NORDDESIGN 2026 CONFERENCE
TAMPERE, FINLAND, 12-14 AUGUST 2026

Can You Hear Me?
Designing Objects for Shared Moments Over a Distance

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Abstract: In this paper, we explore alternative concepts of public "third places" through the lens of speculative design artefacts. "Third places" (i.e. neither home nor work) play a crucial role in building and maintaining social infrastructures and supporting well-being. However, access to these spaces is not equally available to everyone. Older adults with limited mobility, for example, or people experiencing loneliness, may find it difficult to participate in public social life or initiate contact through conventional means. This can lead to social isolation and loneliness. Although virtual or digital third places have emerged in recent years as an alternative, they are often not designed with older users' needs and abilities in mind. This work explores how imaginary, non-physical communication spaces can be created through tangible design objects.

Keywords: *tangible user interfaces, speculative design, accessibility, interaction design*

Figure 1. Two users sitting on the Benchtalk benches. The central visual division creates the impression of a shared bench across distance.

1 Introduction

The importance of "third places" – locations that are neither home nor work – became particularly evident during the Covid-19 pandemic. Lockdowns and contact restrictions led to the made cafés, parks, community centres and other public spaces inaccessible. This highlighted our deep-seated needs for informal encounters and shared environments for our everyday social life. Previous studies have shown that "third places" play an important role in sustaining social infrastructure and community life (Finlay et al., 2019a, 2019b; Mehta & Bosson, 2010). At the same time, the lack of such interactions can result in social isolation and loneliness, which can lead to problems in mental health and overall well-being (Bhugra et al., 2019; Cacioppo & Patrick, 2008).

Third places provide opportunities for social interaction and chance encounters, such as meeting acquaintances, which can foster a sense of community and belonging (Jeffres et al., 2009). However, not everyone has equal access to such places, despite them being in the public: Older adults who live alone, reside in assisted living facilities or have limited mobility may find it difficult to participate in public social life without support. Similarly, another hurdle to accessing a third place may be its limitation to a certain place: people whose social peers live far away may lack spaces that enable them to feel emotionally close and "together" (Rijnaard et al., 2016).

Connected technology can be a helpful tool in this matter: it can create new, hybrid third places that allow for independence of physical place. In this paper, hybrid third places are defined as distributed social environments combining physical

artefacts and digitally mediated interaction to facilitate experiences of presence, togetherness and informal social interaction despite geographical distance. At the same time, they can be physically present without contributing to additional screen time. At the same time, they can be physically present and thus not contribute to additional screentime. Therefore, in this paper, we want to explore the following question: How can hybrid third places be created by designing digitally connected objects that allow people to experience shared moments over a distance? Rather than replacing physical third places, the aim of these objects is to extend the social qualities of third places into imaginary, distributed spaces. Through the presentation and reflection on three speculative design artefacts, we investigate how object-based communication can facilitate meaningful remote interaction, reduce barriers to social contact and support feelings of togetherness without requiring constant attention or direct visual presence.

2 Background

In recent years, digital third places have become an increasingly important part of digitally connected everyday life. Steinkuehler and Williams (2006) examine how massively multiplayer online games (MMOs) function as virtual third places that enable social engagement and informal socialising. Their work highlights how MMOs can foster social connections by creating spaces for interaction and relationship-building beyond home and work environments. McArthur and White (2016) explore how regular Twitter chats could potentially function as digital third places, both mirroring and differing from physical meeting places such as cafés or bars. They demonstrate that social networking sites have the potential to assume the role of third places in the digital realm, thereby contributing to social connectivity.

However, purely screen-based digital environments may also create barriers to meaningful social interaction, particularly for older adults or users with limited digital literacy. Previous research suggests that digital communication systems often require sustained visual attention, continuous interaction and frequent task switching, which may contribute to attention fragmentation, cognitive overload, communication fatigue and experiences of exclusion in online environments (Anderson et al., 2018; Farag et al., 2024). Furthermore, virtual interaction often lacks important sensory and embodied dimensions of co-presence.

