

## Simple Tool Is the Write Stuff for Kids

**In his spare time, an employee built a program to help disabled children develop fine motor skills. The animated, Tablet PC game has "transformed" handwriting lessons.**

By Aaron Halabe

When Guy Barker demoed his handwriting-assistance software, called HerbiWriter, to fellow Redmond employees last week, he expected many to be underwhelmed.

"People shouldn't be impressed when they look at HerbiWriter – this is a simple program," said Barker, a senior software design engineer on the Search team. "But from the kids' reaction, it's a big deal because it's having an impact now."

Barker's [program](#), developed over 150 hours of his own time, is helping students with developmental and physical challenges learn to form letters on Tablet PCs. What's more, a contact at Microsoft Research wants to push HerbiWriter into universities for further development, and helped set up Barker's trip to Scotland this month to show the software at an education conference.

"It's been extremely gratifying," said Barker, who has worked on simple accessibility programs in his spare time for more than three years. "For a long time, I got no validation. I wondered whether I had good ideas or was just wasting time. ... It seems to me that both on the software and hardware side of things, we should be able to help people with disabilities more than we are. This is an underserved community."

### Down Syndrome Student Does Victory Dance

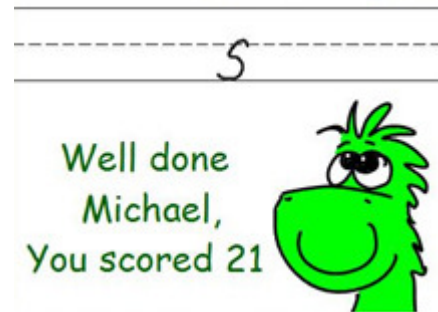
Susan Thompson, a Dallas-based occupational therapist, contacted the Tablet PC developers' alias about a year ago, asking if a program existed to help people develop handwriting skills. Her inquiry inspired Barker, then with the Tablet team, to design HerbiWriter.



"It doesn't have to do much to make a big difference in someone's life," Guy Barker said.

replicate letter strokes. Kids accumulate points in a game-like approach that offers positive reinforcement from a dragon named Herbivore – Herbi for short.

Herbi's encouragement goes a long way with one of Thompson's students, who has Down syndrome. "To my



Herbi the dragon offers kids positive reinforcement with their handwriting.

Getting schoolchildren to practice handwriting used to be pure drudgery, Thompson said. "The kids hated it. I didn't enjoy it." Now she uses the software to aid kids who have autism, cerebral palsy, or other challenges.

"Kids just keep trying without getting frustrated. ... When they see me coming ... with my Tablet PC, they're excited to work with HerbiWriter. They're learning the letters because they like to ... see Herbi smile. It's really transformed my therapy for the better," Thompson said.

The software, which Barker made with Visual Studio.NET and C#, demonstrates proper letter formation, and then asks children to

delight and surprise, he was able to watch the letter formation and replicate it. He'd do a dance every time he got it right," Thompson said.

Such feedback "knocked me off my feet," Barker said. "I find it hard to believe such simple software could be so helpful to the students."

Students without disabilities could benefit from HerbiWriter, too, Thompson added. Kids who play more with repetitive motion-based video games and less with toys that require manipulation might lack the fine motor skills required for proper handwriting. Often children in early elementary grades get referred to occupational therapists to correct bad habits.

### **Sponsorship Comes from Microsoft Research**

Barker connected six months ago with Jane Prey, who manages the Tablet PC program in Microsoft Research's External Research and Programs group. The group promotes and sponsors technology collaborations with university faculty and administrators.

"I'm looking at technology as a way of keeping kids engaged," said Prey, a former university computer science instructor. "Tablets are something that, if used correctly, can ... offer hands-on work that sustains their interest."

Prey thinks HerbiWriter is one such Tablet application. She and Barker hope a professor will make HerbiWriter a senior project that provides students with practical experience while augmenting the tool with new features. Prey noted a project at DePauw University in which students used the Tablet PC software developer kit to build a language interpreter, Japanese character recognizer, and other projects.



A student of Susan Thompson's celebrates success with the software.

Meanwhile, Barker also developed a contact at Harborview Medical Center in Seattle. The hospital's rehabilitation unit is exploring how the technology could be used to help patients relearn lost writing skills. Barker also hopes to generate global interest this month when he demonstrates HerbiWriter at the International Conference on Computer Science Education in Dundee, Scotland.

"HerbiWriter has been very rewarding," Barker said. "It really has meant more to me than anything else I've done. I encourage others to try their hand at developing something useful. It doesn't have to do much to make a big difference in someone's life."

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