



Closer Worlds: Using Generative AI to Facilitate Intimate Conversations

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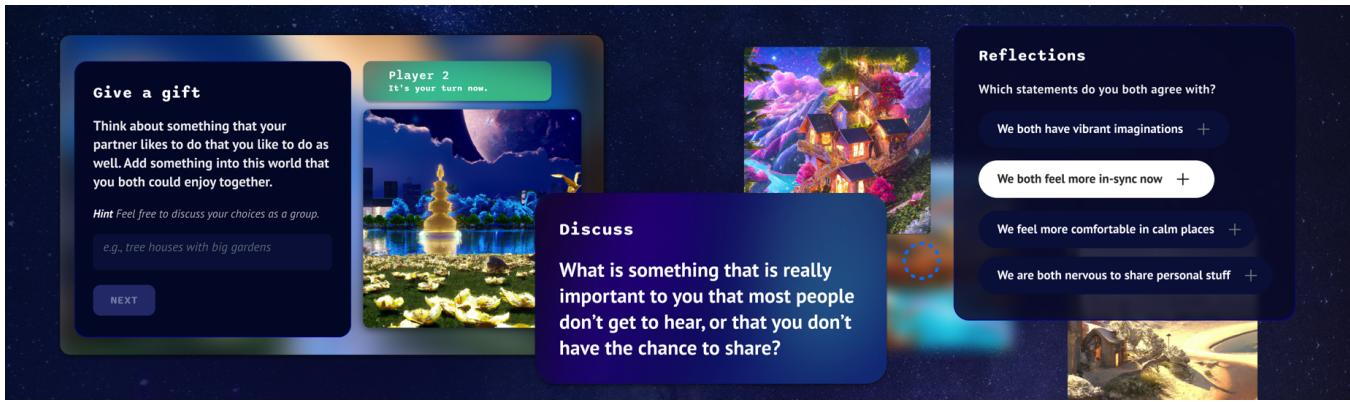


Figure 1: Closer Worlds, a two-player world-building game designed to foster intimate conversation through imaginative play and reflection with generative AI. Participants take turns describing an imaginative world through text input, which the AI converts to an image. This iterative process is interspersed with reflective questions designed to scaffold personal sharing. Image generation is further enhanced through multiple-choice affirmations and introspective interactions with a slider.

ABSTRACT

Deep emotional intimacy is a foundational aspect of strong relationships, but the digital tools we use to communicate often limit rather than empower our feelings of connection. Two compelling strategies technologists have used to counteract such trends include games and generative AI art. In this paper, we design and test Closer Worlds, an ML-assisted 2-person game that fosters emotionally intimate conversations through co-creative world-building. We explore design principles inspired by facilitation methods and assess their effectiveness in a pilot study. We find that Closer Worlds elicits some self-disclosure behavior, but less than a social game without generative AI. However, participants clearly enjoy the unique affordances offered by visualizing shared values, which suggests that this method offers a comfortable and novel avenue for meaningful

conversations. We conclude by discussing future ways in which co-creative games might leverage generative techniques to foster pro-social environments.

CCS CONCEPTS

- Human-centered computing → Human computer interaction (HCI); Collaborative content creation; Computer supported cooperative work; Collaborative and social computing systems and tools; Natural language interfaces;
- Applied computing → Computer games.

KEYWORDS

Intimacy, Conversation Games, Self-disclosure, Co-creation, Generative AI, World-building

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1 INTRODUCTION

Computer-mediated forms of communication (e.g., social media, texting) have quickly become the predominant way that we keep in touch with one another. Such profound transformation calls for a reexamination of the role that digital systems play in human connection. One consequence suggested by Turkle is a gradual degradation of interpersonal intimacy [62]. This is especially troubling, considering that the formation of strong, resilient relationships hinges on our ability to speak honestly and be vulnerable with one another [8]. Thus, it seems necessary to intentionally explore the ability for technology to enhance rather than detract from emotional intimacy.

This work seeks to empower users to engage in meaningful conversations using low-stakes, creative play to offer a comfortable space for vulnerability. To achieve this, we present Closer Worlds, a 2-person digital experience which supports intimate conversation by visualizing shared values using a text-to-image model. The contributions of this work are the design and evaluation of Closer Worlds, including a pilot study that explores how image generation, discussion questions, and imaginative world-building can ease participants into intimate conversations. Although more traditional social conversation games [3, 29, 40] seem to more elicit more self-disclosure behavior, participants find Closer Worlds an enjoyable and easy way to reflect on emotionally rich experiences, making a compelling case for using AI-augmented creative play to induce social connection.

2 BACKGROUND

2.1 Measuring Intimacy

Researchers in human-computer interaction have a growing interest in using emerging technologies to mediate intimacy in relationships [17, 63]. Work in ubiquitous computing [4], tangible interfaces [16], UI design [20, 26], and gaming [12, 39] has notably explored this topic.

Intimacy is challenging to study because it lacks one unified definition in the social science literature [22, 28, 35, 37]. Related social features which signal intimacy include affection, trust, love, validation, and personal sharing [35, 37], but all are difficult to elicit and measure in research settings [2, 35]. Furthermore, many factors outside of the research environment constrain or enhance our ability to have intimate conversations, such as relationship roles [5, 37], the level of familiarity with a person [3, 5, 37], personality traits [28], cultural identity [43], and gender [23].

One recurring observation is the connection between intimate moments and self-disclosure, defined as the act of sharing personal information about oneself in a conversation [1, 3]. Disclosures can be considered factual (e.g., private facts like where your grandfather was born) or evaluative (e.g., how you feel about your relationship to your mother) [37]; the latter is more frequently associated with emotionally rich conversations, and as such, we sought to elicit and measure it.

2.2 Games Facilitating Intimacy

Play has a long research history of evoking social dynamics akin to intimacy [47]. “Social impact games” and “serious games” [19, 36, 50, 61] demonstrate the potential to model social skills and mediate

team building. Other related work has attempted to facilitate introspective social play in art museums [55], use syncopated motion to support social engagement [25], and create tools to express and embrace vulnerability in roleplay [12].

Outside of digital games, popular social card games like “We’re Not Really Strangers” [29] and “Where Do We Begin” [40] facilitate interpersonal connection by stimulating conversation based on personal experiences. These games resemble the fast-friends procedure [3], a 45-minute activity used in social science research to generate interpersonal closeness by asking participants to answer a series of intimate questions which grow more emotionally intense over time.

