

COULD A ROBOTIC ASSISTANT BE YOUR POLICE PARTNER AND
LANGUAGE INTERPRETER OF THE FUTURE?

Maintaining Effective Communication with a Diverse Community

By

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The Command College Futures Study Project is a FUTURES study of a particular emerging issue of relevance to law enforcement. Its purpose is NOT to predict the future; rather, to project a variety of possible scenarios useful for strategic planning in anticipation of the emerging landscape facing policing organizations.

This journal article was created using the futures forecasting process of Command College and its outcomes. Defining the future differs from analyzing the past, because it has not yet happened. In this article, methodologies have been used to discern useful alternatives to enhance the success of planners and leaders in their response to a range of possible future environments.

Managing the future means influencing it—creating, constraining and adapting to emerging trends and events in a way that optimizes the opportunities and minimizes the threats of relevance to the profession.

The views and conclusions expressed in the Command College Futures Project and journal article are those of the author, and are not necessarily those of the CA Commission on Peace Officer Standards and Training (POST).

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Maintaining Effective Communication with a Diverse Community

Imagine if you will the thought of universal communication in any language with no threat of misunderstanding. Your ability to travel anywhere in the world with no concern of your failure to communicate, negotiate or even seek assistance, could be as obsolete as textbooks are in a world of digital media. Although some may have the aptitude to speak a foreign language now, for most Americans, it only comes through months of study and hard work. A recent example illustrates that point.

Two gentlemen in line at the Post Office noticed the clerk speaking Spanish to a customer ahead of them. They commented to one another how beneficial the clerk's language skills were; one mentioned his daughter was fluent in nine languages. The other man was very impressed and surprised, noting he wished he could speak even one added language. The proud father replied that it did not come without a cost. He said his daughter, a schoolteacher, uses her summer breaks to travel to the countries of the languages she speaks to refresh her memory and maintain her fluency. Both men chuckled as he explained the cost to maintain her fluency is making her broke.

This conversation brings to light a significant issue for the police. How will today's law enforcement agencies maintain fluency and real time effective communication in a nation of changing demographics and diversity? Historically, law enforcement has relied on bilingual officers or translation services to assist in communicating with non-English speakers, but with reductions in resources and shrinking budgets, other alternatives must be sought. Fortunately, emerging robotic

technologies may hold the answer. In the near future, these robotic assistants could be your lifeline to language fluency and interaction in a complex diverse society. They will provide officers an opportunity to communicate effectively with all non-English speakers in real time.

Interpersonal Communication

Imagine you are Chief of Police; your officers have responded to a chaotic crime scene in your jurisdiction with several assault victims present. The suspects are on the loose, and efforts are being made to identify them from potential witnesses on scene. One problem, however, exists. This neighborhood is largely an immigrant community who are not only fearful of police, but who also have very limited English skills.

A similar scenario was posed to several Chiefs of Police and Commanders in a mail in survey conducted by the authors of *American Urban Politics in a Global Age* (Kantor & Judd, 2010). The goal of the authors, Paul Kantor and Dennis Judd, was to determine what they felt was most important in how police departments deal with victims and witnesses who have difficulty understanding or speaking English. The question the chiefs were asked was “If an officer in your police department responds to a call, and a victim or witness is unable to speak English, how would the officer typically proceed? (*Assume the responding officer is not fluent in the victim’s language*).” Approximately 83% of the responses suggested that the officer would request a translator or someone fluent in that language from within their department; indicating agencies have already recognized the need for language diversity and recruited accordingly. This is affirmed by other questions in the same survey that noted 81% of the responding department executives looked favorably upon bilingual candidates during the recruitment process,

and 87% also offered additional pay to bilingual officers. The survey results reinforce the need for agencies to continue establishing effective communication techniques with non-English speakers. Some could include the historical standard method of using bilingual staff and community outreach programs to enhance communication, but just as important is the need to embrace innovative technological approaches that could result in the reliance of robotic language interpreters of the future.