Although digital third places can support social connection over distance, they often lack the sensory, embodied and atmospheric qualities that characterise physical co-presence in traditional third places. In response to these limitations, previous research explored tangible and ambient forms of communication that move beyond conventional screen-based interaction. These approaches use physical artefacts, light, sound or subtle environmental feedback to communicate presence, availability and emotional connectedness, rather than relying on explicit verbal exchange (Hassenzahl et al., 2012; Matviienko et al., 2018). Previous studies on ambient displays and tangible communication devices have shown that these types of interaction can provide lightweight and unobtrusive emotional support, particularly in intimate or long-distance relationships (Li et al., 2020).

These aspects may be particularly relevant for older adults, who can experience additional barriers when engaging with conventional digital communication technologies. Previous studies have shown that well-designed physical third places can significantly improve the social health and well-being of older people (Alidoust et al., 2025). They highlight the importance of accessible meeting places and transport for their social integration and overall well-being. Another study shows that older people's participation in cognitively stimulating social networks can improve their mental abilities and protect them from age-related cognitive decline (Nef et al., 2013). Taken together, these findings suggest that approaches combining digital and physical elements hold significant potential for creating accessible third places and promoting social participation and well-being in older age (Zhang et al., 2025).

This work is situated within the fields of speculative design and research-through-design, using design artefacts not only as functional objects, but also as vehicles for inquiry that explore alternative social and technological futures (Dunne & Raby, 2013; Zimmerman et al., 2007). Instead of focusing solely on usability or efficiency, speculative and critical design artefacts encourage reflection on the emotional, cultural, ethical and social dimensions of technology (Bardzell & Bardzell, 2013). In the context of this paper, the presented concepts serve as exploratory tools, investigating how hybrid third places can be experienced through tangible, sensory and low-pressure forms of interaction.

3 Methodology

In a 16-week design course, a team of industrial design students created a series of speculative design objects, each of which explores a different aspect of hybrid third places. The course followed a research-through-design approach in which speculative artefacts were developed as exploratory tools to investigate alternative forms of hybrid social interaction. Rather than validating predefined hypotheses, the projects explored how tangible communication objects might foster a

sense of belonging and presence, as well as facilitate low-threshold social interaction across distances. All projects followed the same timeline:

Figure 2. Process timeline

The applied design process was structured into six phases. During the first four weeks, the students conducted exploratory research to gain an understanding of the topic and review existing solutions. They also identified the needs, barriers and everyday challenges of potential user groups. A three-week ideation phase then followed, during which initial concepts were developed through sketches and refined into concrete use cases supported by storyboards.

The concepts created were then rated by their peers in the class. Each student proceeded to the prototyping phase with the concept that had received the highest rating. Within four weeks, the students first created low-fidelity paper prototypes to explore scale, form and ergonomics. These were gradually developed into interactive prototypes using Arduino, sensors and initial 3D-printed components. Finally, the prototype was completed into a design model. The students developed a design language and formal aesthetics suiting the selected target group, created CAD models and explored possible materials. The final design models consisted of 3D-printed and milled components, varnished surfaces, and embedded electronic elements programmed with Arduino. During the final two weeks of the project, each design was evaluated using test users recruited by the students. Participants were recruited through convenience sampling by the students, including family members, acquaintances and passers-by in public settings depending on the project context. Semi-structured interviews lasting approximately 20 to 30 minutes were conducted for each project to identify perceived strengths, limitations, and potential use scenarios. Each object was presented to and evaluated by a group of eight to ten people. During the evaluation sessions, the participants were introduced to the concept and functionality of the artefacts. They were then invited to interact with the prototypes, verbalising their thoughts, impressions and associations as they went along. This is a method commonly used to capture users' immediate perceptions and reflections during interaction (Charters, 2003). The sessions included both observation and semi-structured interview questions addressing usability, emotional perception, social comfort, and potential use scenarios.

Interview notes and observations were analysed inductively using an open coding process inspired by grounded theory methodology. Recurring themes related to emotional connectedness, usability, social comfort, ambiguity and perceived presence were identified across the projects.

Although users were involved in the evaluation phase, the process was still largely designer-driven overall. This enabled students to explore speculative and open-ended concepts, free from the constraints of predefined requirements or fixed use scenarios. Due to the exploratory nature of the projects and the limited duration of the 16-week course, it was not possible to extensively integrate participatory methods and long-term user involvement during the early stages of development. However, future work could incorporate participatory or co-design approaches earlier on in order to better capture latent user needs, lived experiences and long-term perspectives.

