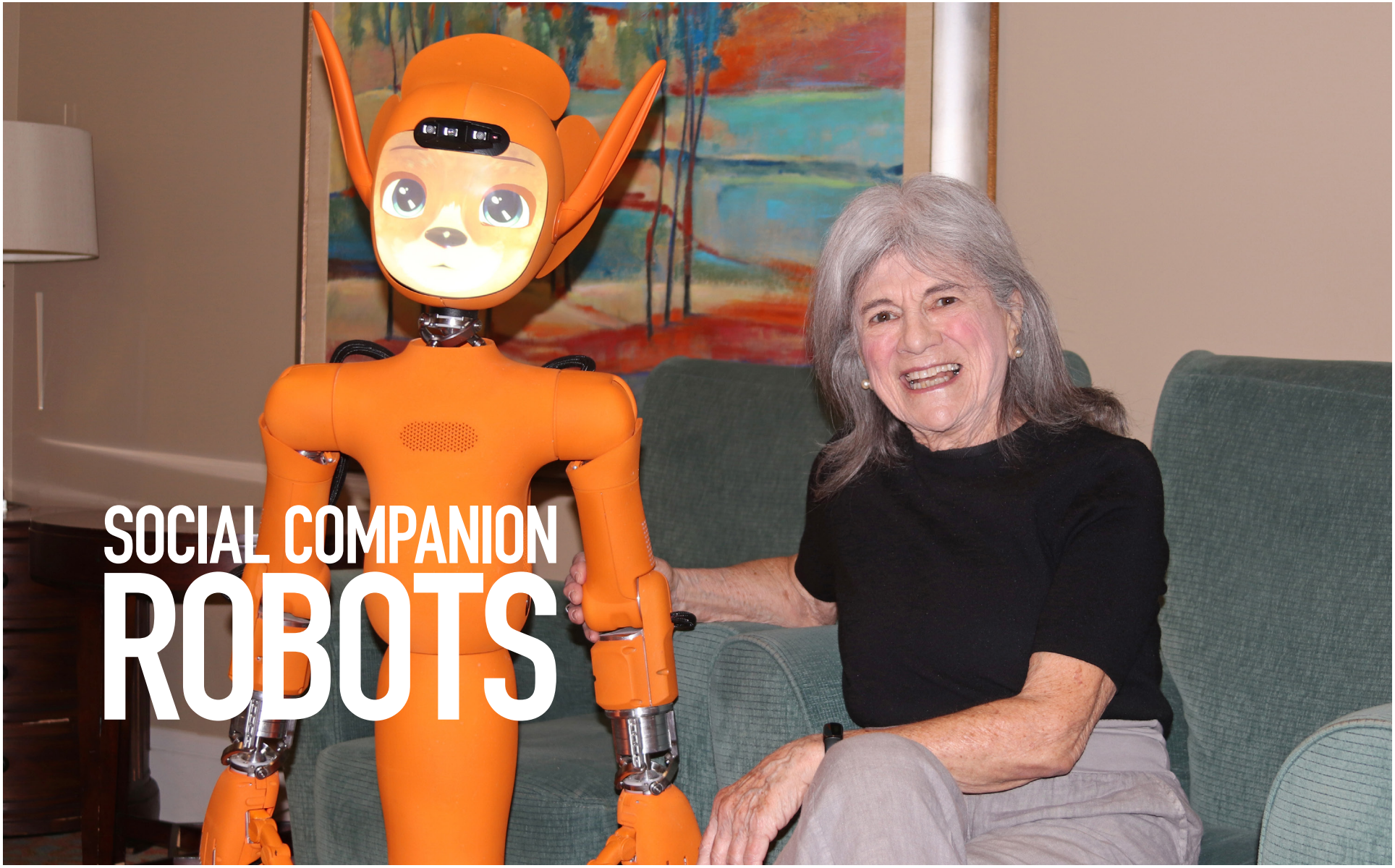


SOCIAL COMPANION ROBOTS

FINDINGS FROM A PILOT STUDY WITH ENCHANTED TOOLS

Mather institute

INTRODUCTION

Social connection plays a central role in quality of life for older adults. In senior living communities, shared spaces and communal interactions provide a wealth of opportunities for residents to connect with one another and feel a sense of community. While studies have suggested that residents enjoy an environment supportive of social connection, some may still experience loneliness.