Interacting with non-English speakers isn't really new, though. Agencies have been adapting to these changes for over two decades. In Tampa Bay Florida for example, local police departments and sheriff's offices saw the number of Hispanics and Asians in 2001 double in the previous ten years so they began working at trying to hire more Hispanics and Asians (Brassfield, 2001). According to the article "Police Departments Seeking More Bilingual Cops" (2010), the New York Police Department sees the importance of hiring bilingual officers. New York City Police Commissioner Ray Kelly emphasized that hiring bilingual officers fluent in languages typically spoken in countries with terrorist ties have helped the police department with terrorist investigations in New York. Kelly said bilingual officers also help immensely working with the other diverse communities in the city, and the NYPD can have someone on scene very quickly who speaks the language. In addition, one third of NYPD employees can speak a second language. Of those, 785 are certified linguists, or expert translators, in 63 languages.

But not every agency has the luxury of resources and personnel like New York City. How can other agencies less fortunate in manpower and resources continue to interact effectively with non-English speakers in a diverse community? In North Carolina for example, Chapel Hill Police contract with a 24/7 translation service. They

also utilize volunteers within the community to assist in translation when the few bilingual officers they do have are unable to (Butt, 2012). These examples show that as agencies have adapted to the changing dynamics and diversity within their communities, they are making strides to better communication. However, their efforts may still lack one critical component, timing. With the exception of hiring more bilingual officers that not all agencies can afford, police-public interactions are time sensitive, and relying on a translation service or third party to respond to the scene to translate may cause delays when attempting real time communication.

Viable Solutions

With today's emerging technology, a viable solution could enhance police-public interaction and make it possible to prevent misunderstanding caused by lack of communication. This solution can aid in not only deciphering another language, but also do it in real time so that there is no delay in awaiting an interpreter or third party translation service done over the phone. What is needed is a translation device that operates seamlessly in the field while officers interact with the community. A device with technology so savvy and sophisticated little effort will be required by the officer to operate it. The officer could simply rely on this instrument to communicate accurately and effectively with persons of any language and is much more refined than the typical hand held units used today. What is needed is something more analogous to an integrated robotic translator.

The foundation has already been set for real-time translators. According to Robert Palmquist, Vice President of ViA, an innovative technologies company based in Minneapolis, they began exploring a device to aid in non-English communication after a

fire claimed the lives of several Vietnamese immigrants whom emergency officials on scene were unable to communicate with effectively. The Vietnamese victims took a right rather than a left, after being instructed to do so in English, and walked right into the fire (Berry, 2001).

ViA has since developed a “wearable computer” to allow people to communicate in different languages. It acts as a voice-to-voice, hands free translator. When the user speaks into a microphone, their voice is detected by the interpreter’s recognition software. A computing engine then converts the words to text, performs the translation process and outputs the audio version. The process takes approximately five seconds, but once the system starts speaking, the user can simultaneously enter the next phrase. The technology is also bidirectional, which means the user can also capture the other person’s statements as well. Tests with the military have proved to be positive and the company sees an initial civilian target audience as well. The fact there is a five second delay however, may pose a problem in everyday field use as a real time translator. As devices such as this lay the foundation, the next generation technology will no doubt see continuous increases in their capabilities in linguistics and functionality.

Another promising solution is a universal translation system that debuted at recent Microsoft TechFest show. Not only is it being considered a real time translator, but the app also utilizes the users own voice and image on the handheld device (Eaton, 2010). What is unique about this Monolingual TTS system is it does not speak in a synthetic voice. Instead it learns the user’s voice and utilizes that in its communication. In addition, the users face is digitally recreated in a 3D scanned avatar rendering of the user’s face. It is also timed to the output speech, matching and lip syncing to the output

sounds to give the impression the subject is actually speaking the chosen language. The device's advanced language algorithms are clever enough to listen to responses and speak them back in the language requested with close to real time communication. Microsoft's goal is to turn a monolingual speaker into a multilingual voice output by using machine based Text to Speech (TTS) synthesis (Brown, 2012), something that would be beneficial to the future of law enforcement.

