

**Testimony of Dr. Michael S. Fulkerson
Chief Technology Officer
Rosetta Stone Inc.**

**Before the Subcommittee on Intellectual Property, Competition and the Internet
Committee on the Judiciary**

**Hearing on
“Driving American Innovation: Creating Jobs and Boosting our Economy”**

March 9, 2011

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Chairman Goodlatte, Ranking Member Watt, and honorable Members of the Subcommittee. My name is Mike Fulkerson, and I am the Chief Technology Officer of Rosetta Stone Inc., a leading provider of technology-based, interactive solutions for language learning. Our solutions are acclaimed for the power to unlock the language-learning ability in everyone. Available in 34 languages, Rosetta Stone language-learning solutions are used by schools, our armed forces, government agencies, corporations, and millions of individuals in over 150 countries throughout the world. Every day our innovations in language learning help people improve their lives and make the world a better place. These innovations have enabled Rosetta Stone to grow from a family-owned business founded in the heart of the Shenandoah Valley in Harrisonburg, Virginia to approximately 2000 employees, most of whom are based in our headquarters in Arlington, Virginia, our main operational facilities in Harrisonburg, Virginia, and a research center in Boulder, Colorado.

I appreciate the opportunity to appear before you today and want to thank you and your colleagues for recognizing the important role that innovation in private industry plays in job creation and the growth of the American economy. This is particularly true for software companies like Rosetta Stone and for the information technology (IT) industry in general. Continual innovation plays a critical role in these sectors of the economy, with IT companies investing billions of dollars each year in research and development. For example, the Business Software Alliance (BSA), of which Rosetta Stone is a member, has reported that its member companies alone have invested \$26 billion in R&D last year, with some companies investing more than 20% of their revenue. This investment is driving IT employment to new heights. IT employment in the U.S. this year will be approximately 3.1 million jobs, and the BSA estimates that IT employment will grow by 282,000 jobs over the next two years. More broadly, all intellectual property industries employ more than 19 million people and account for

60 percent of our exports, making them the cornerstone of the U.S. economy. These economic gains are in addition to the huge productivity benefits that the software and IT industries bring to our economy. It has been estimated that IT investment was responsible for two-thirds of the productivity gains that this country experienced between 1995 and 2002 and nearly all of the growth in labor productivity. It is difficult to imagine where we as a country would be in terms of global competitiveness without IT investment and innovation.

Rosetta Stone's history exemplifies the critical role that R&D investment and innovation plays in business expansion and job growth. Founded as a family business in 1992, Rosetta Stone had its humble beginnings in a garage in Harrisonburg, Virginia. Its founders had conceived the idea of using computer technology to teach people to learn a new language by simulating the way people learn their native language through the use of pictures and audio in context without direct translation. They developed their initial software product using the then newly developed CD-ROM technology. The company gradually expanded its portfolio of language learning products, and its sales revenues grew to roughly \$25 million by 2004. In 2006, Rosetta Stone was able to attract private equity investments from two investment companies, enabling the company to accelerate its investments in research and product development. As a result of expending well over \$90 million in research and development since 2003, Rosetta Stone has been able to achieve major improvements in the effectiveness and sophistication of our innovative language-learning technologies and solutions. A chart showing the history of our product innovations is attached to this testimony as Exhibit A.

Our solutions provide an effective way to learn languages in a convenient and engaging manner. Our approach, called Dynamic Immersion, eliminates translation and grammar explanation and is designed to leverage the innate, natural language learning ability that children use to learn their native language. We consider traditional translation and grammar methods as obstacles that delay and impede the successful acquisition of language proficiency, and our solutions avoid those elements. Our computer based self-study courses allow our customers to learn using the immersion method on their own schedule and for a price that is significantly lower than most classroom based or one-on-one alternatives. Our proprietary solutions have been developed over the past 18 years by professionals with extensive expertise in linguistic, education and instructional technology. Our content library consists of more than 25,000 individual photographic images and more than 400,000 professionally recorded sound files. We

