Robotic Therapy

A robotic invention from Japan is catching on in nursing homes across Canada. Find out how this plush robot is healing people around the world.

BY ANDREA DANELAK

Animals have been proven to be a positive healing tool for the elderly, especially for those in a nursing or personal care home. But with animals come challenges, like behavioural issues, clean-up, noise and allergies.

Enter an innovative alternative: Paro, a robotic invention from Japan that has helped those with Alzheimer's disease and similar ailments. Studies have shown interactions with the therapeutic robot have helped reduce stress and had an overall positive effect on residents, mimicking pet therapy without the associated drawbacks.

Therapeutic robots, which provide people with psychological benefits, have appeared in nursing homes, hospitals and individuals' homes for years but Paro has taken the technology to a new level, being recognized by the Guinness Book of World Records as the world's most therapeutic robot.

A baby harp seal covered with hypo-allergenic synthetic fur, Paro imitates animal behaviour and responds to light, sound, temperature, posture and touch. It was developed by Dr. Takanori Shibata and offers an interactive form of companionship for the elderly, which can lead to numerous psychological, social and health benefits.

Paro can understand words and respond to a person's touch by cooing, blinking and moving. In between the seal's fur and its metal skeleton is a layer of fabric with tactile sensors that send information to the computer inside. The information is stored in long-term memory, helping each Paro develop its own "personality."

Contributions from Canada

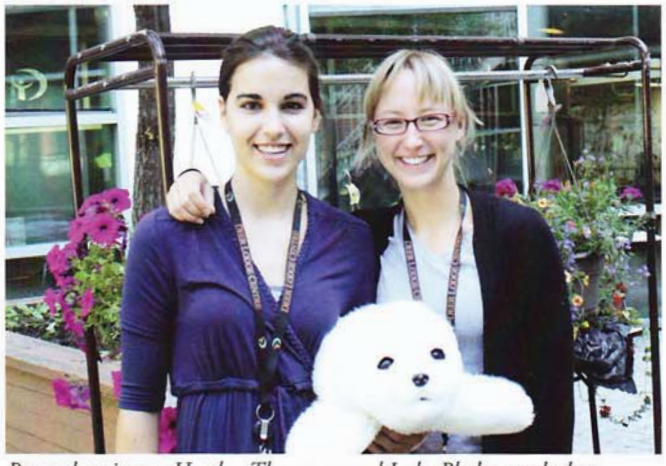
Researchers at the University of Manitoba have played an important role in the international development of the robot. Dr. Lorna Guse, an associate professor in the university's faculty of nursing, has helped lead Canada's first project to study the robots with residents at Deer Lodge Centre, a long-term care and rehabilitation facility located in Winnipeg.

"I thought one of the major contributions this robot could make would be as a social assistive device. Kind of the way canes and walkers help people physically, this could be a device that could help residents with diminished cognitive ability—who have difficulty remembering, difficulty focusing on things," says Guse. "Paro has unconditional love and communication so residents can interact with it and have positive feedback on everything they say and do. It's very much like animal-assisted therapy."

From the start, the project team saw potential for Paro to promote communication and socialization.

"Residents who are fairly uncommunicative would become more vocal and social—we wondered if that could also transfer to their everyday life and if they would be more likely to be communicative and socialize with others," says Guse.

Part of the team's research focused on how Paro could help families communicate with their loved ones.



Research assistants Heather Thompson and Jacky Phalen worked on the Paro project this summer. The project team also includes Genevieve Thompson, Angela Osterreicher, Kerstin Roger, Elaine Mordoch, Bill Diehl-Jones, Rod Kebicz and Daryl Dyck. Photo by Mike Mirius.

"People with diminished cognitive abilities are difficult to communicate with, so we also looked at Paro as sort of a medium, a conversation piece as part of a family visit. We had excellent feedback from family members," says Guse.

The feedback Paro provides is a key factor to its success, Guse theorizes. She recalls hearing about a study conducted with Paro, during which another research team had trouble with their robot; as a result, some of their sessions utilized a Paro robot that was inactive or "asleep." "Without Paro responding," she says of that study's results, "there was no engagement with residents."

The Winnipeg team's work with Paro will total about a year, completed over four summers. In the interim periods, the centre's recreational therapists continue to use the robot with residents who benefit from the cuddly companion.

"We found that Paro was not accepted by all residents but when he was, there were changes in behaviour."

Despite their effectiveness in helping people with diminished cognitive abilities, Guse stresses therapeutic aids like Paro are not meant to replace interaction with humans.

"When I first saw the videos about Paro, I thought, 'I hope a robot doesn't replace a real person. There are things we can do that robots cannot,'" she says. "We've never put Paro in front of a resident and walked away. I think that, as with most therapeutic aids, it requires someone to be there." R

Andrea Danelak is a freelance writer living and working in Winnipeg, Manitoba.