

Fight Globally, Speak Locally

U.S. foreign policy spurs demand for startups that make it easier to learn foreign languages and converse in far-flung theaters.

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Linguist W. Lewis Johnson, a computer science expert from the University of Southern California, can't read or write Arabic. Yet he can speak the language well enough to train Marines in it at southern California's Camp Pendleton.

- ADVERTISEMENT -

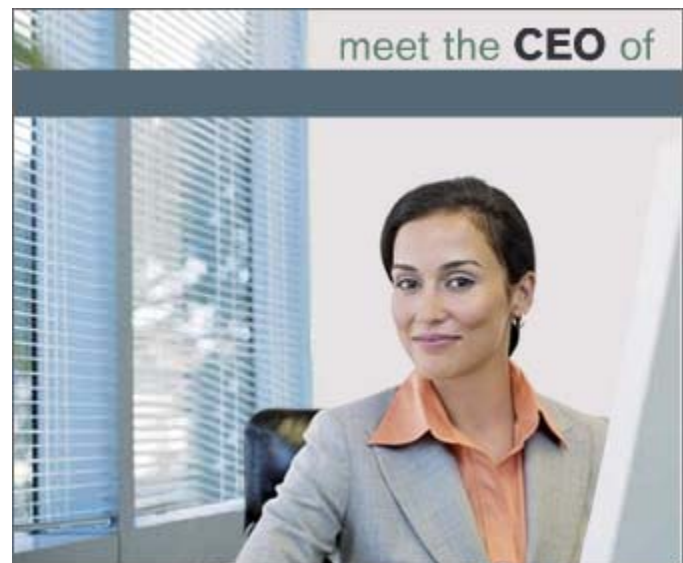
Mr. Johnson is helping officers there learn the way he did—by playing a video game. In a typical game scenario, a learner assumes the role of a computer-generated male character, dressed in green fatigues and a pair of dark glasses, walking down a street with two colleagues. His mission: Find out who the local leader is and ask for directions to his house.

To do that, the character must walk up to a group of "locals" seated at a café, greet them, exchange pleasantries, inquire about their leader, convince them of his intentions, and successfully obtain the directions—all in Arabic. During the process, players get help in the Arabic phrases they have to say to get the task done.

The game is engaging, fun, and interactive. Best of all, in a little more than two weeks, most people come away feeling that they have a functional ability in Arabic, says Mr. Johnson. "People tend to be very competitive while playing video games, and they learn quickly if they want to win."

It's no surprise that the U.S. military has him teaching Arabic to officers. The United States' war on terror, which has made the Middle East and Afghanistan the new theaters of engagement, has spurred demand for speakers of the local languages. U.S. intelligence agencies are scrambling for recruits with conversational Arabic, Dari, and Pashtu, with little success.

Military personnel who can speak these languages are in short supply. In fact, according to the *9/11 Commission Report*,



"The total number of undergraduate degrees granted in Arabic in all U.S. colleges and universities in 2002 was six." Even assuming that the number is as inaccurate as the data on Saddam's weapons of mass destruction, the U.S. Army's Defense Language Institute has done an impressive job signing up enrollees for its Arabic language courses—700 so far. But that's still far short of what the U.S. military needs, given that it has more than 150,000 troops currently deployed in Iraq alone.

Translating Terror

The shortage has spawned startups that are making it easier for government personnel to learn, speak, and translate different languages.

Mr. Johnson's video game program, *Tactical Iraqi*, was developed by one of those startups, Tactical Language. The company, which he now heads, grew out of a research project he led at the University of Southern California's Information Sciences Institute.

There are others, too. Marina del Rey, California-based Language Weaver has developed software that automates document translation from languages like Arabic to English. SRI International of Menlo Park, California, developed a handheld translator device called the Phraselator, which turns spoken English phrases into other languages. "The war on terror has definitely been the catalyst," says Language Weaver CEO Bryce Benjamin.

Development of *Tactical Iraqi* was largely funded by the U.S. government as part of a three-year effort by the Defense Advanced Research Projects Agency (DARPA) to transform military training tools by making them interactive, easier to learn, and technologically up-to-date.

The game fits DARPA's bill perfectly. In the product customized for the military, users learn how to introduce themselves and greet others, get directions, arrange a meeting with the local leader, discuss a reconstruction project, handle a medical emergency, or conduct searches—all in Arabic.