The most exciting translation technologies, though, lie in work by our Nation's military. The Defense Advanced Research Projects Administration (DARPA) asserts it is developing what could be considered the Holy Grail of language translation (Dillow, 2011). Their efforts are moving away from traditional handheld translation devices in favor of a thinking robot; a robotic assistant capable of interpreting various languages and making decisions about what it hears. The thought of potentially relying on an automated robotic assistant in the patrol car to act as your own personal interpreter who makes decisions while understanding consequences is very sci-fi, but not unrealistic. The Pentagon has spent decades and millions of dollars in funding trying to build the perfect translation device. Now, its far-out research arm is looking at a new direction: a "robot" that can interpret all sorts of languages — *and* think for itself (Rawnsley, 2011).

DARPA's Broad Operational Language Translation program (BOLT) is suggesting a "bot" capable of both human-machine interaction and of enabling human-human interaction by acting as an intermediary interpreter. Because of its visual and tactile inputs, the "bot" would have the ability to hypothesize and perform automated reasoning in the acquired language. This will not be just a translator, but a useful robotic assistant that doesn't just take verbal cues but accounts for visual and tactile stimuli while

simultaneously executing complex commands. DARPA's commitment to improve real time bilingual communication shows promise through its awarding of a \$7.1 million dollar contract to develop the BOLT program, which will begin the first phase of a five-year, \$41.5 million dollar project (Osborne, 2012). One can easily see ways these technologies can be adapted for use in policing.

Field Services

As diversity in languages increase nationwide, a failure to communicate effectively still exists when officers arrive on scene to interact with non-English speakers. In Carrboro, North Carolina for example, residents feel communicating with police can be difficult. Some feel it makes for a scary situation once the officers arrive on scene. They often feel like they are doing something wrong because they can't talk to or have effective communication with police (Ireland, 2011). With a robotic police partner responsible for interacting and interpreting on behalf of the officer, much of this tension could subside. Without this ability to communicate effectively, situations could have the potential for dire consequences.

Such was the case involving a police shooting in Dublin, California. Police officers dispatched to a domestic dispute involving a Korean family arrived to find a subject holding a knife and trying to make entry into a locked bedroom. The subject holding the knife was visiting from Korea and did not speak English. The officers on scene did not speak Korean. After being ordered several times to do so, the subject refused to drop the knife. The officers shot the subject five times, killing him. One of the bullets also pierced the bedroom door, fatally injuring the man's brother who was inside the bedroom. In the months after the Dublin shooting, community organizations

and the media rallied for an investigation of police protocol and training. Community activists within the Korean community also cited other cases where linguistic, racial and cultural barriers between officers and members of their community caused unjustified shootings (Chien, 2006).

Had the Dublin officers been equipped with a “bot” that not only acted as an interpreter but had decision-making capability based on the circumstances it encountered, it could have contributed to a vastly different outcome. An outcome where the possibility of lethal encounters related to lack of communication and understanding could one day be obsolete. To a gateway immigrant destination such as Southern California, a robotic assistant could prove very useful.

According to Census data, in a 13 square-mile area of southern Los Angeles County from North Long Beach to Bellflower to Artesia, it is one of the most linguistic areas in the nation. Of the forty most commonly spoken languages in the United States that the Census Bureau tracks, thirty-nine are spoken in the area of land bordered by the 605 and 710 freeways (Mohan & Simmons, 2004). Lt. Kimberly Unland of the Los Angeles Sheriff’s Department Leadership and Training Division believes in continuing to build partnerships with diverse populations in Los Angeles through these programs. Unland sees these programs as opportunities to enhance community policing and public trust policing (Folven, 2011). Far beyond mere partnerships, though, the emergence of real-time, authentic communications amongst peoples of varying backgrounds holds great promise, and nowhere is the need more critical than in police contacts with those they serve.

Conclusion

With the advancement in technology, agencies can certainly benefit from the acquisition of such devices to enhance their communication skills. But this should not be the only mechanism at improving communication with the community nor should it diminish any community outreach programs that serve to improve interpersonal relations. Although initial language barriers may prevent shared dialogue back and forth, the mingling and cultural understanding gained from these diverse cultures in the community can also be a step towards positive communication. Current means satisfy many of our goals with regard to language translation; imagine a world where they are unneeded. That time may almost be upon us.

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