In recent years, social companion robots have gained increasing attention within aging services and senior living communities. These robots are designed to interact with people through speech, movement, and programmed behaviors, and are often introduced with the goal of supporting engagement, stimulation, or companionship. Interest in social robots has been driven by multiple factors, including workforce constraints, growing awareness of the health impact of loneliness, advances in robotics, and advances in artificial intelligence and human–robot interaction.

To date, social robots in senior living communities have most often been studied in terms of individual-level outcomes. Common expectations include improving mood, providing cognitive stimulation, reducing loneliness, or offering some level of companionship for residents. Evaluations of these technologies often focus on metrics such as frequency of use, duration of interaction, or changes in individual attitudes toward the robot.

What is studied far less often, however, is the potential for social robots to influence community-level dynamics. In shared living environments like senior living communities, the introduction of a novel technology may affect not only how individuals interact with the robot, but also how residents interact with one another. A robot placed in a common space can become a shared point of attention, curiosity, or conversation, shaping social interactions beyond direct human–robot engagement.

SOCIAL COMPANION ROBOTS HAVE GAINED INCREASING ATTENTION WITHIN AGING SERVICES AND SENIOR LIVING COMMUNITIES

OVERVIEW OF THE PILOT

The purpose of this pilot was to explore how a social companion robot functions within the real-world context of a senior living community. Given the early stage of adoption for social robots in aging services settings, the goal was to understand feasibility, acceptability, and social impact in everyday use.

Conducting the pilot in a community setting ensured that outcomes would be based on the lived experiences of residents, with diverse preferences, varying levels of participation, and support of staff facilitation. This pilot aimed to generate practical insights that could inform future research, programming decisions, and technology development for senior living.

THIS PILOT AIMED TO GENERATE PRACTICAL INSIGHTS THAT COULD INFORM FUTURE RESEARCH

KEY QUESTIONS EXPLORED

The goal was to assess how the presence of a social robot enhanced residents' social engagement and supported team members in facilitating social interactions and emotional monitoring. Specifically, the researchers sought to answer the following questions:

1. Does the robot increase residents' active participation in one-on-one discussions and group engagement (verbal expression, involvement, mood sharing)?
2. Does the robot act as a social catalyst, fostering peer-to-peer interactions?
3. Do residents perceive the robot as a friendly facilitator that supports social life without replacing human relationships?
4. Do team members perceive the robot as helpful for stimulating participation and as a first layer of emotional monitoring, helping to reduce their workload?

MIROKA IN ACTION

The pilot was conducted at The Mather, a Life Plan Community in Evanston, Illinois. Residents living in both Independent Living and Assisted Living were included and interactions took place in amenity areas of Assisted Living and did not require specialized environments or setup.

Approximately 20 residents participated in the pilot throughout the week. Residents ranged from 75 to 97 years of age and represented a mix of participation styles—from those who regularly attend group programs to those who participate more selectively. No personal health information was collected, and participation was entirely voluntary.

Team member participants included members of resident engagement and programming teams who supported, cofacilitated, or observed the sessions. Their roles involved welcoming residents, assisting with group flow, and ensuring a comfortable environment during interactions. Staff were included as participants because they engaged directly with the robot and provided feedback through surveys and focus groups.

The social companion robot deployed in this study is called Miroka, developed by Enchanted Tools. Miroka was designed to engage people through expressive movement, speech, and interactive behaviors. For this pilot, Miroka was used every day for one-on-one conversations with residents about their important moments and memories, and for group-based interactions with content focused on storytelling, light cognitive exercises, movement, and discussion.