Games are powerful mechanisms to influence social dynamics: they demand that we follow a set of rules that offers permission to have fun behaving differently than an established norm might dictate [9, 11, 24, 47]. The resulting “magic circle” [24] allows us to transcend our usual behavior, and in the case of social card games, enter more vulnerable states which give space for deeper conversations [34, 59]. Thus, we posit that game rules can act as enjoyable conversation scaffolding [67] which provides unique opportunities to discuss authentic lived experiences.

2.3 Generative AI for High-Dimensional Meaning-Making

Creative practices can embed what is personally meaningful in material ways [49, 56, 68], especially when using ambiguous media that allow for multiple interpretations [18]. Just as Schon describes design as “a communicative activity in which individuals are called upon to decipher one another’s design worlds” [57], placing meaningful artifacts in conversational contexts may deepen opportunities for intimate dialogue. By translating users’ collective imagination and sense of meaning into a concrete artifact, we hope to present an easy and enjoyable way for users to draw upon nuanced perspectives of lived experience. This focus on making creative experiences more accessible is drawn from the approach of casual creators [11], a type of creativity support tool that provides a narrow set of possibilities but a high ceiling for exploration.

Generative AI tools have made creative exploration more accessible: recent rapid advances in diffusion models [45] allow users to craft coherent and emotionally resonant images from text alone, granting users easy access to the Internet’s collective imagination. The near-infinite creative potential and high-dimensional latent space of text-to-image models parallels the “necessarily multidimensional, multi-scalar, and multimodal” [7] nature of lived experience, making generative AI art a promising medium for the creation of artifacts that convey intimate interpersonal meaning. Applications of generative AI have started to demonstrate their potential as collaborative creative tools: Midjourney’s “augmented imagination” enables visual riffing on other’s ideas [58, 64]; collaborative design futuring [15]; and engaging in large-scale conversations on societal problems [44]. Although generative AI has been used in these collaborative settings, there is comparably less work on applications for deepening intimate connection or reflecting on one’s relationships; Closer Worlds contributes to this growing body of work by exploring how generative AI can be used to embed

personal meaning into an image, which might serve as scaffolding for evaluative self-disclosure.

3 CLOSER WORLDS: CO-CREATIVE IMAGINATION PLAY FOR FACILITATING EMOTIONALLY INTIMATE CONVERSATIONS

Closer Worlds is a web interface built in React that induces intimate conversation through playful interaction with text-to-image AI and imaginative storytelling. It uses OpenAI's DALL-E 2 API for image generation. On a shared laptop, participants sit side-by-side and take turns navigating the interface. The total playtime is between 15-20 minutes. Figure 9 shows several screenshots from the game.

Closer Worlds guides users through an imaginary situation in which they build a world to live in together. They are prompted to construct buildings, landscapes, and other features, by taking turns to describe some aspect of the world in 20 words or fewer. In each turn of the game, DALL-E 2 generates a new image using these cumulative descriptions, which are strung together using a prompt template [32] we designed. While waiting for the images to generate, participants take turns responding to a related question designed to elicit personal sharing.

We designed Closer Worlds using an iterative design process in which we gathered feedback from users in 3 phases: 1) an exploration of the problem space by observing behavior while playing social card games; 2) rapid low-fidelity prototyping using existing generative AI tools; and 3) usability testing and interviews for an early version of the game. Through these initial design phases and background research in the space, we derived the following design principles.

Conversation scaffolding. Emotionally intimate conversations can be difficult to start, as people tend to fear being unilaterally vulnerable, and therefore do not ask deeper questions [27]. Closer Worlds provides rules that give participants a compelling excuse to share personal information, and overcome this fear. For example, in the second round of world-building, one participant is asked, “What kinds of spaces make you feel most at home? ... With this in mind, briefly describe a building you’d like to have here.” By creating an opportunity to share personally meaningful information, Closer Worlds creates a “magic circle” [24] which offers conversation scaffolding [67], or incentive to have an otherwise uncomfortable conversation about their values.

Personal, escalating, reciprocal self-disclosures. Following the intimacy literature, we aimed to induce conversations that was personal, reciprocal, and increasing in emotional intensity over time [3]. Closer Worlds consists of 13 image generation or reflection questions (see Appendix C for the full script), each of which increase the level of intimacy required to answer it. Prompts were modelled after questions used in studies designed to build connection [3, 27] and social disclosure games [29, 40].

Explicit positive intentions. People tend to have more constructive conversations when they clearly know that the person with whom they are speaking has positive intentions [6, 14]. By agreeing to play a game whose explicit goal is to bring you closer, a participant

has at the very least signaled to their partner a desire to get to know them better. This is reaffirmed at multiple times within the game. For example, to progress in the game, users must select tags which indicate some positive aspect of their relationship, such as “We both have vibrant imaginations” or “We feel more in-sync now.”

The game also facilitates good intentions through gift-giving. At one point, users generate images which *their partner* might enjoy. For example: “Think about what parts of life they think are most precious. ... Name some object that would let them feel more at home.” By prompting users to create something for another person, users must reflect on what they know and like about their partner and state it out loud.

Imaginative storytelling and imagery. Given the connection between ambiguous form and meaning-making [18], we hypothesize that highly surrealistic or symbolic images are more capable of representing emotional nuance than text alone. Thus, in Closer Worlds, participants are teleported to a distant planet with a magic wand that can actualize their wildest ideas. We do this to nudge participants’ imaginations in a playful direction and offer room to speak about topics unencumbered by everyday social norms. We additionally adjust the prompt templates [32] throughout gameplay to push the model to generate images we found more upbeat and fantastical as discussion questions become more intimate. Without users being aware, we added additional prompt tags: “cinematic lighting” to create images with dramatic colors; “Studio Ghibli” to draw upon upbeat anime; and “octane render” to reference images from video game artists. This seemed to consistently produce exciting images in pre-study testing.

Collaborative world-building. Based on literature with roots in HCI, psychology, and architecture, physical environments and our sense of space seem to play key roles in mediating our experience of intimacy [31, 38, 42, 63, 66]. In Closer Worlds, we asked players to participate in collaborative world-building to explore how the imaginative practice of visualizing being in a place together might draw on the relationship between intimacy and space. In the world-building tasks, users are explicitly asked about how they feel in space (e.g., “in what spaces do you feel most comfortable”) in an effort to immerse players in a world in which they feel they could participate vulnerably.