design the sequencing of our content to optimize learning. The result is a rigorous and complete language learning curriculum that is also designed to be flexible, fun and convenient. Our language learning solutions are built upon a flexible software platform that supports multiple languages and is deployable on personal computers, on local networks and online. The platform incorporates a number of proprietary technologies that are key to enabling language learning, including: (i) speech recognition that is focused on the unique challenges of language learners; (ii) "Adaptive Recall" algorithms that repeat content at scheduled intervals to promote long-term retention; (iii) reporting features and curriculum options designed to enhance the effectiveness and administration of classroom, enterprise and home school learning; and (iv) an intuitive user interface that assists the learner's transition from listening comprehension to speaking. Rosetta Stone offers a broad product suite, with courses currently available in 34 languages. Our courses are available in up to five levels of proficiency per language, with each level providing approximately 40 hours of instruction and containing multiple units, lessons and activities.

Rosetta Stone's investments in product innovation and development have dramatically accelerated its growth. Our employee base has grown from less than 300 in 2004 to approximately 2000 employees today, and our revenues have grown by 10-fold, from roughly \$25 million in 2004 to \$258.9 million in 2010. In addition, revenues generated from our international business grew from a negligible percentage in 2004 to 18% of our revenues in 2010. Our company's growth demonstrates the important impact of investment in technology and product innovation on the American economy.

The company's technological and pedagogical innovations led to the introduction in 2009 of its latest product offering, Rosetta Stone TOTALe®. With this new product, we have been able to strengthen the effectiveness of our existing language courses with internet-based services that enable our customers to practice conversation in a language with dedicated language coaches in an on-line, interactive environment and to interact with other language learners through online learning games to increase language socialization, and providing live support from customer service agents. Currently, this new product is available to customers in the United States and Japan, and by year-end we will have extended its availability to users in South Korea and several countries in Europe and Latin America. It is worth noting since the introduction of TOTALe, the company has hired approximately 250 U.S.-based language coaches to conduct the online conversation sessions with our customers. In doing so, we are

effectively exporting the services of these and many other U.S.-based employees to other countries as we continue to expand the availability of this product overseas. As TOTALe becomes available in school systems, its online features will enable children learning Mandarin to interact online with school children in Shanghai, or children learning Spanish to interact with a school in Costa Rica, thereby enhancing not only their language learning experience but also their awareness of other cultures. In September, 2010, we released Rosetta Stone Version 4 TOTALe combines our packaged software language learning programs with opportunities to practice with dedicated conversational coaches and other language learners to increase language socialization as well as online language learning games. If the members are interested, I am prepared today to demonstrate for you this latest innovative product offering.

In addition to contributing to the growth of our own company, our investments in product innovation and development have also enabled our corporate, educational, governmental and other customers to take advantage of our products to contribute to their own success. This has created a ripple effect in which Rosetta Stone's innovative products have been adopted by other organizations in innovative and often unforeseen ways, multiplying the benefits derived by society from our own investments. Let me share a few examples with you:

- Supporting English as a Second Language (ESL) Programs in School Systems: With a student population of more than 25,000 in north central Phoenix and East Glendale, Arizona, Washington Elementary School District (WESD) is the largest elementary school district in the state. With an ethnically diverse student population, a large percentage of whom do not have a basic knowledge of the English language, WESD faced the challenge of integrating its large population of non-English speaking students into the district's education system and providing the best education to all of its students. With a limited budget and staff, WESD decided in 2005 that Rosetta Stone's Classroom Edition product would best fit its needs in implementing a new ESL program. WESD installed Rosetta Stone Classroom software onto all of its language lab computers. One year later, the language-learning solution was available on every computer throughout the school district. "We needed a single solution that allowed a wide range of students from different grades, backgrounds and proficiency skills to attain language skills at their own individual pace," said Sue Brown, administrator for ESL Programs in WESD. "Rosetta Stone Classroom helped us create effective multi-age programs where ESL kids could naturally learn English in an immersive and personalized environment."
- Supporting the U.S. Military: First adopted by the U.S. Army in 2005, Rosetta Stone programs have successfully delivered more than 1.3 million hours of language training to the military's globally deployed forces. Last year, we released six new language editions, available for military and government language-training platforms, in Dari, Pashto, Urdu, Arabic (Iraq), Swahili and Bahasa Indonesia -- languages critical to global security