Mather Institute partnered with Enchanted Tools, who provided access to the robot and a trained robot handler who monitored

the robot's operation, addressed technical issues, and ensured safe functioning during sessions with residents.

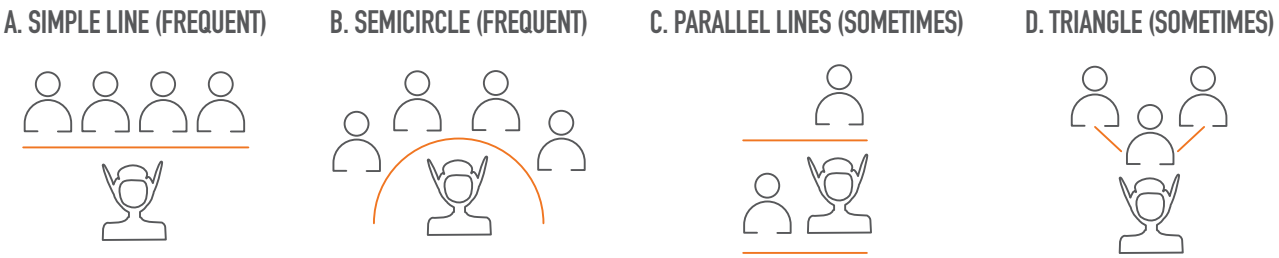
Interactions tested during the pilot included a mix of structured programming and informal engagement designed to support social connection and cognitive stimulation. These included storytelling sessions, movies with Miroka discussions of classic films, trivia games, riddles and quizzes, art-based discussions, a gentle upper-body movement session, and informal social interactions without an organized format.

Interactions were intentionally familiar, low-pressure, and adaptable to different participation styles. All sessions were coordinated by Mather Institute research team members, The Mather's resident engagement team, and the robot handler. The pilot was designed as a minimal-risk intervention with no medical or therapeutic components, and safeguards were in place to ensure participant comfort and safety.

EVALUATION

Evaluation data were collected through multiple sources, including daily brief resident surveys, an end-of-week resident and separate team members survey, and focus groups with both residents and team members, allowing the researchers to capture both immediate reactions and reflective feedback across the week.

Figure 1. Setup Configuration



- Line configuration: facing the robot.
- Semicircle: on the sides.
  - Facilitator: Sat among residents
  - Or stood nearby the robot
- Robot placed 0.5–1.5m from residents.
- Perception cone < 90°

WE ARE GRATEFUL TO MATHER INSTITUTE FOR THIS MEANINGFUL COLLABORATION AND FOR THE OPPORTUNITY TO LEARN FROM BOTH RESIDENTS AND TEAM MEMBERS.

The experience provided critical insights that will guide the evolution of Miroka services to better support assisted living environments. We look forward to continuing this work together.

– Enchanted Tools

WHAT SURPRISED ME MOST WASN'T THE TECHNOLOGY ... IT WAS THE EMOTION.

Seeing residents reconnect with one another, share stories, and feel genuinely included in shaping something new was incredibly powerful. From reflecting on a lifetime of innovation to helping shape technology that will exist long after us, our residents reminded me that curiosity and contribution don't fade with age. This pilot became about community in ways none of us anticipated, and it affirmed for me that when research, technology, and community come together with intention, something truly meaningful happens. The connections formed between residents, staff, and innovation were a privilege to witness.

– Ajla Basic, PhD, PMP
Senior Project Manager, Mather Institute

FINDINGS

TEAM MEMBER FOCUS GROUP

Overall, the focus group revealed a largely positive staff assessment and provided researchers with answers to their key questions. Participants of five team members and 10 residents described the experience as meaningful and insightful, highlighting the robot's strong potential for social engagement and information sharing, while also identifying technical and operational challenges that need to be addressed.