4 STUDY METHODS

To determine to what extent our design principles might foster intimate conversation, we performed a user study comparing it to the experimentally validated fast-friends procedure [3]. By comparing Closer Worlds to another game-like activity, we attempted to isolate the effects of the design principles above.

4.1 Participants

We recruited students and local residents via MIT’s undergraduate mailing lists and workplace messaging platforms. We recruited pairs that already knew each other, but excluded those who knew each other too well (a 5/5, meaning “this is the person I am most close to”) and might already feel comfortable engaging in self-disclosure with each other.

24 participants (12 pairs) were observed and included in the final analysis. 15 elected to share demographic information (see Figure 10). All participants who shared demographic information were between the ages of 18 and 21: 10 identify as female, 4 identify as male, and 1 identifies as non-binary. A summary of paired participants' relationships to one another is provided in Figure 11. Note that some cultural differences may have resulted in differences in personal sharing [43]; this study does not control for this, and we had several participants disclose during interviews that they were not from the United States.

4.2 Study Design

All experiments were conducted in person in a conference room. Each participant received a \$25 dollar gift card upon study completion.

Before arrival, participants were randomly and equally divided into control and treatment groups. Both groups spent 20 minutes on the game to which they were assigned. The fast-friends procedure is validated for 45- rather than 20-minute sessions [3], but we opted to shorten runtime in order to make time for other measures; future work might compare the two activities more closely, and some participants in the treatment suggested that they would enjoy playing Closer Worlds for a longer duration.

During the study, participants first completed a baseline pre-study questionnaire. Pairs in the control group then received the fast-friends procedure while those in the experimental group played Closer Worlds. During this part of the study, video and audio were recorded and experimenters left the room. The experiment concluded with a post-activity questionnaire and semi-structured interview about the activity and intimate connection.

4.3 Measures and Analysis

We used quantitative measures to baseline and compare intimacy (Erikson Psychosocial Stage Inventory (EPSI) [30, 48]), self-disclosure (e.g., "I used my experience to support my points" and "My study partner talked about very personal stuff in the discussion"), closeness with their study partner (Inclusion of Other in Self Scale (IOS) [2]), conversation quality (Relational Communication Scale [10, 21]), how pressured players felt during the game (the pressure/tension subscale of the Intrinsic Motivation Inventory (IMI) [13, 33, 41, 52–54]), enjoyment of the game (e.g., "I enjoyed this activity"), and whether they would recommend the game to others (Net Promoter Score [46]). For all quantitative measures, we calculated mean and standard deviation. To compare scores before and after the activity, we used the Wilcoxon paired-sum test. To find p-scores for differences between our control group and our treatment group, we used the Mann-Whitney U test. We chose to use nonparametric tests since we cannot assume a distribution with such a low sample size. For many of our quantitative measures, we cannot say that these are statistically significant due to our p-scores being above 0.05; future work on a larger sample would be necessary to verify these results.

To evaluate the success of our design, we conducted a thematic analysis of recorded participant behavior. In the first round of this analysis, researchers identified core themes and common keywords which might be indicative of the proposed design principles or

measures. Once themes were identified, a further round of coding was completed using these themes. The main themes we focused on were conversation scaffolding, play behavior (i.e., competitive, collaborative, imaginative), compromise, (hesitation to engage in) personal sharing or self-disclosure, and ownership of parts of the generated image.

5 RESULTS

In this section, we present the results of the analysis we conducted on the data extracted from observations during gameplay, semi-structured interviews, and qualitative and quantitative self-reports through three themes. We will refer to pairs and individuals by their anonymized IDs (QB, QH, QN, QL, QP, and QX are treatment pairs, and QB-1 is participant 1 of pair QB).

5.1 Intimacy and Self-Disclosure

Results from this pilot study indicate participants engaged in some degree of intimate conversation, but not specifically more personal sharing when compared to the control group. Participants who received the fast-friends procedure rated both perceived self and partner disclosure higher on average than participants in the treatment group, as shown in Table 1. This pattern remains when probing the perceived depth and personal significance of the information that was shared during the session, as shown in Table 2. Regardless, participants' increase in feelings of closeness to one another were similar between control (13.8%) and treatment groups (9.72%), as shown in Table 5, suggesting that both activities were similarly capable of bringing pairs together.

Contrary to our hypothesis, there were moments during the game where participants explicitly prevented each other from sharing personal information. When QN-2 began to speak extensively about themselves, QN-1 raised their hand as if to stop them from sharing more. QH avoided answering discussion questions by filling conversational space and advancing to the next step in the game as soon as it was available. Post-activity interviews revealed that one reason why participants were hesitant to share was being recorded, a limitation of our study design. Additionally, 3/6 pairs seemed to be distracted by their desire to see the AI-generated image, and did not linger to have an emotional conversation. We attempted to limit this effect by introducing an artificial loading time on image generation so that pairs were given more space to talk.

Despite these challenges, we observed several moments of personal sharing as a direct result of the image generation process. In 3/6 pairs (QB, QL, QN), participants chose to disclose personal facts to contextualize the image (e.g., hobbies, aesthetic preferences). Beyond the sharing of facts or preferences, 2/6 used the image creation task to share more descriptive or evaluative personal stories. For example, after receiving QN-1's gift, QN-2 remarks, "A lot of these things—golden ducks, magnolia flowers—connect me with my parents." QN-2 goes on to explain why their relationship with their parents is so meaningful to them. This theme is carried through written survey feedback by 3/12 participants, with one writing, "The part about building landscapes and environment made it more comfortable for me to share personal things."

5.2 Games: Providing a Structure for Deepening Relationships

To assess whether the game's [conversation scaffolding](#) [67] placed positive or negative degrees of pressure on users, we administered the pressure/tension subscale of the Intrinsic Motivation Inventory [41]. Participants in the treatment group on average reported feeling more relaxed and less pressured than those in the control, as shown in Table 6. This trend continued in written feedback, suggesting that Closer Worlds successfully created a more "comfortable," "easy," "smooth," and "fun" space for personal sharing by "having a specific goal."

By giving participants an opportunity to build a world together, we observed some effects of collaboration on Closer Worlds' ability to benefit participants. All pairs exhibited some form of collaboration, usually in the form of stating something that they would like to add in the image and the other agreeing to it. Perhaps most interestingly, 2/6 pairs (QB, QN) directly compromised on steps while creating the image. For example, QN-1 likes the big city while QN-2 prefers less busy environments; thus, they compromised by adding "suburban" buildings. Compromising during image creation seemed to have benefits to the impact of the game: both pairs who directly compromised during image creation ranked the image as highly representative of themselves and their relationship. This suggests potential benefits in encouraging compromise as a game mechanic in future work.

