock their ability to communicate. HTS is a private, nonprofit school

Customer solution at a glance

Primary applications
Classroom learning; speech and occupational therapy; student projects

Primary hardware
• HP TouchSmart PC

Primary software
• HP TouchSmart Voice Notes

dedicated to providing an exceptional learning experience for typical and special needs children in a fully inclusive, technology-rich environment—60% of the students do not have special needs; 40% have developmental differences such as autism, ADHD, Down Syndrome, learning differences, speech disorders and emotional challenges.

"The HP TouchSmart PC fulfills a hope we've held for a long time," says Ewell, chairman of the Hope Technology Group, which runs HTS. "I always believed that if we kept looking, a company eventually would build technology with enough forethought and vision to open doors for visual and tactile learners like my son."

"I want something to eat"
Highly motivated by the PC's visual orientation, Jordan has built a library of icons matched to a library of phrases he's recorded in his own voice using HP TouchSmart Voice Notes software. He uses touch-triggered playbacks to express his thoughts and needs, such as "I want something to eat," or "I have a headache." Ewell explains, "You're stunned because for the first time, you're hearing phases from your own son with clarity, and you're seeing him free of the frustration of not being able to communicate who he is and what he's thinking."

Children with autism or speech impediments also use the device to practice speaking. The built-in camera allows them to see as well as hear themselves speak—an advantage that teachers say in some cases has sped verbal progress from months to days.

"The HP TouchSmart PC is a gateway for some students. It works naturally in a way that's comfortable for them. We've seen students so excited, they learn quickly and begin to participate successfully in social activities."
Russ Ewell, chairman, Hope Technology Group

TouchSmart technology accelerates learning and helps bring HTS students with special needs out of social isolation. They send one another video email using the webcam, and create videos for class projects. One favorite activity is a classroom game of Jeopardy, with the answers derived from coursework. The PC is moved to the middle of the room and students play by conveying their questions in the mode of response most accessible to them, whether verbal, type or touch. That it's an academic quiz in disguise is only one of the

payoffs—the main benefit is the ability to enjoy a shared experience. "Before, kids had notebook PCs and devices they could use individually," Ewell explains. "This is a device everyone can use together. Children with speech problems can interact, and they're included."

Kokeb Girma is an occupational therapist at Hope Technology School. Many of the children she works with have problems with sensory integration—that is, they have trouble processing input from the five senses and coordinating movement. She uses the HP TouchSmart PC in her therapy sessions to help students with bilateral processing, hand/eye coordination and fine motor skills, as well as sequencing skills for activities such as cooking.

"Sometimes it's hard for our students to use their fingers for fine motor skills like typing. The HP TouchSmart PC helps them develop hand/eye and bilateral coordination."
Kokeb Girma, occupational therapist,
Hope Technology School

One student, for example, found the generally simple, fine motor task of writing with a pen or pencil so difficult that any attempt made her extremely anxious. Girma used the device to turn the challenge into a game. "I had to create a way that was less stressful for her to write," Girma explains. "I introduced her to the HP TouchSmart and it became fun for her. The frustration is gone, and her skills are improving."

Sandra Lee Burke is a speech and language pathologist at Hope Technology School. She works with students to build their communication skills. In her field, printed icons on paper have been used at length to teach students to connect visual images with words and phrases. The HP TouchSmart PC takes this approach to new levels. "It's multi-modal input," she says. "They can touch the screen, type the word, say it, hear their voice and see their face. All that together reinforces the communication skills they're learning."

A touch of inspiration
The HP TouchSmart PC is the only touch-enabled, all-in-one PC on the market today. Users simply touch, tap or sweep a finger across the screen to access information, the Internet and social networks in a natural, intuitive way. Without using a keyboard or mouse, users can play music, video chat, check the weather, or watch

> "The HP TouchSmart opens up opportunities for children with special needs to move past their challenges, to do the same types of things and play the same games as typical students."
>
> Sandra Lee Burke, speech and language pathologist, Hope Technology School

TV.[1] The device creates a compelling, hands-on experience that is very suitable for areas in healthcare, hospitality and especially educational environments. For persons with disabilities, the integration of touch with technology can be a new lifeline to the world.

HTS has been using the latest in assistive technology (AT) since the school was founded in 2001. AT includes any item, piece of equipment, or product system—whether acquired commercially, off-the-shelf, modified or customized—that is used to increase, maintain, or improve functional capabilities of individuals with disabilities. HTS uses a wide range of TV recording and video equipment, text-to-speech technology and keyboarding devices. The TouchSmart PC, Ewell says, represents a significant leap forward: state-of-the-art processors and operating system; generous screen real estate; sophisticated graphics; powerful on-board application software; and a sleek design that attracts students. Best of all, he says, the device costs roughly one-fifth the price of traditional AT tools developed with proprietary hardware and software.

"We've been using touchscreens at Hope Technology School for 10 years," he says. "The HP TouchSmart PC is the tool I've been waiting for—there's nothing else like it. The ability to move images, and manipulate video and voice just weren't as advanced in the typical tool used up to this point."

The HP TouchSmart requires just a power cord to set up. The machine is ENERGY STAR® qualified, with a powerful Intel® Core™2 Duo processor.[2] It has all the capabilities of a traditional PC, and select models offer entertainment features including a TV tuner for watching and recording TV shows,[3] a built-in DVD burner,[4] and integrated premium stereo speakers. A built-in webcam and microphone enable video chat and conference via the Internet.[5] The PC operates with a wireless keyboard, wireless mouse and integrated WLAN.[6] Its 22-inch diagonal, high-definition[7] widescreen display tilts up and down. Additional features available from HP include wall-mounting kits; Blu-ray; and pocket media, large-capacity, external hard drives.

Robbed then restored

Given how important the HP TouchSmart PC and technology in general are to HTS, it was a devastating blow when one day teachers came in and found all the school's computers, printers, cameras and scanners stolen. HP heard about the robbery and donated some equipment. The next time they visited the school, a message from Jordan awaited: "Thank you, Hewlett-Packard."

The significance of TouchSmart technology reaches beyond the currently available hardware and software, Ewell says. Until now, most AT applications were proprietary, and because the market for them was small they also were costly. HP TouchSmart changes

all that. HP recently released TouchSmart Application Developer Guidelines for third party developers, assisting them to create touch-friendly applications that integrate and run within the TouchSmart software suite. As part of the release, HP supports the TouchSmart Community with an environment for TouchSmart developers to interact, upload software and share their creations with TouchSmart PC owners. HP also publishes HP Assistive Technology Vendor News to help bring innovative solutions to market.

"The HP TouchSmart PC is a fraction of the cost of traditional assistive technology tools we've used. There's nothing else like it today."
Russ Ewell, chairman, Hope Technology Group

Hope Technology School itself is developing software to help people with special needs match icons and speech to communicate. It has opened a pilot

technology lab to make devices available to the community at large. Ewell also is encouraging his mother, who has arthritis and has trouble typing, to use the device. The potential applications are limitless.

"Today, we can hardly recall the days before computers. With the advances made with TouchSmart technology, envision explaining to next generations how we used to use keyboards!" he says.

"We can't wait for the development of a whole host of affordable software solutions for the HP TouchSmart PC," Ewell adds. "We understand the challenges for parents out there who are struggling to help their kids."

Contact the
HP Reference2Win
Program, 866-REF-3734
for more information.

To learn more, visit www.hp.com