Several participants reported being **"impressed"** or even **"starstruck"** by certain interactions, particularly when observing residents' reactions to engaging with the robot. At the same time, staff noted that residents' reactions were not uniform. While many residents showed strong curiosity and engagement, some expressed higher expectations regarding technological sophistication, perceiving the robot was **"not as advanced as people thought."**

The focus group also suggested a positive evolution in staff perception over the course of the week. Several participants mentioned they were **"not in favor at first,"** before gradually revising their opinion. Over time, staff learned how to better interact with the robot, adapt to the rhythm of exchanges, and understand its behavior.

Participants noted they could **"see the difference between Monday and Thursday,"** reflecting both changes in practice and increased familiarity.

One of the most noticeable findings came from the positive emotional reactions observed among residents. Staff reported moments of joy, surprise, and enthusiasm during interactions. For example, one participant remarked, **"I never expected to feel so connected with a robot."** Facilitators also described visible emotional responses among residents such as laughter, smiles, and sustained attention, for example: **"seeing the light in the resident's eyes … she was just giggling and she was so happy."**

Team members also observed that the robot acted as a social bridge between residents that encouraged interactions among residents. For example, when asking residents for their favorite song and associated memories, multiple residents bonded over the same mutual song, which then allowed them to reminisce together.

Team member participants identified several key strengths of the robot. They highlighted its social engagement capabilities, particularly its ability to reformulate large amounts of information, ask relevant follow-up questions, and provide residents with a sense of being heard and valued. These behaviors were sometimes compared to counseling-like interactions.

Team members also noted the robot's positive reinforcement of resident feelings, as well as the perceived quality of its knowledge base, demonstrated by it providing correct answers to general knowledge questions, making it a worthwhile conversation partner.

Concerning the usefulness and added value of the robot, participants repeatedly emphasized its entertainment value, stressing spontaneous game creation, visible positive emotional responses, and increased enthusiasm during interactions. In group contexts, the robot was described as a facilitator that supports shared experiences and group cohesion.

