Using Speech

XyberKids: Helping Kids Assimilate

by Robin Springer

How does a company that provides wearable computer solutions for the military and corporate heavyweights such as Federal Express, Bell Canada and Lockheed Martin transition into helping kids with disabilities improve their communication and social skills?

If you are Xybernaut, you modify your trademark durable, droppable diminutive box into XyberKids, a product that not only helps kids interact, it helps them assimilate.

Based on a wearable computer that was originally head-mounted and is currently worn by military and corporate clients on a work belt or vest, the product was adapted to provide improved functionality for kids with disabilities. While it is not the only wearable computer, it may be the only one geared toward children. The system consists of a backpack that holds the CPU (measuring less than 6X4X2 inches and weighing approximately one pound), speaker and cabling, and an external touch-screen tablet. Technically a "regular" computer, it has a 500MHz Celeron processor with up to 256MB RAM, a 5GB hard drive (externally expandable) and Windows 2000.

Applications for this computer are as varied as its users.

The product has been used successfully with autistic children, helping to keep their attention. Autism, the result of a neurological disorder that affects the functioning of the brain, manifests in difficulty with verbal and non-verbal communication and social interaction. It is estimated that as many as 1.5 million Americans have some form of autism and the number is increasing exponentially.

While a person who is not autistic may tire of hearing the same words or phrases played repeatedly, many of these children learn by repetition. The text-to-speech functionality provides the repetition, and when used with a headset can be executed without disturbing other students or family members.

The issue of independence is also addressed by the wearable computer. Pre-installed software includes an on-screen keyboard and BoardMaker, a graphics database with more than 3,000 Picture Communication Symbols, allowing the user to make communication displays. The communication displays, or boards, are used to prompt text-to-speech. Additional software can be added including scanning software and voice input.

Because it is worn on the body and has assistive technology that speaks for the user, a child (or adult) can use the product as an augmentative communication device, having conversations, asking questions, ordering his or her own meal at a restaurant. Being attached to the screen offers the added advantage that the child cannot forget the computer.

The product is durable, and has been dropped from as high as three feet without consequence. This has proven to be a benefit when dealing with kids who are frustrated by school and other factors including not being understood. Once they see how the product can work for them, they stop throwing it, and it is still functional.

Richard Walfish, XyberKids manager, was part of a team that collaborated on the product to make it easier for children to wear. He has been with the company for five years and although he has worked with well-known corporations he finds it more gratifying to work with the kids. "I am able to help young kids and make things better for them (by helping them communicate)." He enjoys seeing the smiles on the faces of the kids and especially enjoys the reactions of the parents.

According to the manufacturer, a surprising consequence of the backpack computer is an increase in acceptance of disabled children by their non-disabled counterparts in the mainstream school environment. Walfish relayed a story of a young boy who said, "Last year they made fun of me. Now (because of the technology) they want to be my friend."

Another example provided by the manufacturer was of a child with Tourette's syndrome who used the computer to listen to music that calmed him when he was nervous. The result was that he was able to stop taking medicine.

In the past few months the company began testing the product with senior citizens and aphasic adults and analysis is underway on usability of the product with voice input.

It appears that what started as a streamlined computer alternative for military personnel is evolving into a new generation of assistive technology aimed at improving the modalities by which children live and learn.

Robin E. Springer is president of Computer Talk, a consulting firm specializing in the design and implementation of speech recognition and other hands-free technology services. She can be reached at (888) 999-9161 or by e-mail at info@comptalk.com.