Due to the exploratory nature of the course and the limited timeframe, the studies relied on relatively small convenience samples and short-term interactions with partially functional prototypes. Therefore, the findings should not be interpreted as generalisable results regarding the usability of these forms of communication, but rather as qualitative insights into how participants perceived and imagined them.

4 Design

Our project's aim was to contribute to the discourse on loneliness as a growing societal issue, exploring alternative approaches to technological innovation that go beyond screen-based approaches.

The overall goal was to explore how design interventions, ranging from objects and spaces to interactive applications, could prevent social isolation and loneliness, particularly among older adults and encourage intergenerational exchange. The following section presents three projects that demonstrate the creation of low-threshold hybrid spaces using tangible objects. These designs explore alternative forms of shared presence for individuals who can not meet or interact in the same physical space.

4.1 BENCHTALK

4.1.1. Concept and Inspiration

Figure 3. Two renderings of the Benchtalk showing the idle state (left) and the activated state (i.e. a person sitting on the other bench) with raised elements (right).

The *Benchtalk* project aims to promote interpersonal contact in everyday life and respond to older people's challenges with staying in touch with the outside world. At the same time, it addresses the problem of loneliness that affects many young people, who despite living in a lively environment, find it difficult to make new connections. While both groups could benefit from sitting together on a public bench, in reality, it is frequently unclear whether a person already seated would welcome an approach. This ambiguity can act as a barrier to spontaneous interaction in public space. Observing these differing needs and uncertainties led to the concept of *Benchtalk* – a bench that explicitly invites people who are looking for exchange, conversation and companionship in public settings. This project focused on developing an imaginary communication space to encourage conversations between different age groups, especially between older and younger generations.

The core concept consists of two connected benches. One bench is intended to be placed in an easily accessible environment, such as a retirement or assisted living facility, while the second bench is located in a more animated public space, for example, a park in the same city. Sensors embedded in the bench detect if and where a person sits down. When someone takes a seat on one bench, a physical element on the corresponding bench lifts, signalling that another person has joined the shared space. Built-in speakers and microphones then enable the two people to talk to each other.
Although the two users are physically separated, the bench occupies space in both locations, creating a sense of presence and co-location. The absence of visual contact allows participants to focus on the conversation itself and engage more deeply.

This form of mediated togetherness could support intergenerational exchange and provide older citizens with access to third-place experiences by linking retirement homes and public parks. In doing so, *Benchtalk* offers an alternative way of participating in public social life and fostering a sense of belonging and connection to society.

4.1.2 User reactions

The current prototype allows for a 'Wizard of Oz'-style mechanical demonstration but is not yet fully functional. It was placed in a local park and introduced to passersby for user testing. In total, nine participants between the ages of 18 and 75 took part in the study, including five women and four men.

Figure 4. Left: rendering of *Benchtalk*. Right: user testing showing a participant interacting with the bench.

At the beginning of each session, the project and its functionality were briefly introduced. Participants were then invited to explore the interaction using a think-aloud approach while their behaviour and reactions were observed.

Most participants (seven out of nine) described the interaction as pleasant and easy to understand. Across age groups, the bench was frequently characterised as “exciting” (P1, female, 20 years; P3, female, 75 years; P8, male, 18 years) and “new” (P1, female, 20 years; P4, male, 24 years; P9, female, 45 years). Its unusual form and placement in public space attracted immediate attention and sparked curiosity without being perceived as intrusive. In particular, the rising element was positively received and quickly understood as symbolising the presence of another person on the connected bench.

During repeated interactions, several participants reported becoming more comfortable and confident using the bench. One participant noted: “I enjoyed it once I knew how it worked” (P1, female, 20 years). While some users initially experienced slight nervousness when approaching the installation, these feelings diminished quickly during use. These findings suggest that the physical signalling mechanisms contributed to perceptions of social openness and lowered barriers for initiating interaction.

Participants frequently described the bench as an opportunity to meet new people and engage in meaningful conversations with strangers. One participant commented: “I can imagine making friends this way” (P4, male, 24 years). Overall, the installation was perceived as enriching the public space and creating a positive social experience. Seven participants stated that they would use the bench again and considered it a welcome alternative to conventional public seating. Minor suggestions for improvement included the addition of a backrest to support longer conversations.