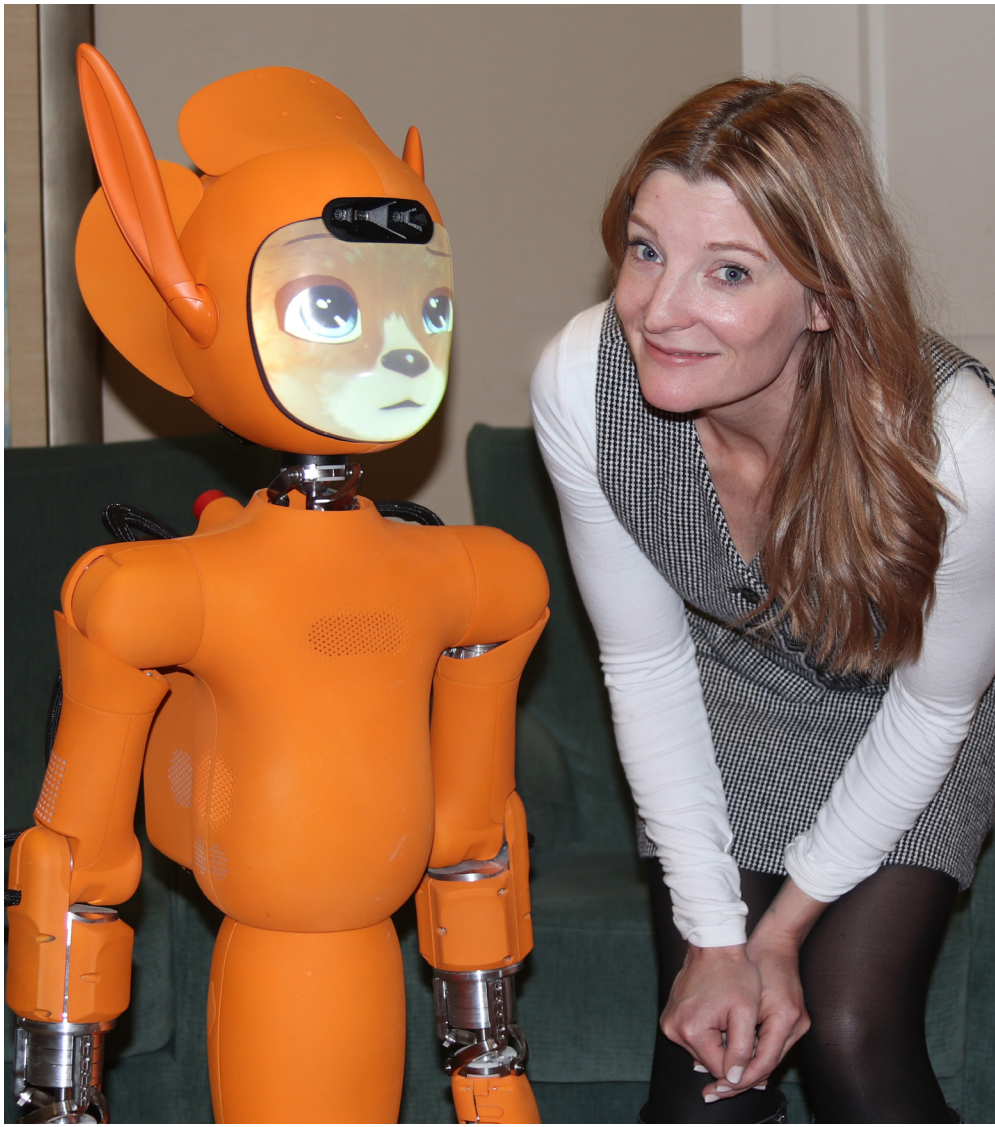
"I NEVER EXPECTED TO FEEL SO CONNECTED WITH A ROBOT."

In terms of usability, the focus group revealed several technical and behavioral limitations. Regarding voice and speech synthesis, participants mentioned issues with pronunciation and inflection that sometimes affected comprehension, especially for residents using hearing aids.

From a behavioral perspective, frequent interruptions were identified as a major friction point, particularly in group settings. Participants also noted the robot's difficulty managing groups and the lack of gaze and attention tracking, which in some cases led residents to feel overlooked or ignored.

A clear consensus emerged regarding robot governance. Participants agreed that responsibility should lie with teams close to residents and daily programs, particularly engagement teams. Staff favored simple, shared, and integrated tools, aligned with existing internal operations to minimize operational burden.

Moreover, the robot was primarily viewed as an addition that can enrich existing offerings, rather than a direct assistant to facilitators. Integration into day-to-day resident programs was seen as dependent on clear role definition, limited technical responsibility for staff, and positioning of the robot as a complement—not a replacement—to human facilitation.



RESIDENT FOCUS GROUP

Overall, residents expressed a generally positive experience, and spoke of the value it could bring to their daily lives. Several reported having few expectations—**"I didn't know what to expect"**—and described forming their opinions progressively, based on the interactions they experienced.

A clear distinction emerged between residents in Independent Living and Assisted Living regarding the immediate usefulness of the robot given their current level of autonomy. In contrast, Assisted Living residents more frequently highlighted the relational and conversational value of the experience, describing the robot as an opportunity for interaction—**"Useful because we could carry out conversation."**

Conversational interaction was a central element of residents' experience. Many described pleasant and engaging moments, particularly when the conversation flowed smoothly and the robot supported dialogue through questions and prompts.

SEVERAL RESIDENTS DESCRIBED FORMS OF EMOTIONAL ENGAGEMENT WITH THE ROBOT

Residents appreciated the opportunity to converse and to be actively involved in an exchange.