The game also deals with cultural cues. A player quickly gleans, for instance, that taking off his sunglasses before starting a conversation elicits a better response from the computer-generated Iraqi character than the reaction he would get otherwise.

"You don't have to worry about becoming embarrassed and making a fool of yourself—the computer isn't going to laugh at you," says Mr. Johnson.

Tactical Language, which incorporated a year ago with \$1.5 million from angel investors and the U.S. government's Small Business Innovation Research program, has just seven employees. It garnered sales of \$1.5 million with its one product last year and Mr. Johnson expects to double or even triple that figure this year. "The demand for foreign language and cultural skills is only going to increase," he says.

That's what Language Weaver is betting on, too. But instead of relying on human translators, Language Weaver promises to teach computers how to translate text almost as well as a human can, something other companies have failed to accomplish.

"Most people who have tried to use free translation on the web know that what comes out on the output side is so disjointed and grammatically incorrect that it doesn't look like something that a person would write," says Kevin Knight, chief scientist and founder of Language Weaver.

Indeed, how is it that a computer translating something as simple as "university hospital" from Japanese to English can come up with "medical department attachment hospital?" It happens because automatic translation products tend to use predefined grammar and linguistic rules, instead of allowing for idiosyncrasies of the language.

Language Weaver software determines how words and phrases relate to each other to create coherent sentences. Based on that, the software generates several translation possibilities, rates their statistical probabilities, and then chooses the best option based on the context of the document. It's much like the mental process humans would use to figure out that a medical department attached to a university might really mean a university hospital.

The program could be a valuable tool for the U.S. military, multiplying the amount of foreign information that it can read and understand, say analysts. No surprise, then, that the seed funding for Language Weaver came from In-Q-Tel, the venture capital arm of the Central Intelligence Agency. In October, the startup said it raised \$4 million in its second round of funding led by Palisades Ventures.

Key to both Language Weaver and Tactical Language is software that can recognize complex language patterns in either speech or written language. Older speech recognition technology allows a user to say a few words that are recognized by the computer. *Tactical Iraqi* takes the next step and turns that dialogue into a conversation.

The program listens to the sentence the user says and figures out what is being said, whether it is the right thing to say, and whether it is being said in the right accent. That's pretty amazing, says Avron Barr, founder and principal of Silicon Valley consultancy firm Aldo Ventures, who helped evaluate *Tactical Iraqi* as a consultant with DARPA. "My first impressions were they couldn't do it," he says. "But they have actually kept their schedule and done everything promised

and more.”

Dangerous Customers

So far, for about \$1,500 each including hardware, Tactical Language has installed about 100 copies of its Iraqi language software in the U.S. military's training labs (each installation covers between 10 and 15 computers). A consumer version, whose price is yet to be determined, will likely be out in a few months, says Mr. Johnson. Language Weaver, apparently profitable since 2003, has watched sales grow more than 1,300 percent, with government sales accounting for 75 percent of revenue.

That degree of reliance on government sales could spell trouble for both companies, says Don DePalma, founder of Common Sense Advisory, a research and consulting firm that specializes in translation and localization issues. Mr. DePalma studied Russian and Czech in the 1970s and watched interest (and funding) in those languages dry up with the end of the Cold War. He thinks the same could happen to languages that these startups are betting on, including Arabic and Pashtu. “The desire to spend money is tied to what the need du jour is,” he says.

Aware of changing language needs, both Tactical Language and Language Weaver are developing Mandarin Chinese and Japanese products. “As companies go global there will be increased pressure to access and deliver content in languages other than English,” says Jackie Fenn, a Gartner fellow in emerging trends. But to increase their reach, these startups will have to convince potential clients that their software can do what other programs failed to do in the past, she says.

Language Weaver says it can turn out translations that are about 90 percent accurate—but that's only when the software has been fed similar documents for a few weeks to familiarize it with the context and the information. That still leaves open the possibility—a scary one—that the 10 percent it got wrong contained the crucial part of the document's message.

So much work remains to be done. Extending the technology to the web or other areas that have a greater range of subjects could lower translation accuracy to about 75 percent.

Still, the new products offered by companies like Language Weaver, Tactical Language, and SRI International are a big step ahead of what is used today. And anything that gets the world closer to finding those elusive weapons of mass destruction has to be a good thing.