



IN

SHORT

TOWARD CRIMINAL JUSTICE SOLUTIONS

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## Voice Translators for Law Enforcement

### THE PROBLEM

Two law enforcement officers who speak only English are on patrol when they stop a non-English-speaking suspect. They need to communicate some basic instructions to him before they can take him to the precinct station, where he can be questioned with a translator present. The situation soon becomes filled with gestures and confusion. Officers who routinely patrol an area where English is not the predominant language might find it helpful to learn a few simple phrases.

But officers who infrequently encounter non-English-speaking individuals might easily forget the phrases. And learning the language won't help if they must also deal occasionally with suspects who speak other languages. A better strategy might be to carry an electronic device that provides translations of basic commands in several languages.

### BACKGROUND

In 2002, the National Institute of Justice asked the Naval Air Systems Command Training Systems Division Orlando (NAVAIR ORL) to perform comparison testing of three such devices—the Voice Response Translator (VRT), the Phraselator, and the Universal Translator™—for both translation accuracy and ability to work in noisy environments. *The Voice Recognition and Evaluation Report* summarizes the investigation and comparison of the three voice translator units.

### THIS STUDY

Exhibit 1 compares some of the performance capabilities of the three devices. Evaluators used five different phrases picked from each device's phrase list to test accuracy at various noise levels.

**Exhibit 1. Comparison of Three Voice Translator Devices**

	<b>VRT</b>	<b>Phraselator</b>	<b>Universal Translator™</b>
<b>Languages stored</b>	Spanish, Creole, Portuguese, Arabic, Dari Farsi. Manufacturer has capability to add other languages.	Arabic, Dari, Pashto, Urdu. Manufacturer has capability to add other languages.	Spanish, German, French. Manufacturer's Web site says has capability for up to 17 languages
<b>Phrases stored</b>	204	326	3,000, subdivided into 10-phrase domains
<b>Technology</b>	8-bit wave playback	Dynaspeak speech recognizer	Wave playback
<b>Hands-Free Capability</b>	Yes	No	No
<b>Response Time</b>	Less than 1 second	4 to 5 seconds	3 to 4 seconds
<b>Dimensions</b>	Width: 3.25 inches Height: 5.125 inches Depth: 1 inch Weight: 10.5 ounces	Width: 5 inches Height: 7 inches Depth: 1.75 inches Weight: 19.3 ounces	Width: 2.5 inches Height: 4.375 inches Depth: 1 inch Weight: 4.7 ounces
<b>Operating System</b>	Proprietary	Windows CE	Proprietary
<b>Users Enrolled</b>	Yes, up to seven per unit	No	No
<b>Maintenance</b>	Recharge battery	Recharge battery pack	Replace batteries. (Rechargeable batteries and battery charger not included).

They also measured the length of time that each battery held its charge and the recharge times.

**BOTTOM LINE**

Results indicate that the VRT is the easiest of the three to use. It has the fastest response times and the longest-lived battery, in addition to being the only one with hands-free capability. The Phraselator's large phrase set and ability to bypass voice recognition make it well suited to a more relaxed environment in which more attention may be given to operation of the unit. The Universal Translator™ is suitable only for tourist travel.

**LIMITATIONS**

Although the VRT offers many advantages, it does not include the option of stopping the unit when the user realizes the translation is incorrect. Enrolled users must "train" with the unit until it recognizes their speech patterns, and the unit may need to be retrained at a later time if it does not recognize a phrase spoken by an enrolled user. Speaking short key word phrases activates the translation program. One disadvantage is that if an agency adds a large number of phrases to the 204 already in the unit, the phrase set could become too large for the user to memorize. If users then need to constantly refer to a "cheat sheet," the VRT's hands-free capability would be essentially eliminated.

**AUDIENCE**

Law enforcement officers and administrators

**FIND THIS STUDY**

The full report of the *Voice Recognition Evaluation Report* is available online at [www.ncjrs.org/pdffiles1/nij/grants/202733.pdf](http://www.ncjrs.org/pdffiles1/nij/grants/202733.pdf).

## **Technology Programs of the National Institute of Justice**

Through the Office of Science and Technology, NIJ funds the development of technologies to improve the safety and effectiveness of law enforcement and corrections professionals. NIJ develops new forensic science technologies and helps crime laboratories increase their capacity to obtain and employ new technology. The agency also develops standards and best practices to guide the criminal justice community in the use of technology.

More information on the Technology Programs of the National Institute of Justice may be found at: <http://www.ojp.usdoj.gov/nij/sciencetech/>.

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