3.2 LOOM

4.2.1 Concept and Inspiration

Figure 5. Left: projection created by the *Loom* lamp. Right: Loom lamps in two sizes.

The *Loom* concept is inspired by social practices commonly shared between grandparents and children. One such practice is looking at the sky together. interpreting the shapes of clouds or searching for constellations. Another important practice is the bedtime routine between children and caregivers, which often involves looking at picture books, reading, telling or inventing stories. Both practices create moments of “shared attention ”, in which two or more people, in this case, a child and an adult, direct their attention towards the same point of focus (Racine, 2005).

Loom is a set of projection lamps designed to support meaningful connections between children and their grandparents who are physically separated. It enables a shared evening ritual that can help counteract feelings of loneliness and distance. Through its light projections, Loom creates a calm hybrid space with an intimate atmosphere and evocative visual imagery, combining the principle of shared attention with the ritual of bedtime storytelling. Technically, *Loom* consists of two separate motorised projection lamps connected via audio. One lamp is intended to be placed in the child’s room, while the second, slightly smaller version can be taken along on trips or used by a remote family member. A soft design language, textile surfaces and muted colours give Loom an approachable appearance across age groups, making it suitable for both children and adults.

The system allows grandparents to participate in and share an important moment of the child’s daily routine despite physical separation. For children, the act of interpreting and discussing the projected patterns supports communication skills, creativity and empathy by encouraging listening and engagement with another person’s perspective. The moving

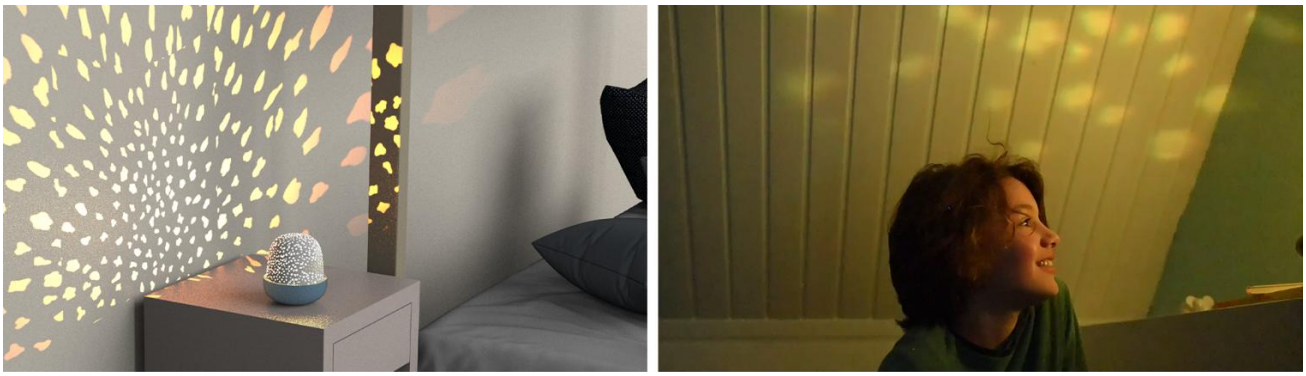

Figure 6. Left: *Loom* in use. Right: Child watching the Loom projection.

projections can support the conversation and storytelling. The projected shapes are inspired by familiar objects, such as animals and means of transport, to evoke a wide range of associations and imaginative narratives.

4.2.2 User reactions

A total of ten participants, aged between twelve and eighty years, took part in the Loom evaluation. The group included four pairs of grandparents and grandchildren, as well as two sets of parents. During the user tests, the Loom's functionality was demonstrated, and participants communicated with the study leader via its speakers. Participants were then invited to share their impressions and experiences while observing the projected patterns and interacting with the device.