Critically, participants on average enjoyed our game more and were more likely to recommend the experience when compared to the fast-friends procedure, as shown in Tables 3 and 4. Written responses validate these sentiments. Some participants highlighted that the experience of making an image together brought them closer: one said, "The experience creating the art with someone else makes it part of both of us" (QN). These findings suggest some success in our game in [scaffolding](#) and [imaginative storytelling](#).

5.3 Text-to-Image Models: Challenges in Representing Emotionally Intimate Stories

As described in [imaginative imagery](#), we hypothesized that text-to-image models might make emotionally intimate conversation more accessible for their ability to visualize high-dimensional personal narratives. Although 6/12 participants felt that it was not the images but the co-creation process that made the experience most meaningful, developing the image offered an important opportunity for representing their relationship: co-creating the image "felt much like how building a relationship with some one [sic] is; 2 separate lenses of the world combine" (QX). By embedding foundational memories in an image (2/12 participants), participants felt that they could integrate "important imagery and parts from both of our lives" (QN) into one visual narrative. This "blending" (QX) of worlds suggests that images were able to capture meaningful overlap between participants' stories and values, visualizing the process of deepening a relationship.

However, some users struggled to connect image generation with emotionally intimate conversation. 4/6 pairs struggled to translate their abstract ideas into descriptions of objects and places. Partners' positive qualities and skills were especially difficult to represent (QH, QP, QX); for example, after a long pause, QX-2 "can't think of

... an object that would" make their partner feel at home. Similarly, despite deep ties between intimacy and place, participants' struggle to find spatial metaphors suggests a need for different framing to better access emotion. For example, QP-2 asks, "How can you be creative with rooms?" and QX-2 says, "It's hard to represent with a place." 5/6 pairs also refrained from adding descriptions they did not expect the AI to understand, such as private knowledge (QP), references to specific places and films (e.g., the house from the movie *Ex-Machina*) (QH, QP, QX), and outlandish ideas (QX's "tons of fingers") (QB, QX). By interfacing with a text-to-image model that participants had little experience with beforehand, participants were asked to leverage an unfamiliar text-to-image mapping with a third agent that had no knowledge of the pair's relationship. This may have caused choices to be driven by desired aesthetics (e.g. ivy climbing up brick walls) and factual activities or places (QX's tennis court and QP's market) with little verbal explanation of why participants found these choices meaningful. These kinds of visualizations did not appear to induce the emotionally rich disclosures we sought to [scaffold](#) through the use of game structure, image generation, and reflective conversation. Still, despite these choices not leading to more personal disclosures, participants playing Closer Worlds did not perceive their partners' conversation to be any more superficial than those in the control group, as shown in Table 2.

Participants who found their images most meaningful and their partner's comments least superficial were also the most successful at embedding narratives in visual or spatial emblems (e.g., QN's magnolias and golden ducks reminded them of their parents, and a starry sky "brings me home"), and engaged in more evaluative disclosure (QB, QN). Future work might therefore attempt to inspire greater imagination and offer better tools to support participants in developing intimate symbolism.

6 DISCUSSION AND FUTURE WORK

While we chose to center our analysis of Closer Worlds on how much the game elicited self-disclosure in order to measure intimacy, self-disclosure is only one facet of intimate experiences [3]. Participants' overall enjoyment of the game and description of the process as a "coming together" suggest a different kind of intimate behavior. The small ways that people were drawn into conversations around shared memories (e.g., a day on a beach after an image of a shoreline was created (QP)) or embedding visual emblems of objects close to one's heart (e.g., a loved one's favorite flower (QN)) speaks to this potential of generated images to set the tone for authentic sharing. Since not all experiences of intimacy are explicit or verbal [17], it's possible that facilitating intimacy might be better achieved through non-linguistic input modalities. Facial expressions, rough sketches, or the tone of a conversation could be used as inputs to express intimate narratives that aren't possible to put into words, if users are adequately supported in constructing them.

Our findings also suggest that some pairs were more comfortable using Closer Worlds to have intimate conversations than others. For example, 3/12 users experienced difficulty thinking of ideas when confronted with questions that require comfort with vulnerability, self-reflection, or creativity. If designers want to make games which can act as intimacy support tools, they should support users with varying levels of comfort with emotionally rich conversations.

To accomplish this, designers might: offer multiple choice instead of open text entry for struggling users; provide specific prompts which connect personal stories to visual or spatial concepts (e.g., which color was your favorite as a child); and be encouraged to use more purely imaginative rather than vulnerable descriptions. By considering this medium a “casual creator” [11], future work should consider what specific affordances lower the bar to emotional introspection and expression.

Moreover, in this study, participants expressed that setting is a strong mediator of intimate conversations. Therefore, designers should consider how the surrounding environment could also be optimized for social intimate engagement. More specifically to our study, 4/12 participants were reasonably uncomfortable being on camera while having intimate conversation; thus, in another environment where participants do not feel observed or pressured to perform, people may engage in more personal sharing and encounter deeper conversations. Future research would need to position Closer Worlds in a more natural setting to make stronger claims about its potential.

Furthermore, since place may mediate our experience of intimacy or safety [31, 63, 66]—i.e., familiar places or spaces with cozy vibes—deeply immersing participants in their created intimate worlds could support the formation of an intimate moment or connection. Using virtual reality tools that support emotive self-expression as employed in Mood Worlds [65], designers could explore what it would be like for people to step into their generated world.

Closer Worlds’ limited success in eliciting personal sharing may also be explained by shortcomings in the AI’s ability to represent narratives and reflect back provocative new visual metaphors, preventing the desired feedback loop of mutual understanding and sense-making from forming. Models might be more effective in encouraging participants to communicate personally resonant memories if they were trained on data more relevant to participants [60]. QH’s doubt in the model’s ability to depict a “Chinese restaurant” also suggests challenges for inclusion and representation. The use of personal data seems valuable, though it triggers potential privacy concerns. A starting point may be using subject-driven generation such as DreamBooth [51] with a collection of symbols or images that participants prepare for a session.