efforts. Blending the Rosetta Stone curriculum with custom military terms and content in these mission-critical languages, these newest product offerings are helping to build foundational language skills through immersion-based, self-paced study and simulated exercises that prepare for real-life, face-to-face interactions. The new mission supporting content includes modes of transportation, weapons and ammunition, directions, buildings and landmarks, natural features, basic medical terms and relevant cultural concepts. The learner plays the part of a security force member who must effectively engage in conversations in order to accomplish missions. Forces deploying to regions where these new languages are spoken will have the opportunity to access these new language editions to prepare them to communicate more effectively in everyday interactions.

- Preserving Endangered Languages: In 2004, Rosetta Stone launched its Endangered Language Program, an effort devoted to collaborating with indigenous groups in the U.S. and elsewhere to develop Rosetta Stone software specifically designed to help teach, revitalize and restore at-risk or “dying” languages. Through this program we have worked with the Chitimacha Tribe of Louisiana to create Rosetta Stone Chitimacha software that is now in use in tribal schools. This is making it possible for the children of the tribe to learn their heritage language, even though the last fluent speakers of the language died in the early 20th century. This leap from a language that previously existed only in archival form to one which can now be learned using state of the art technology is an unprecedented example of the application of technical innovation. Rosetta Stone has now developed software for seven different endangered languages across the United States and Canada, and these programs are being used in schools in Alaska, New Mexico, Arizona, Utah, Louisiana, Quebec, and Labrador by hundreds of Native American students. The Rosetta Stone Endangered Language Program has captured the attention of other indigenous communities worldwide, who also hope to incorporate innovative technology into their language revitalization programs.
- Assisting in Speech Therapy: There is growing evidence that our language learning software may offer exciting opportunities for use as a tool in speech therapy for individuals with certain cognitive and physical disabilities, such as autism, cerebral palsy, autism, and aphasia. Technical components and methodology, pacing, and other aspects of Rosetta Stone programs may enable our software to be conducive to instruction and therapeutic efforts. I have attached an article entitled “Inclusion Tools: Rosetta Stone – A Visual Way to Teach Language” by Pam Corley and Merry Fore as Exhibit B to my testimony which discusses the potential for using Rosetta Stone software as a therapeutic tool.

At Rosetta Stone, we are committed to developing the best commercial language learning solutions through continued investment and innovation to meet our customers’ widely diverse needs. At the same time, however, Rosetta Stone needs to protect this investment from those who seek to profit from the illicit counterfeiting of our products. Rosetta Stone’s heavy investment in developing and launching new products would be put at risk if counterfeiters could reap the benefit of Rosetta Stone’s efforts by selling pirated copies of the products as soon as we

launch them. Yet, this kind of theft of our intellectual property routinely occurs through online piracy, and it is having a negative impact on our ability to maintain and create jobs and to attract the capital needed to invest in new products and services. In effect, criminals seeking to profit from our investment in new products by selling pirated copies of our products over the Internet weaken our ability to grow and continue to invest in innovative product improvements. They also tarnish our brand and harm consumers by selling poor quality or defective copies of our software. Most of these pirates are based in China, Russia and other foreign countries, beyond the reach of U.S. law enforcement. Therefore, Rosetta Stone welcomes any legislative initiatives that the Subcommittee may consider to combat effectively the threat posed by online piracy to the benefits that otherwise would be derived from innovation by American companies.