Across the test sessions, participants consistently evaluated the interaction with Loom positively. The experience was described using terms such as "warm" (P1, female, 59 years; P5, female, 15 years; P6, female, 67 years), "calming" (P5, female, 15 years), "exciting" (P2, male, 12 years; P3, male, 83 years; P4, female, 14 years), and "relaxing" (P1, female, 59 years; P9, male, 50 years; P10, female, 78 years). This shows that the lamp creates a pleasant and calming atmosphere that resonates with both younger and older users. Interviews with female carers tended to comment more on the lamp's appearance and formal qualities, such as colour and shape, while male caregivers more often emphasised the quality of interaction between children and adults. Independent of gender, all participants highlighted the importance of a child-friendly, playful design and ease of use.

Some participants suggested that offering a broader range of projection patterns could enrich the experience further. Nevertheless, the existing design was generally well received. One participant noted: 'I think the lamp looks very good in a modern living room, but also in a playful nursery. I can imagine children paying more attention to the patterns, whereas adults might use it more to set the mood" (P3, male, 83 years). Overall, participants particularly emphasised *Loom*'s potential to bring people together and support shared moments despite physical distance.

3.3 KIKU

4.3.1 Concept and Inspiration

Kiku is a pair of linked wind chimes designed for subtle, emotionally meaningful communication from a distance. Each chime responds to gestures and movements detected by an integrated motion sensor, enabling users to activate both objects intentionally. Moving the wooden elements of one chime transmits a sound signal to the corresponding chime at another location.
These sound signals can be interpreted as simple messages such as "I'm thinking of you" or "I'm available right now." While the specific meanings are not predefined, they can be negotiated between users or emerge gradually through repeated use. As well as deliberate interaction, the wind chimes also respond to environmental influences, such as the wind. This intentional openness introduces elements of chance, ambiguity and interpretation, encouraging a playful, non-instrumental approach to communication. By relying on soft, calming sounds rather than visual or text-based signals, *Kiku* provides an alternative to conventional digital communication that is more accessible. The gentle auditory feedback aims to convey presence and care without creating the pressure and stress that some users associate with smartphone notifications. In this way, *Kiku* promotes a shift from screen-based interaction towards a more physical and atmospheric form of connection.

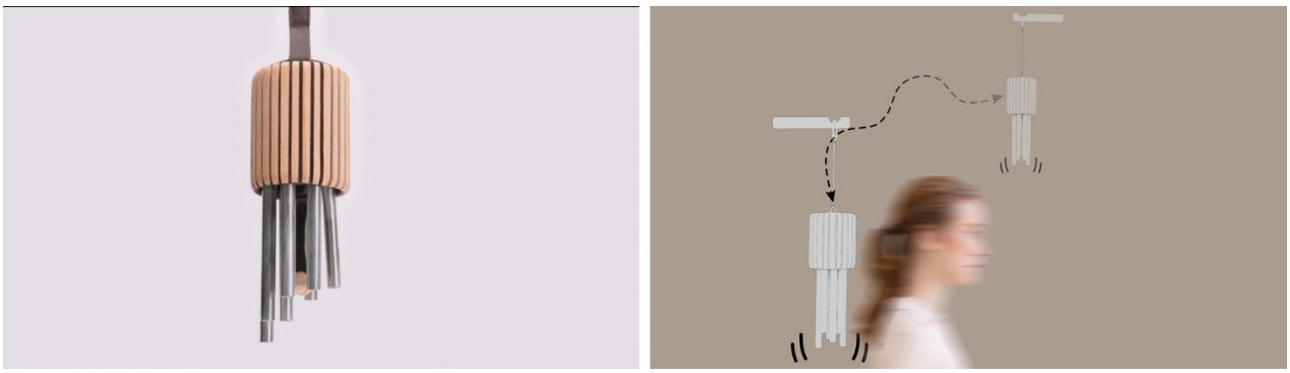

Figure 7. Left: rendering of *Kiku*. Right: illustration showing activation of the paired wind chime through walking by or gesture.

4.3.2 User reactions

Eight participants aged between 25 and 65 years (including five women and three men) took part in the evaluation of *Kiku*. During the testing phase, the participants were introduced to *Kiku* and asked to interact with it, reflecting on their experiences as they did so.

Participants consistently described *Kiku* as anunobtrusive form of communication. They found the interaction easy to understand and effortless. Several participants noted that the object blended well into their living environment and did not attract excessive attention. They described it as visually harmonious and comparable to a traditional wind chime.
Participants repeatedly emphasised the emotional qualities of the acoustic feedback. They described the sound of the wind chime as calming, soothing and emotionally grounding. Users said that the sound made them feel remembered, connected to, or accompanied by a loved one, particularly during moments of loneliness, stress, or emotional vulnerability. One participant described the experience as providing a sense of security and “basic trust.”

