How
S.T.E.M.
Is Saving the World*

Invisible Medicine
bots in your blood
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Rescuing Animals
via social media
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*one small solution at a time
Life is difficult for children with hearing impairments in Morocco, a country in northern Africa. Very few deaf children in Morocco go to school, and there is no education available for them past sixth grade.
>>Leveling the Playing Field
Parents wonder, "Doesn't my child have the right to a full education?"

"Many deaf people [here] are illiterate. The country is losing a wonderful resource," says Dr. Abdelhadi Soudi. Soudi heads a Moroccan research group at the École Nationale de l'Industrie Minérale.

A unique computer technology is filling the education gap in Morocco. The computer program comes from a partnership between Soudi's research group and an American small business, the Institute for Disabilities Research and Training (IDRT).

The computer program works with Arabic, one of the official languages of Morocco, and Moroccan Sign Language. "This technology breaks through social barriers. It gives deaf people a chance to improve their education," says Soudi, who helped build the computer system.

To translate, you can enter a sentence in Arabic. The system then provides the sentence in Moroccan Sign Language in several forms. You can look at graphics of the words in sign language. Or you can watch a video of a person signing the sentence. The program also provides interactive games and instruction in sign language. Stories are signed so deaf children can understand. There are puzzles and a sign language dictionary.

>>Official Support
The Moroccan government is enthusiastic about Soudi's work.

"We have heard from two government agencies that they want to work with us," says Soudi. "They would like to integrate the computer program into classrooms. They realize the importance of this technology."

Parents and teachers are excited about the technology too.

"We pray to God that this program becomes part of the educational system so that all segments of society can benefit from it," says Bouchra Ekhounsi, a parent of a deaf child.

ENGINEERING HOPE
Thoughtful technology can help children with a variety of special needs. Engineering professors Steven Warren and Punit Prakash at Kansas State University are working with Heartspring Inc., a residential program for children with severe special needs. The professors' engineering students develop devices and software that may be useful for this program. Most of the children at Heartspring have autism and are nonverbal.

The engineering students' projects include a musical toothbrush that tracks brushing and plays songs so children know how long to brush; multi-touch-surface computer games that teach children how to sort items, take turns, and interact with peers; and mattress and bed sensors that track breathing rates, heart rates, and movements.
»The U.S. Connection
Behind the technology is the partnership between Soudi's research group and the American company IDRT. Together, the partners received grants from the U.S. Agency for International Development and the National Science Foundation for their work.

IDRT specializes in computer programs for people who are deaf or hard of hearing. It provided Soudi's research group with computer code, sign language pictures, software models, and some of the expertise to build the Moroccan computer program.

“All of IDRT's computer programs include translations into American Sign Language [ASL] so that deaf people can enjoy them. With these programs, users can learn ASL, play games, or see stories,” says Dr. Corinne Vinopol, owner of IDRT.

»Taking the Technology to the World
Soudi and Vinopol have shown the Moroccan computer program to officials in other countries. Many organizations are interested in the technology.

“The long-term goal of our partnership with IDRT is to expand our technology to other Arabic-speaking countries,” explains Soudi. The technology would open up a whole new world for hearing-impaired children in more than 20 nations where Arabic is spoken.

Carollyne Hutter is fascinated by science and technology and loves to write about how the latest developments are helping people and the planet. Her website is www.hutterwriter.com.