History of Innovations



THE
Rosetta Stone
LANGUAGE LIBRARY

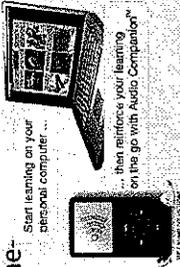


Fairfield Language Technologies releases

Rosetta Stone, which is sold initially into schools and later as a consumer product.

Release of **Rosetta Stone Traveler**, a vocabulary-focused consumer product.

Audio Companion is released as an on-the-go complement to language lessons



TOTALe is released, revolutionizing online language learning with live coaches, social networking, and gaming components



1993

1995

2000

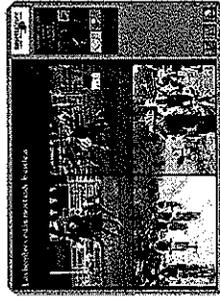
2005

2010

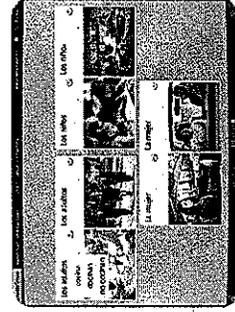


Rosetta Stone Explorer, consisting of fewer units and lessons is released into the consumer marketplace.

Rosetta Stone Version 2 becomes available, and is sold into schools, governmental agencies, corporations, and consumer markets.



Rosetta Stone releases **Rosetta Stone Enterprise Version 3**, which combines end-user learning content with a robust administration package.



RosettaStone
Language Learning Success

RosettaStone

Inclusion Tools: Rosetta Stone

A Visual Way to Teach Language

By Pam Corley and Merry Fore

In too many classrooms, there is no expectation that learners with special needs will be able to learn and develop functional reading and writing skills. This is especially true for children with complex communication needs (CCN). Teachers in public schools, trying to teach children with disabilities, who require assistive technologies, to read and write in an inclusive setting may find the task overwhelming.

One of the biggest problems for teachers and therapists working with these students is the lack of ready-made instructional and assessment materials that can be used by learners with a range of physical and cognitive disabilities. Let's face it, adapting materials so that learners with CCN can be actively involved is a tremendous amount of work. Even with the best intentions, there is just not enough

time in the day for teachers to keep up with the general education curriculum and adapt the materials for students with more significant disabilities, like those who cannot use pen and paper or who cannot speak.

While teachers of general education students have pre-made activities (such as exercises, worksheets or other assessment materials) that can easily be downloaded or photocopied for their students to use, teachers of children with disabilities often have to make their own, which is prohibitively time-consuming. Teachers of general education students can find out how learners are progressing by asking questions and receiving oral responses. Teachers of children with CCN cannot rely on oral responses, since a great number of these students cannot speak. In many cases, teachers of individuals with significant disabilities don't even follow a specific reading or writing curriculum. This scenario provides inconsistent outcomes for learners who are most at risk for learning failure.

So, do we just give up on teaching literacy skills for these learners? Of course not! We have to get creative and figure out how we can use ready-made programs and resources in innovative new ways.

This is the first in a two-part series, written to share ideas that work in the inclusive classroom and spark your creativity to think differently about resources you may already have available or can easily acquire. This article will focus on the use of the language learning software Rosetta Stone, not to learn a foreign language, but to teach

