OrbiTouch keyboard: Removing the barriers of autism

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The OrbiTouch keyboard. Credit: Blue Orb

Autism can build a wall of poor communication between those struggling with the condition and their families. While a personal computer can help bridge the divide, the distraction and complexity of a keyboard can be an insurmountable obstacle.

Using a unique keyboard with only two "keys" and a novel curriculum, teachers with Project Blue Skies are giving children with autism the ability to both communicate and to explore the online world.

At the heart of the project is a device called the OrbiTouch. Human-factors engineer Pete McAlindon of BlueOrb in Maitland, Fl., conceived of the concept behind the OrbiTouch more than a decade ago as a way to prevent carpal tunnel syndrome and provide computer access to people

with limited or no use of their fingers.

Developed with the support of two National Science Foundation Small Business Innovation Research awards, the concept of representing keyboard strokes with paired movements was critical to the design from the start.

"If you are unable to use a keyboard and mouse effectively or at all because of a physical disability, what chance do you have of using a computer?," asked McAlindon. "The OrbiTouch is designed to keep people with physical or developmental disabilities connected to their computers."

The Project Blue Skies curriculum is based on the functions of the OrbiTouch, which allows a user to input letters, symbols and any other command by independently manipulating two computer-mouse shaped grips forward, back, diagonally and to the sides.

For people with carpal tunnel syndrome, as well as other hand and finger ailments, the motions driving the OrbiTouch are far kinder than those for a keyboard.

With Project Blue Skies, the hardware is matched to lesson plans, training aids such as games, and assessment tools. The two-grip device is ideal for people with autism because it is less distracting than a [keyboard](#) and does not require finger motion.

In addition, the various letter and number combinations are created by matching color schemes indicated on the two grips, so the training curriculum matches well to a game-like environment.

Teachers guide the students and monitor their progress, ultimately helping the kids better communicate with their families. While the

primary goal of Project Blue Skies is to help people with autism develop stronger social skills, McAlindon is working with partners to start integrating standard coursework into the program.

"I have watched Pete McAlindon grow and change over the last decade," said Sara Nerlove, now program director for NSF's Partnerships for Innovation program. "He has taken the concept that he developed as dissertation research, and using his skills as a human factors engineer, turned it into a very creative device to help people with disabilities. The result of his skill and persistence is the evolution of his technology into an ingenious adaptation, one that makes his goal of providing for persons with disabilities a sustainable effort."

McAlindon continues to work with his colleagues to find applications for his approach, most recently applying the system to video game controllers, allowing hundreds of thousands of online gamers to say goodbye to their keyboards using BlueOrb's Switchblade software. The gaming approach grew exponentially last year when it was paired to the launch of one of the largest online multiplayer games in the world.

Source: National Science Foundation ([news](#) : [web](#))

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