7 CONCLUSION

In this work, we explored how a game using generative AI might facilitate intimate conversation. In particular, the pairing of image generation, world-building, and reflective questions gave Closer Worlds its distinctive spirit. Participants’ general enjoyment of the game suggests that the approach was valuable and successful in this regard. In the future, we intend to iterate on the game’s core design, and conduct more in-depth research to understand the specific affordances offered by games which leverage generative AI tools to create meaning through the telling of personal stories.

Interviews with participants revealed not only a great degree of nuance in what a “deep” or “meaningful” conversation is, but also a strong desire for these forms of computer-mediated experiences. Therefore, it seems an appropriate goal to further explore how fun experiences can be used to induce more meaningful conversations,

and to identify measurements that better capture the multidimensionality of intimacy. Future design research could work to make vulnerability more accessible, and facilitate deeper meaning-making through images and other creative media.

We present this work as an exploration of digital intimacy support tools which foster emotional conversations commonly excluded from our production-focused lives. In the future, we imagine a world where games might use popular generative tools to nurture healthier forms of digital communication, and contribute to our collective desire to seek meaning in relationships.

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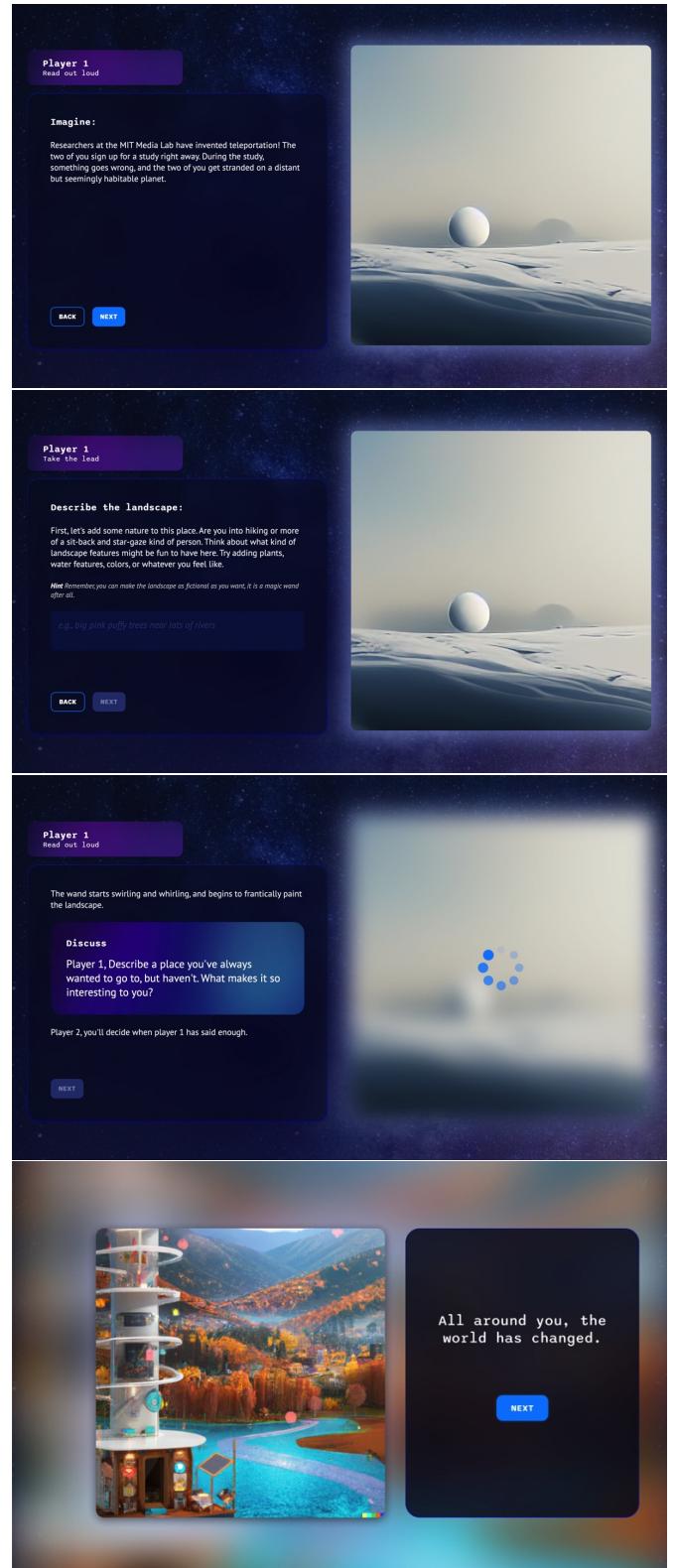


Figure 9: Screen captures from the game, depicting the instructions, a prompt-writing step, a discussion step, and the resulting image.

A CODE

You can find Closer Worlds at the following Github repository: <https://github.com/tiffanychenn/affective-computing-generative-ai>

B PILOT STUDY GENERATED IMAGES

Each set of images is displayed in the order in which participants generated them, with final prompts listed in captions.



Figure 2: QB: “landscape with big trees of various fun colors (pastel; forests of different colors), ability to stargaze, the good parts of seasons, ghibli, octane render, whimsical buildings that look like treehouses, winding staircases, big libraries, glass and warm wood, waterfalls in buildings, luxurious log cabin vibes, modern, comfortable, in the background giant armchair, library, reading, open to nature, cute puppy, fireplace, cozy, in the foreground friends, animal companions, connection, flight, wings. ultra detailed octane render studio ghibli”

C GAME PROMPTS AND INTERFACE

C.1 Introduction and Instructions

Welcome to Closer Worlds

Today, you embark on a creative journey together.

The intention of this game is to **get closer by unlocking your collective imagination**. Through the magic of co-creation, try to discover new things about one another.

How to Play

This game will guide you through a creative story. Throughout the game you will be asked to take turns reading instructions and entering short lines of text. This will be used to make an image. The image might not be exactly what you asked for, but just go with it and see what you can make.

Afterward, you'll be asked to pull a discussion card. Answer the question on the card as much as you feel comfortable.

Take your time to really listen to each others' stories. See how your conversation can shape a more meaningful image built from both of your wildest imaginations.

Imagine:

Researchers at [redacted for anonymity] have invented teleportation! The two of you sign up for a study right away. During the

study, something goes wrong, and the two of you get stranded on a distant but seemingly habitable planet.

While wandering the strange planet, you're delighted to discover a magic wand that can create anything in your imagination.