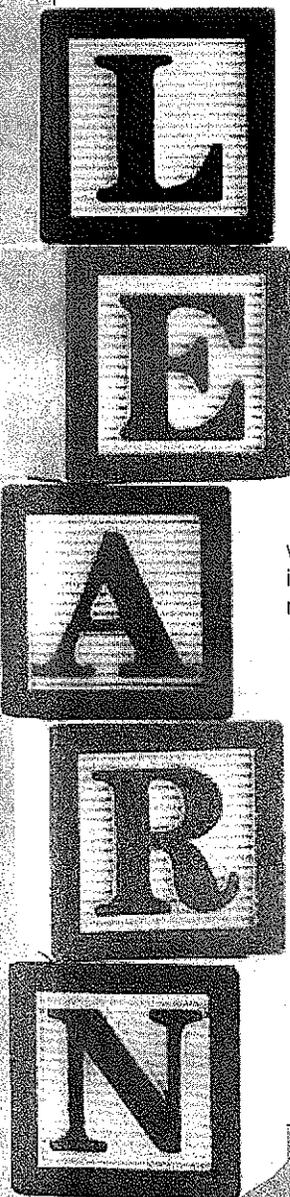
and assess language in students with CCN.

These learners often have gaps in their language and literacy development, but it is very difficult to find the gaps or "splinter skills." Many times teachers end up teaching the same things over and over again because they don't know when to move on to the next level due to lack of proper assessment materials. A ready-made systematic language instruction program can help us find the gaps and provide a way for learners who cannot be assessed in traditional ways to demonstrate their literacy skills.

We are not affiliated in any way with Rosetta Stone; we just ordered a demo, wondering if, perhaps, the program could be used in a different way than the designers originally intended, desperate for a tool that we didn't have to design and create ourselves. Once we started using the demo and then the full program, we realized its potential. The more we have used it, the more impressed we have been. Here are some unique features that we feel make Rosetta Stone a great fit as a language-teaching tool for learners with disabilities, such as autism and cerebral palsy.

FIRST, IT IS ENGAGING, ALWAYS A PLUS!

It is an interactive, multimedia computer program that incorporates words, sounds and imagery. Instead of the clip-art we see so often in programs designed for students with disabilities, Rosetta Stone matches spoken words and text with photographic images from real life. The program teaches language by the association of words and meaning derived from images. It presents a series



of vivid photos, and a word or sentence describing the photo is spoken while the text is displayed on the screen. The learner then selects which picture goes with that word or sentence. The learner advances using language they've learned and clues from new images. Learners constantly interact with the program to confirm their intuition and check what they have learned. If they're right, they proceed. If not, they get another chance. It starts simply and builds systematically to the more complex.

The clear, colorful photographs are engaging for all kids, but can be especially appropriate for kids on the autism spectrum who are often visual learners. Dr. Temple Grandin, a prominent author and speaker with autism, wrote: "I think in pictures. Words are like a second language to me. I translate both spoken and written words into full-color movies, complete with sound, which run like a VCR tape in my head. When somebody speaks to me, his words are instantly translated into pictures."

SECOND, IT IS ACCESSIBLE, ANOTHER BIG ISSUE FOR THIS POPULATION

It is ideal for students who do not have the motor skills to do traditional worksheets and grammatical exercises with pen and paper. Also, the layout of the program lends itself for use by learners who do not have the motor skills to use a computer mouse and need a touch screen.

CORE COMPONENTS OF THE PROGRAM

LISTENING: This is a critical skill, but especially difficult for non-speaking students (e.g. the difference between the sounds "king" and "ning" as in "cooking" and "running.") Some of the activity screens in Rosetta Stone are designed to

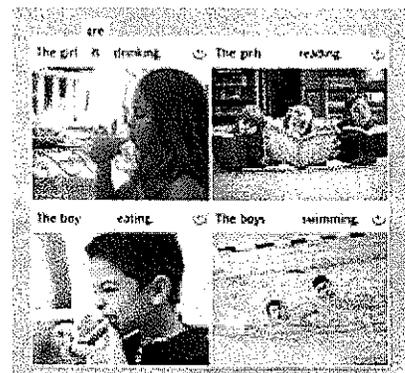
specifically focus on listening skills. They do not have text. The words are spoken and the learner chooses the picture that best matches the phrase heard.