The ambiguity of the interaction was viewed positively. Participants appreciated that the meaning of the sound signals could be negotiated individually or develop over time, rather than being predefined. This openness enabled users to assign their own meanings to the interaction, such as indicating presence, availability, or affection, without needing explicit confirmation or an immediate response.

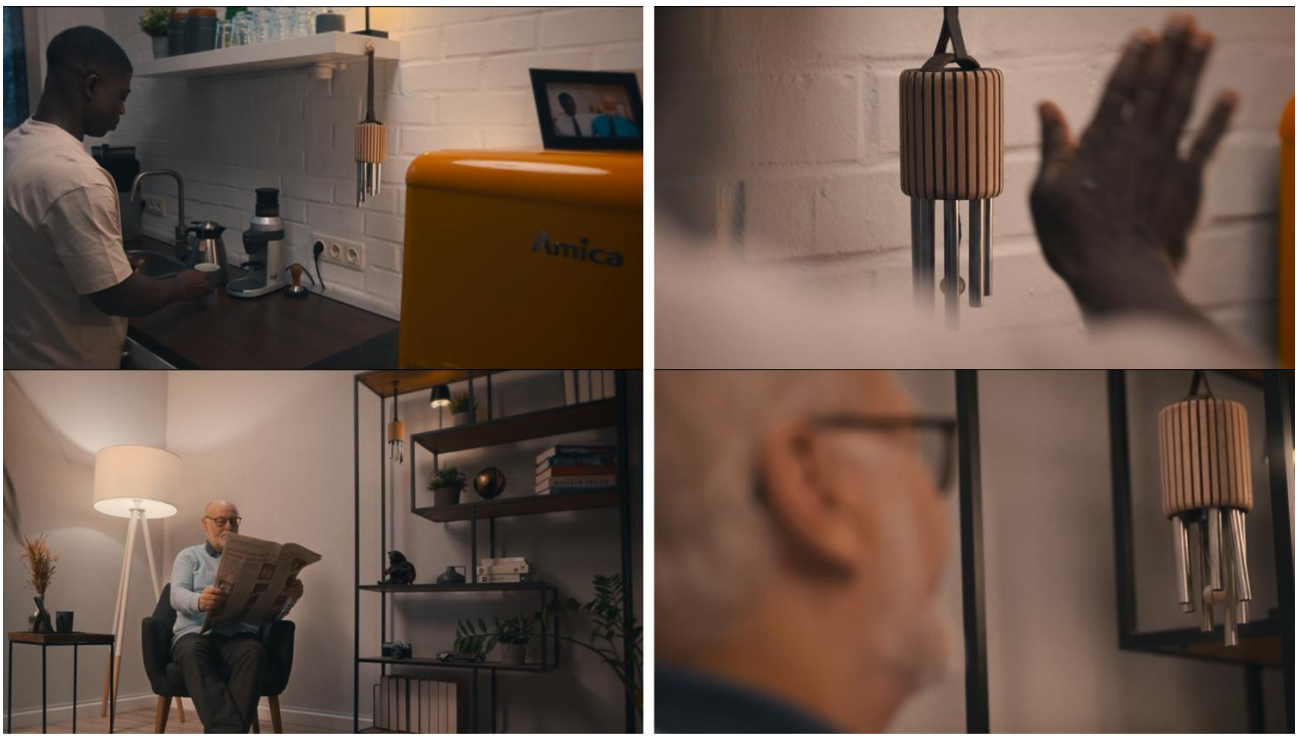

Figure 8. Top: a grandchild remembering his grandfather and activating Kiku through a gesture. Bottom: its grandfather reading a newspaper and noticing the activated wind chime.

Five participants emphasised that *Kiku* avoided the communication pressure often associated with digital messaging technologies. Unlike smartphone notifications, the wind chime was perceived as unobtrusive and free of expectations regarding response time. Suggestions for improvement mainly concerned practical aspects, such as where to place it in the living space or the ability to customise sound variations.

