Video-calling tech could help lonely parrots flock together

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Credit: University of Glasgow

A new study which helped pet parrots make video calls to each other suggests that the birds may have benefited from making new feathered friends over the internet.

Animal-computer interaction specialists at universities in Scotland and America are behind the research, which is set to be presented as a paper at the ACM Conference on Human Factors in Computing Systems in Germany on Monday April 24.

The findings are drawn from more than 1,000 hours of video observations of 18 pet parrots' behavior over the course of the three-month study. The birds learned how to call each other with the support of their human caretakers, who also took careful notes on their pets' experiences.

During the study—the first of its kind to offer animals the means to contact each other whenever they chose to—the parrots engaged more regularly in social behavior like preening, singing and play. Parrots who made the most calls also received more calls, suggesting that the study helped the birds become more social. Their caretakers, drawn from volunteers in the U.S., also reported improved bonding with their pets.

The study was developed by a transatlantic team of researchers who have already separately investigated the potential of technology to enrich the lives of animals in zoos and at home. That research has included DogPhone, a study which allowed a pet dog to shake a ball to video-call their owner and JoyBranch, an interactive device to let zoo animals play music in their enclosure. They have also developed tablet interaction games and speechboard devices for parrots.

The researchers collaborated to investigate whether pet parrots—intelligent, highly social birds—could learn to make and receive video calls at their own will to help mitigate domestic isolation, and whether they would choose to do so once they understood the process.

In the wild, many species of parrots live in large flocks, but in captivity,

they tend to be kept on their own or in small groups. Isolation and boredom can cause birds to develop psychological problems, which can manifest as rocking, excessive pacing, or self-harming behaviors like feather-plucking.

Pet parrots are also often affected by transmissible diseases, including a terminal wasting disease called avian ganglioneuritis which affects more than 40% of the population in the U.S. That can make it challenging for parrot caregivers to meet safely in-person with their birds, denying opportunities to lessen avian isolation.

Dr. Ilyena Hirskyj-Douglas, from the University of Glasgow's School of Computing Science, is one of the authors of the paper. She said, "Video-calling technology helped a lot of people through the early days of the COVID pandemic where self-isolation was vital to slowing the spread of the virus.

"There are 20 million parrots living in people's homes in the U.S., and we wanted to explore whether those birds might benefit from video-calling too. If we gave them the opportunity to call other parrots, would they choose to do so, and would the experience benefit the parrots and their caregivers?"

To design the study, the researchers first consulted with experts on the feasibility of using screens to socially link birds. That was followed by an initial pilot study with four birds which returned results suggesting the idea might have wings.

Following that, the team recruited volunteers from users of Parrot Kindergarten, an online coaching and educational program for parrots and their owners, for a more in-depth research project. The team's study took the birds through two distinct stages. Firstly, over two weeks and with the help of their caretakers, the birds learned to ring a bell and then

touch a photo of another bird on the screen of a tablet device to trigger a call to that bird. Calls would only work when caregivers were able to assist at both ends.

Those initial introductory calls—which numbered 212 in total—were strictly limited to a maximum of five minutes, and their caretakers would terminate the call as soon as their bird's attention wandered.

Dr. Rébecca Kleinberger, Assistant Professor at Northeastern University and Research Affiliate at the MIT Media Lab, is a co-author of the paper. She added, "It is vitally important for any study with animals to include strong ethical guidelines in every aspect of the research. We were really careful about training the birds' caregivers thoroughly to ensure that they could offer an appropriate level of support to empower their parrots but also help them avoid any negative experiences. As soon as the birds showed any signs of distraction or discomfort, the calls were stopped.

"Once the initial two-week introduction was over and the birds were comfortable with the basics of the procedure, the parrots could choose to call other birds at their own will by ringing the bell then selecting the bird they wanted to call. This two-step selection was also crucial to evidence strong corroboration, ensuring that the calls were not random, or simply based on the birds liking the bell."

This second phase of "open call" sessions lasted for two months, and caregivers oversaw 147 deliberate calls between birds, assisted by their caregivers.

Dr. Jennifer Cunha, Affiliate Researcher at Northeastern University and co-founder of Parrot Kindergarten, Inc., helped to recruit and train the parrot caregivers and also co-authored the paper. She said, "We saw some really encouraging results from the study. The parrots seemed to

grasp that they were truly engaging with other birds onscreen and their behavior often mirrored what we would expect from real-life interactions between these types of birds. We saw birds learn to forage for the first time, and one caregiver reported that their bird flew for the first time after making a call.

"All the participants in the study said they valued the experience, and would want to continue using the system with their parrots in the future."

Dr. Hirskyj-Douglas added: "The animal internet is already here—there are hundreds of products on the market that let pet owners interact with their animals remotely over the net, but their design is primarily focused on what humans want, not what their pets need."

The international team continues working together and their future work will focus on developing robust ethical frameworks that centers around the physical, mental and emotional requirements of animals and avoids being centered around humans. "Studies like this will help us learn what that looks like and how we can build better systems in the years to come," said Dr. Hirskyj-Douglas.

The team's paper, titled "Birds of a Feather Video-Flock Together: Design and Evaluation of an Agency-Based Parrot-to-Parrot Video-Calling System for Interspecies Ethical Enrichment," is published in *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems*.

More information: Rebecca Kleinberger et al, Birds of a Feather Video-Flock Together: Design and Evaluation of an Agency-Based Parrot-to-Parrot Video-Calling System for Interspecies Ethical Enrichment, *Proceedings of the 2023 CHI Conference on Human Factors in Computing Systems* (2023). DOI: 10.1145/3544548.3581166

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