After taking care of basic necessities, you're struck with inspiration: you can use this wand to create the world of your dreams! Together, you decide to stay a while, and create a dream place for you both to live.

C.2 Intention-Setting: Choose World Tags

Set the stage:

Consider the things that you both have in common. What is the vibe of a world that you both would enjoy?

participants then select from a series of tags (“peaceful”, “fun”, “adventurous”, “epic”, “safe”, “creative”, “weird”) or add their own. These do not affect generation. They finally select which participant will be in charge of the landscape vs. the buildings, and then proceed to generation questions.

C.3 Step 1: Landscape

Describe the landscape:

First, let's add some nature to this place. Are you into hiking or more of a sit-back and star-gaze kind of person. Think about what kind of landscape features might be fun to have here. Try adding plants, water features, colors, or whatever you feel like.

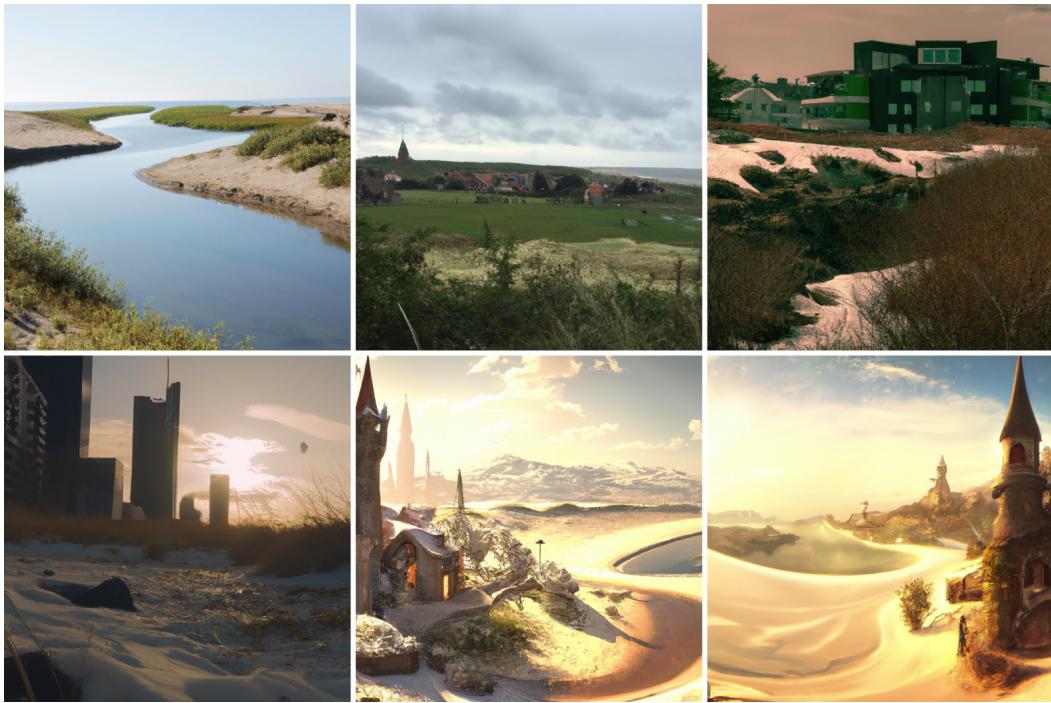


Figure 3: QL: “landscape with sandy beaches, meadows, small creeks, whimsical buildings that look like Ivy on gothic architecture, in the background Glass buildings, snow, in the foreground more sun, urban environment . ultra detailed octane render studio ghibli”



Figure 4: QH: “landscape with Plain with a river in the middle. mountains at the back, trees, Sunny., buildings that look like connected skyscrapers, cabins and farms near river, in the background food trucks, bird nests, school buildings, in the foreground little angel statue, gym, TV station. ultra detailed studio ghibli”



Figure 5: QN: “landscape with constellations, greenery, full moon, sky blue, pretty magnolia flowers, ghibli, octane render, whimsical buildings that look like suburban, modern glass buildings, gold, magnolia flowers, tall, in the background stargazing by the waterfront, in the foreground golden ducks on the water. ultra detailed octane render studio ghibli”

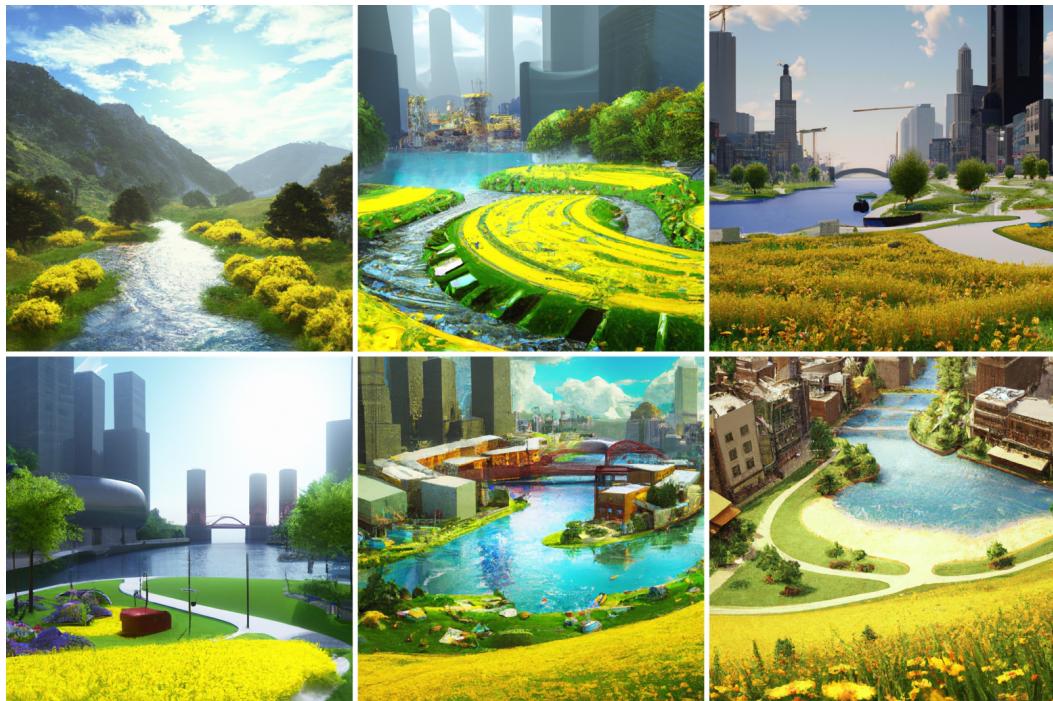


Figure 6: QP: “landscape with the chicago river that changes colors and a valley with yellow flowers, with grass, trees, ghibli, octane render, whimsical buildings that look like a big market with amazing food surrounded by tall buildings and a circular path, in the background Benches, playground, movie theater, in the foreground Golf course. ultra detailed studio ghibli”