WRITING: The writing portion can be accomplished by typing a word or sentence using a traditional keyboard or by using the mouse to click the on-screen keyboard. Writing words this way is much easier for learners who struggle with handwriting since they can concentrate on the function of the letters and words and don't have the extra work of trying to write the letters. Users who do not have the motor skills to use a traditional keyboard or a mouse can use their AAC device as input instead. Many dynamic screen devices (such as those manufactured by DynaVox Technologies and Prentke Romich Company) can be connected for either cabled or wireless access via the USB port. Using the device for writing gives AAC device users great practice learning the vocabulary in their devices, as well.

READING: The vivid photos and realistic situation portrayals make reading more interesting. Visual supports can be helpful for students learning to read and write, especially students on the autism spectrum. Some screens in Rosetta Stone are designed to reinforce reading skills. The written word or phrase appears, but is not spoken, and the learner must discern which photo best matches the phrase. Some screens use text as a prompt at the top of the screen to be matched with pictures or text boxes below. For example, one screen might have a prompt, "The dog is swimming." There are four pictures, one of a dog swimming in the water, a close-up of the face of a dog, a close-up photo of a horse and one of a horse running. Just knowing the word "dog" isn't enough because there are two pictures of dogs,



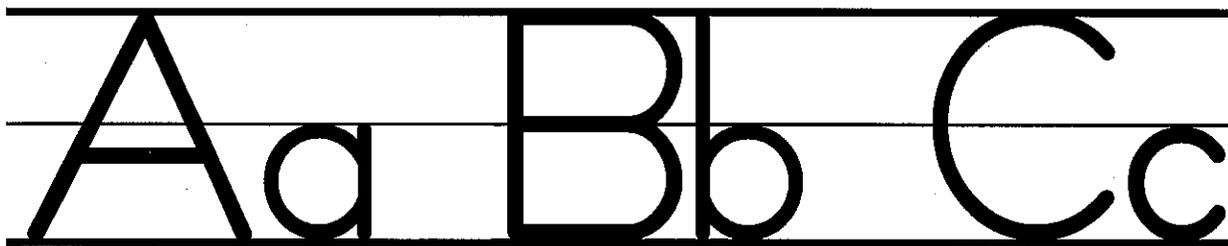
"Reading Practice in Rosetta Stone Level 1"



"Grammar Practice in Rosetta Stone Level 1"

so the user must also know the word "swimming" to respond correctly.

SPEAKING: Wait a minute, isn't that the problem with students with CCN? Why do we say "speaking?" Because this program's sophisticated speech recognition makes it possible for both speaking and non-speaking students to practice "speaking." How does that work, you may wonder? Well, when doing the microphone setup, the user is asked to say ("1, 2, 3, 4, 5") in a normal speaking voice so that the program can recognize the voice. For students who use an augmentative communication device, put the



microphone headset near the speaker on the device and have the device "speak" the numbers. You even have the option to specify whether it is a male or female adult voice or a child's voice and to specify the speech precision level (i.e. difficult, normal or easy). Sometimes you have to play around with these settings to achieve the optimum level for AAC device users. Once the microphone setup has been done, the AAC device user would then use the device to produce words and phrases in the Speech Practice portion of the program. To make the "speech" of the AAC device easier for the program to distinguish, we have a couple of suggestions. 1) a high-quality microphone is needed, like the USB microphone headset that is included when you purchase the Rosetta Stone program. 2) minimize background noise.

VOCABULARY: Many times teachers only use single meaning symbols to teach simple language concepts to special needs students. In Rosetta Stone, vocabulary words are visually presented in authentic contexts and real life situations. For example, in teaching the word "ladder," a photo of men in work clothes carrying a ladder appears and the sentence "The men have a ladder" is presented. Then, a photo is shown of a man reaching for light fixtures on the ceiling to change the bulbs, but clearly cannot reach them. This sentence is presented as a prompt: "The man needs a ladder." Also most helpful for students with autism is the fact that when a photo is presented to teach a specific word, several different photos of the same item are shown. For example, when teaching the word "boy," photos of many different boys are presented, and when teaching the word "egg," the program shows a photo of a raw egg in the shell, as well as cooked eggs on a plate.