Overall, participants found that *Kiku* fostered a subtle sense of closeness and intimacy, offering a gentle, emotionally meaningful alternative to screen-based communication.

5 Discussion

The three presented design artefacts *Benchtalk, Loom* and *Kiku* explore different ways of creating shared moments over a distance through tangible, low-threshold communication objects. Although they differ in terms of scale, context and mode of interaction, all three projects aim to extend the social qualities of third places into hybrid and imaginary spaces that facilitate connection, presence and emotional well-being.

A central shared characteristic of all three designs is their focus on **low-pressure interaction**. Across all user studies, participants emphasised the low-pressure nature of the presented artefacts as a key quality. In contrast to conventional screen-based communication technologies, the objects did not require continuous attention, immediate responses or active participation, which many users perceived as emotionally relieving and unobtrusive (Anderson et al., 2018; Weiser & Brown, 1996).
Benchtalk reduces the social risk of initiating contact by clearly signalling availability for conversation. *Loom* embeds communication within an existing ritual, thereby lowering the threshold for participation. *Kiku* uses subtle auditory cues that can be perceived without prompting action. Across all user studies, participants emphasised the absence of communicative pressure as a key quality, particularly in contrast to screen-based technologies. These findings suggest that the physical signalling mechanisms contributed to perceptions of social openness and lowered barriers for initiating interaction, supporting prior research on low-threshold and ambient forms of social communication.

Another common theme is the use of **ambiguity and openness** as design strategies. Ambiguity in interaction design can encourage interpretation, imagination and personal meaning-making rather than prescribing fixed forms of use (Gaver et al., 2003). Rather than transmitting explicit messages, all three objects allow meanings to emerge through use. In *Benchtalk*, users can not see each other, shifting the focus to conversation and imagination. *Loom*'s abstract projections encourage interpretation and storytelling, while *Kiku*'s sound signals remain deliberately vague, allowing for personal interpretation. User reactions suggest that this ambiguity was not perceived as a limitation, but rather as a strength enabling emotional engagement, creativity and personalisation.

The projects also differ in how they engage with **social dimensions and context**. *Benchtalk* operates in public or semi-public spaces, promoting encounters between strangers and extending the concept of "third places" to dispersed urban environments. *Loom* and *Kiku*, on the other hand, are located in private or domestic settings and are designed to maintain existing relationships across distances. Together, these projects demonstrate that hybrid "third places" need not be confined to the public or private sphere, but can encompass multiple spatial and social contexts.

Lastly, all three artefacts emphasise the importance of **physical presence and materiality** in fostering social connections. By occupying space, generating sounds or projecting light, the objects create a sense of shared presence that transcends verbal communication. Users repeatedly cited this material quality as contributing to a sense of comfort, intimacy and companionship. The emphasis on materiality and embodied interaction aligns with research on tangible interfaces, which argues that physical artefacts can foster richer and more meaningful forms of interaction than purely screen-based systems (Ishii & Ullmer, 1997).

Taken together, the results suggest that object-based, speculative design approaches can offer valuable alternatives to conventional digital third places. By emphasising rituals, ambiguity and sensory experiences, such designs may contribute to reducing feelings of loneliness and social isolation, while accommodating diverse needs, abilities and communication preferences.

6 Conclusion

This paper explored how hybrid third places can be designed through speculative, object-based interventions to support social connection and address experiences of loneliness and social isolation. Through three exploratory design projects, the research investigated how tangible, sensory and low-pressure forms of interaction can create shared moments and feelings of presence across distance.

The projects approached the topic from different perspectives, ranging from publicly accessible outdoor environments to private, domestic communication channels. Despite these differences, all designs succeeded in conveying key qualities of their reference spaces, such as liveliness, intimacy and togetherness. Through visual, auditory and physical feedback, the artifacts created imaginary communication spaces embedded within real environments, enabling interaction without relying on conventional screen-based technologies.

The findings suggest that such hybrid spaces can support well-being by providing low-threshold opportunities for social interaction and by fostering connections between different age groups. However, the limited time frame and scope of the project posed challenges, particularly with regard to participant recruitment and the depth of evaluation. Consequently, the presented projects should be understood as exploratory design probes rather than conclusive solutions.

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