They also identified several opportunities for improvement related to the interaction experience. These included managing interruptions and turn-taking more effectively, improving the quality of the robot's voice (pace and intonation), and making the robot's attention and feedback during response delays more explicit (e.g., a light to indicate that the robot is processing).

Several described forms of emotional engagement with the robot, sometimes treating it **"as a real person"** or comparing it to a pet-like presence. The robot's expressive features—such as its eyes, facial orientation, and reactions—played an important role in fostering emotional connection and engagement. One-to-one interactions were perceived as more satisfying and personal, while group interactions were often described as more complex, particularly in terms of turn-taking and attention management.

The focus group highlighted several user needs, including expectations around functional assistance, personalization, and access to information adapted to daily life. This focus group indicated a generally positive perception of the robot among residents, with expectations for improvement. Their evaluations were primarily grounded in interaction quality, perceived listening, emotional engagement, and relevance to their daily context.

Overall, the findings point to strong potential moving forward, provided that interaction quality continues to improve and that additional context—such as memory care—is explored to better match the robot's strengths with residents' needs.

RESIDENT SURVEY FINDINGS

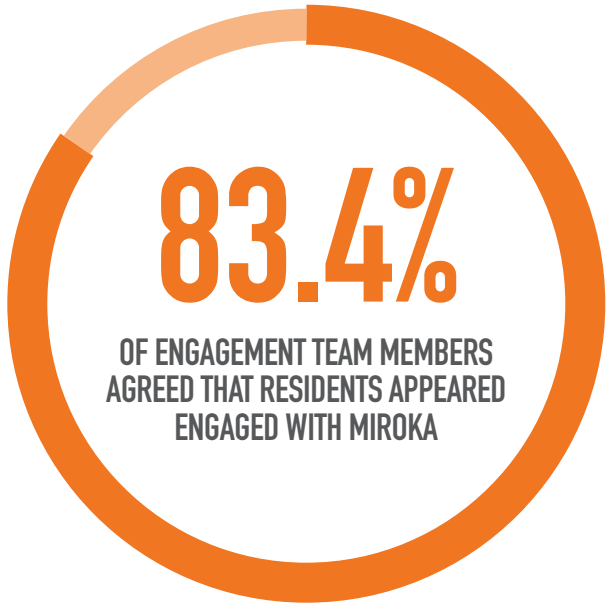
Survey data indicated that residents were largely comfortable with Miroka's presence throughout the pilot. According to daily surveys, all of the residents (100%) reported feeling comfortable and safe during sessions involving the robot. Resident enjoyment ratings were positive with most (85.2%) participants indicating that they enjoyed the sessions or found them pleasant, and most participants felt that Miroka made programs more interesting (59.3%). Two-thirds (66.6%) of residents indicated they would be open to participating in similar programs again with Miroka.

In terms of social connection and group interaction, some residents (55.6%) reported noticeable increases in conversation or connection with others because of Miroka. These findings became clearer when survey findings were considered alongside qualitative data.

TEAM MEMBER SURVEY FINDINGS

The majority (83.4%) of engagement team members surveyed agreed that residents appeared engaged during sessions involving Miroka and that they were enjoying themselves (83.4%). Half of the respondents felt that Miroka had increased resident participation in engagement.

In end-of-week surveys, half of the team member respondents reported that their view of robots had become more positive as a result of the pilot. Responses related to workload and efficiency were similarly split with half of team members either neutral or agreeing with the sentiment and the other half disagreeing that the robot reduced staff effort during the pilot.



KEY TAKEAWAYS AND IMPLICATIONS

KEY TAKEAWAYS

The pilot conducted at The Mather raised several unanticipated learnings. The first key learning relates to the emotional depth of residents' reactions. Several residents engaged with the robot on a deep level, interacting with it as a meaningful social presence, in some cases as a "real person" or a pet-like entity. These reactions indicate that the robot is capable of eliciting attachment and emotional responses.