Self-Disclosure Measures					
Question	Group	Mean	Std	p-score	
I referred to myself a lot in the discussion	Control	5.583	1.73	0.063	
	Treatment	4.583	1.881		
I talked about very personal stuff in the discussion	Control	4.917	1.414	0.096	
	Treatment	4.25	2.006		
I used my experience to support my points	Control	5.667	1.073	0.063	
	Treatment	4.917	1.73		
My study partner referred to themselves a lot in the discussion	Control	5.417	1.311	0.138	
	Treatment	4.417	1.782		
My study partner talked about very personal stuff in the discussion	Control	6.0	0.603	0.149	
	Treatment	4.083	2.151		
My study partner used their experience to support their points	Control	3.083	1.443	0.726	
	Treatment	5.667	1.371		

Table 1: Average scores for control and treatment groups on questions about self-disclosure and perceived partner self-disclosure, assessed on a 7-point Likert scale where 1 represents “strongly disagree” and 7 represents “strongly agree.”

Relational Communication Scale					
Question	Group	Mean	Std	p-score	
My study partner made the conversation seem superficial	Control	2.333	1.508	0.403	
	Treatment	2.333	1.497		
My study partner kept the conversation at an impersonal/formal level	Control	2.5	1.414	0.096	
	Treatment	3.25	1.96		
My study partner tried to create a more personal relationship with me	Control	5.416	1.083	0.528	
	Treatment	5.25	1.055		
My study partner created an air of familiarity between us	Control	6.0	0.739	0.144	
	Treatment	5.5	0.798		
My study partner showed no desire for further interaction with me	Control	2.0	0.853	0.829	
	Treatment	2.167	1.115		
My study partner tried to move the conversation to a deeper level	Control	5.083	1.084	0.179	
	Treatment	4.25	1.603		

Table 2: Average scores for control and treatment groups on questions about perceived conversation quality, assessed on a 7-point Likert scale where 1 represents “strongly disagree” and 7 represents “strongly agree.”

Enjoyment (7-point)			
Group	Mean	Std	p-score
Control	5.75	0.753	0.124
Treatment	6.25	0.753	

Table 3: Average scores, standard deviations, and p-scores for control and treatment groups when asked “I enjoyed this activity” after the game, assessed on a 7-point Likert scale where 1 represents “strongly disagree” and 7 represents “strongly agree.”

Net Promoter Score (10-point)			
Group	Mean	Std	p-score
Control	6.25	1.96	0.121
Treatment	7.58	2.391	

Table 4: Average scores, standard deviations, and p-scores for control and treatment groups when asked “I would recommend this activity to a friend” after the game, on a scale of 1-10 where 10 is the highest



Figure 7: QX: “landscape with Blue sea, lots of nice dark green trees, and picturesque mountains, buildings that look like Contemporary architecture that blends into the scenery around it. Plenty of houses without being cramped, in the background tennis court, in the foreground water polo court in the sea at the nearby beach from our house. ultra detailed”

Inclusion of Other in Self (7-point)				
Group	W-score	p-score	Average Change	Normalized Average Change
Control	0	0.015	0.833	13.8%
Treatment	0	0.008	0.583	9.72%

Table 5: Wilcoxon signed-rank test results and average change from pre- to post-activity for Inclusion of Other in Self (IOS), on a scale of 1-7 where 7 is the highest.

Intrinsic Motivation Inventory (pressure/tension)					
Question	Group	Mean	Std	p-score	
I did not feel nervous at all while doing this	Control	4.417	1.929	0.499	
	Treatment	4.917	1.729		
I felt very tense while doing this activity	Control	3.0	1.414	0.096	
	Treatment	2.083	1.165		
I was very relaxed while doing these	Control	4.417	1.676	0.199	
	Treatment	5.333	1.073		
I was anxious while working on this task	Control	3.083	1.443	0.182	
	Treatment	2.333	1.231		
I felt pressured while doing this activity	Control	2.333	1.614	0.901	
	Treatment	2.167	1.115		

Table 6: Average scores for control and treatment groups on questions about tension and anxiety, assessed on a 7-point Likert scale where 1 represents “strongly disagree” and 7 represents “strongly agree.”

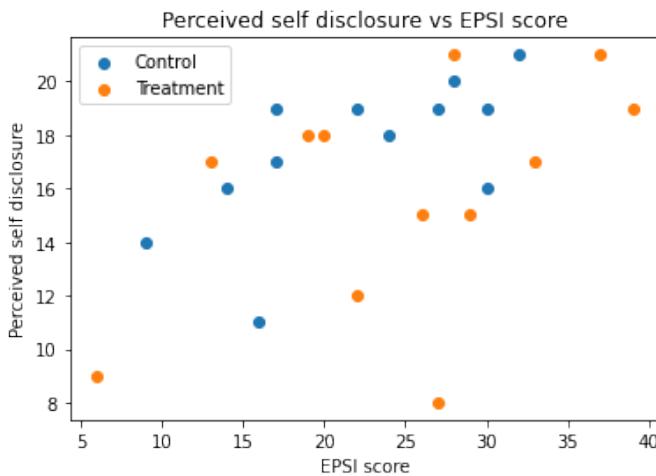


Figure 8: Note the positive correlation between the calculated EPSI (Erikson Psychosocial Stage Inventory, used to measure intimacy [30, 48]) score and participants' self-reported self-disclosure.

Hint: Remember, you can make the landscape as fictional as you want, it is a magic wand after all.

Example: e.g., big pink puffy trees near lots of rivers

Discussion: {Curr}, describe a place you've always wanted to go to, but haven't. What makes it so interesting to you?

C.4 Step 2: Buildings

Design some buildings:

Picture a building that you both might like to hang out in. Is it a big city or more of a rustic log cabin? Consider the kinds of things would you like to do inside, and describe it with careful detail.

Example: e.g., treehouses with lush gardens

Discussion: {Curr}, where is one of your favorite places on Earth. What makes it so special?