GRAMMAR: Rosetta Stone teaches grammar concepts, such as subject-verb agreement in naturally-occurring contexts. For example, a photo of a girl with dirty hands in front of a sink is shown with the prompt "She _____ soap." The choices presented are need/needs. Or a photo of a couple in a market buying vegetables is shown with the prompt "_____ buying vegetables." The choices presented are they/they're/their.

PRONUNCIATION: This feature of the program helps kids with natural

speech "breakdown" words. We have not found a way for this to work for AAC device users.

How do these core components fit in with literacy research? "Reading, writing, speaking and listening abilities develop concurrently and interrelatedly, rather than sequentially." (Koppenhaver et al., 1991; Teale & Sulzby, 1986).

PROVIDES CORE VOCABULARY PRACTICE FOR AAC DEVICE USERS

As a side benefit, Rosetta Stone is also a great tool to help students who use AAC devices learn and practice the use of core vocabulary. The term "core vocabulary" refers to those top 100 words that account for about 50 percent of the words we use every day. We have found that the language taught by Rosetta Stone almost perfectly coincides with core vocabulary, and that was an exciting extra discovery. AAC device users need lots of practice using these core words and learning the motor plan for accessing them on their device if they are to be effective communicators. Since Rosetta Stone was designed as a language-learning software, and anyone trying to master a foreign language must use the new words they are learning over and over again, it provides that practice.

"What a fabulous idea to use Rosetta Stone software to help students with severe communication disabilities enhance their language and literacy skills. Rosetta Stone can easily be incorporated into curriculum by educators and SLP's." Nancy L. Inman, M.A.T., CCC-SLP

The school version of the program offers teacher and administrative tools to view students' progression through lessons, note potential areas of additional focus, and access easy-to-read reports and graphs. A curriculum editor lets teachers customize courses for individual or classroom development needs. Rosetta Stone Homeschool offers several course options and a full-year lesson plan, complete with lessons, worksheets, quizzes, tests and answer keys, and is easy for parents to use. A mother who is using Rosetta Stone to help her non-verbal son with autism and auditory processing deficits learn language concepts reports the following about her experience:

"Using Rosetta Stone, I have been able to quickly determine my son's areas

of weakness and provide him with direct instruction and activities in those areas. I can print out the words targeted in each lesson and pre-teach them in preparation for a lesson, or use them to generalize. He is successfully advancing and increasing his auditory comprehension skills, word recognition skills and reading skills. For example, at first he had difficulty discriminating between the words "woman" and "women," but the lessons and practice in Rosetta Stone helped him to master those words. Also, I appreciate the value of the realistic photos in Rosetta Stone. I have realized that, although my son could match a written word to a picture symbol on a worksheet, he was not generalizing this knowledge to his real life experiences. Completing the Rosetta Stone lessons that are rich with actual photo representations of language and concepts has helped my son to improve his understanding of words in his daily life."

This is just one example of how we can utilize resources and programs in novel ways to give students with disabilities the extra help they sometimes need to be successful. Our next article in this series will discuss ideas for combining readily-available resources and programs to quickly and easily create literacy lessons for your students.

AUTHOR INFORMATION

Pam Corley is a technical trainer/facilitator who is also the parent of a child with complex communication needs. She can be contacted by e-mail at <pamcorley@stx.rr.com> or by phone at 361-288-5733.

Merry Fore is a teacher with 18 years of special education teaching experience who maximizes the use of assistive technology in her teaching strategies to ensure access to the general education curriculum for all students. She is a former teacher of students with significant disabilities, including many who used augmentative and alternative communication. She can be contacted by e-mail at <merrycuatro@yahoo.com>. ■