Silly phone game puts illiterate Pakistanis in touch with potential employers

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A silly telephone game that became a viral phenomenon in Pakistan has demonstrated some serious potential for teaching poorly educated people about automated voice services and provided a new tool for them to learn about jobs, say researchers at Carnegie Mellon University and Pakistan's Lahore University of Management Sciences (LUMS).

The game, called Polly, is simplicity itself: a caller records a message and Polly adds funny sound effects, such as changing a male's voice to a female voice (or vice versa), or making the caller sound like a drunk chipmunk. The caller can then forward the message to one or more friends, who in turn can forward it along or reply to it.

Polly may not sound like a research project, but Roni Rosenfeld, professor in Carnegie Mellon's Language Technologies Institute, said it is pioneering the use of entertainment to reach illiterate and low-literate people and introduce them to the potential of telephone-based services. Such phone services could help non-affluent, poorly educated people find jobs, find or sell merchandise, become politically active, create speech-based mailing lists and even support citizen journalism.

But people can't use these services if they don't know how.

Even though most people in Pakistan have access to a phone, many don't understand the technology behind an automated telephone-based service, said Agha Ali Raza, a Ph.D. student in language technology and a native Pakistani. "They expect to talk to a person on the other end of the line,"

he explained. "When they hear, 'Press 1 to do this,' or 'Press 2 to do that,' they don't press anything; they just start talking."

With Polly, Rosenfeld, Raza and Umar Saif, an associate professor of [computer science](#) at LUMS, have shown that if the training is fun, people will not only learn how to use phone-based services, but will eagerly spread the word and even show each other how to use it. Polly was launched in Lahore, Pakistan in May 2012 by giving its phone number to five poor, low-skilled workers. By mid-September, 85,000 people had used it almost half a million times.

Though budget pressures forced researchers to begin limiting calls to Polly in September, the total number of users climbed to more than 160,000 people, including some non-Pakistanis, as of mid-April. Overall, the system has handled almost 2.5 million calls. The project continues to run.

What's more, Polly doesn't just deliver funny messages; it also includes job listings. "We daily scan Pakistani newspapers for advertisements for jobs that are appropriate for low-skilled, low-literate workers, record them in the local language and make them available for audio-browsing during the interaction with Polly," Rosenfeld said. As of mid-April, the ads had been listened to more than 380,000 times and had been forwarded more than 21,000 times.

Raza, the lead author, will present results of the research on May 1 at CHI 2013, the Conference on Human Factors in Computing Systems, in Paris, where the report has received a Best Paper award.

Rosenfeld said the entertainment value of Polly helped it spread rapidly, but can't sustain it over time, noting game play dropped rapidly as its novelty wore off. But adding services, such as the job ads, can keep people calling in.

"We found that users took to the job information in large numbers and that many of them started calling Polly specifically for that service—exactly the result we had hoped for," he said.

The researchers now are determining whether the system can be scaled up to serve a larger population base over an extended period of time and be made more cost efficient. They also hope to use Polly to train people in other countries.

More information: www.cs.cmu.edu/~Polly/

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