The pilot also revealed that residents often shared personal stories with the robot and had discussions on the technological changes they have experienced throughout their lives. This may have helped to shape residents' expectations of the robot and influenced how its capabilities and limitations were interpreted. For example, one resident told the robot about her past experience as a professional dancer, another confided about her daughter's early illness, and another spoke at length about her beloved cat.

Another important learning concerns the emergence of new social dynamics among residents. The robot became a shared topic of conversation, supporting informal exchanges and collective interactions that extended beyond structured program sessions. These learnings reinforce the value of real-world experimentation and provide concrete guidance for orienting the next iterations of the product.

IMPLICATIONS

Feedback from both residents and team members indicates that sustained engagement with the robot is not driven by novelty, but by the quality and relevance of its conversational interactions. Once initial curiosity subsided, continued interest depended on the robot's ability to support meaningful exchanges, ask appropriate follow-up questions, and maintain coherent dialogue. This highlights the importance for development teams of prioritizing conversational mechanics and response quality over novelty-driven features.

The pilot also demonstrated that the robot operates within a broader social ecosystem, rather than as a purely one-to-one companion. In shared community spaces, the robot functioned as a common point of reference—sparking conversation, supporting collective engagement, and at times mediating interactions among residents and team members. These dynamics suggest that social robots in senior living should be designed as community-facing tools, with explicit consideration for group settings and indirect social effects.

Finally, observations from the pilot suggest that the robot may be best understood not as an autonomous conversational agent, but as a form of conversational infrastructure. Rather than replacing human interaction, the robot helped structure exchanges and create opportunities for dialogue. This framing points to the need for systems that emphasize pacing, perceived listening, and smooth conversational transitions to support human connection.

Table 1. Residents Daily Survey Results

Item	Average/5	1-Strongly Disagree	2-Disagree	3-Neither	4-Agree	5-Strongly Agree
I enjoyed interacting with Miroka	4.22	0%	0%	14.8%	48.2%	37%
I felt comfortable around Miroka	4.58	0%	0%	0%	40.7%	59.3%
I felt safe around Miroka	4.74	0%	0%	0%	25.9%	74.1%
Miroka made interactions more interesting	3.85	0%	7.4%	33.3%	25.9%	33.4%
Miroka helped me feel connected with others	3.59	7.4%	14.8%	22.2%	22.2%	33.4%
I would like Miroka to visit again	4.11	0%	3.7%	22.2%	33.3%	40.8%

Table 2. Team Members' End-of-the-Week Survey Results

Item	Average/5	1-Strongly Disagree	2-Disagree	3-Neither	4-Agree	5-Strongly Agree
Miroka increased resident participation in interactions	3.50	0%	0%	50%	50%	0%
Miroka increased social interactions among residents	3.17	0%	16.7%	66.7%	0%	16.7%
Miroka formed a friendly bond with residents	4.00	0%	0%	16.7%	66.7%	16.7%
Miroka saved me time by helping engage residents	2.67	0%	50%	33.3%	16.7%	0%
Residents appeared to enjoy their interactions with Miroka	4.00	0%	0%	16.7%	66.7%	16.7%
Miroka fit easily within our community programming	3.17	0%	33.3%	16.7%	50%	0%
I would like Miroka to visit again	3.50	0%	33.3%	16.7%	16.7%	33.3%
I feel comfortable using technology such as smartphones, tablets, or computers	4.17	0%	16.7%	0%	33.3%	50%
Before this pilot, I was familiar with robots or robotic technology	2.67	16.7%	50%	0%	16.7%	16.7%

Staffed by a multidisciplinary team of researchers, Mather Institute is an award-winning resource for research and information about wellness, aging, trends in senior living, and successful industry innovations. The Institute conducts cutting-edge research, often in collaboration with leading universities, with the goal of informing, innovating, and inspiring. Mather Institute is part of Mather, an 80+-year-old not-for-profit organization dedicated to creating Ways to Age Well.[SM]

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