C.5 Step 3: Activity

Add some meaning:

Since you might be here a while, you figure you might as well make the most of it. Think about something that your partner likes to do, that you like to do as well. Add something into this world that you both could enjoy together.

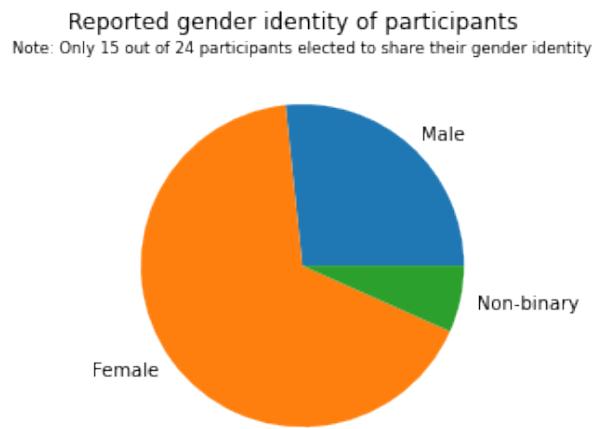
Hint: If you're not sure, ask your partner what kinds of things they like to do for fun.

Example: e.g., science fiction library

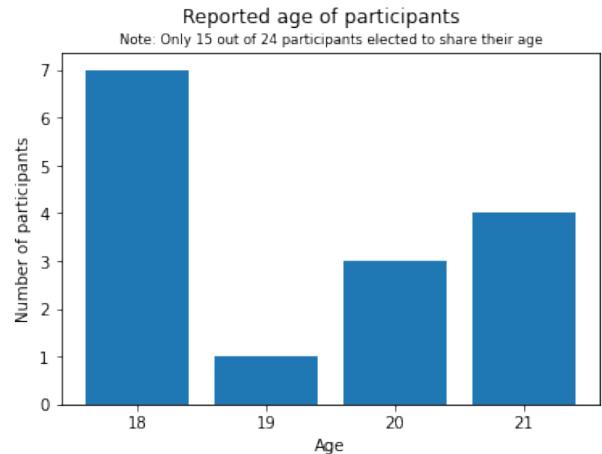
Discussion: {Other}, what's something new that you've tried and didn't expect to like but did? What new activities are you curious to try in the future?

C.6 Step 4: Gift

Give a gift:



(a) Reported gender identity of participants who disclosed their demographics.



(b) Reported age of participants who disclosed their demographics.

Figure 10: Study participant demographics.

You're touched by your partner's gesture, and want to make them something in return.

Think about what parts of life your partner thinks are most precious. **Add something to the world which would let them be their best self.**

Example: e.g., creative workshop

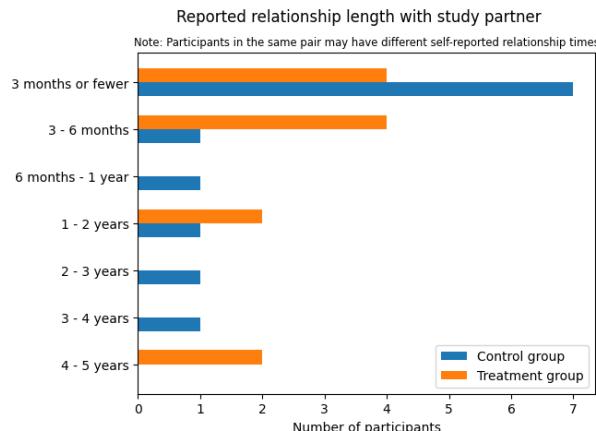
Discussion: {Other}, is this a meaningful gift? Are there other hidden parts of you that you wish others would also see?

C.7 Step 5: Shared Style

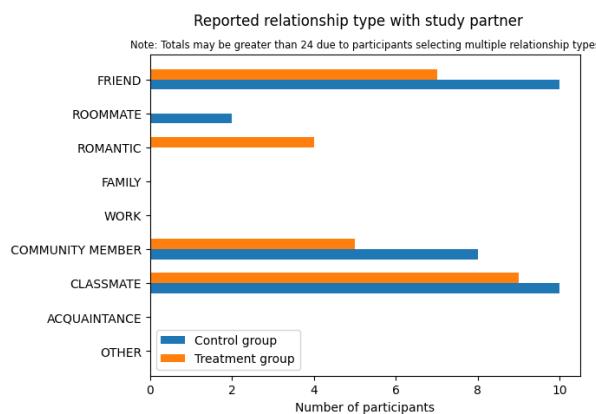
Reflections

Notice the ways in which things all around you have started to take shape. Which statements do you **both** agree with?

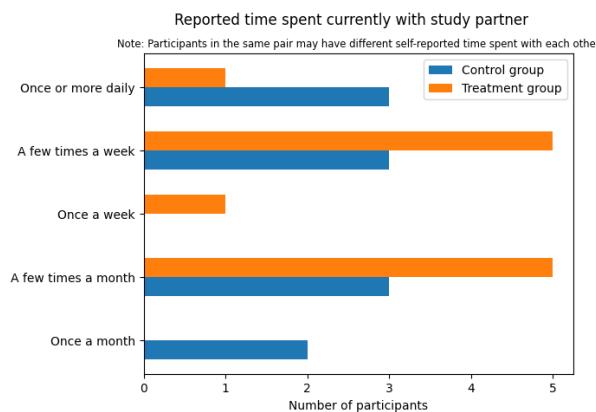
Participants select multiple of the following options: We both have vibrant **imaginings**; We both feel more **in-sync** now; We are



(a) Reported relationship length with study partner.



(b) Reported relationship type with study partner.



(c) Reported time spent currently with study partner.

Figure 11: Study participant relationship demographics.

both excited by **chaos**; We feel more comfortable in **calm** places;
We are both **nervous to share** personal stuff with others.

Discussion: What was your first impression of one another? Has that changed at all now?

C.8 Step 6: Representation

Evaluate

Look around at the world you have created together. **Do you feel personally represented by this space you have co-created? Why or why not?**

participants are presented with three sliders: one for participant 1, one for participant 2, and one for both of them.

Discussion: What is something that is really important to you, that most people don't get to hear, or that you seldom have the chance to share?

C.9 Ending

Suddenly, a teleportation machine appears in front of you. Booming out from a speaker onboard, you hear the voices of the researchers: "It's time to come back to [redacted for anonymity]!"

Both of you walk into the machine, take one last look at the world you made, and return home.

The end.