

# KEEPER

Online conversation support scaffolding modeled after ancient and modern social technologies

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Submitted to the Program in Media Arts and Sciences, School of Architecture and Planning, in partial fulfillment of the requirements for the degree of

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at the MASSACHUSETTS INSTITUTE OF TECHNOLOGY

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## ABSTRACT

Emergence, when an entity is observed to have properties its parts do not have on their own, is an awe inducing phenomenon seen within nature, complex organization theory, physics, art, and philosophy. Humans can experience emergence or interdependence, a perhaps less potent version of emergence, when they come together, transform, connect, and grow in a way they could not alone through co-creation, playing games and sports, and telling stories. As such moments are scarce, cultures and groups ancient and new have developed technologies (in the sociological sense meaning techniques, processes, and material objects to produce goods, provide services, and connect people) to help groups reach those moments more easily, technologies I define as *ancient social technologies* (ASTs).

Some ASTs, such as narrative coaching, circle practice, and dialogue across differences, have been developed for decades, even generations, to help groups reach emergence together in person. Now, as computational social technologies like video conferencing and social media have been ground breaking by connecting across distance, many facilitators have shown great creativity and resourcefulness as they use these platforms to implement ASTs online. Yet, computational social technologies do not scaffold or ease the implementation of key AST components that are deemed essential to the practice, making virtual AST use challenging.

I present in this thesis Keeper, a tool designed to augment virtual communication by scaffolding the use of ancient social technologies within modern computational social technologies. With a design informed by a deep investigation into four ancient social technologies, Keeper visualizes and mediates online, synchronous, audio and video conversations. Keeper challenges a traditional two dimensional interface through use of "space" and tone. The tool scaffolds ASTs with features like a talking stick and guidelines, but retains key affordances of the digital medium by incorporating private messaging and conversation data visualization. Keeper fosters socially beneficial group dynamics by making visible conversation measures to promote equitability, and it prompts reflection and learning by offering visual maps of a conversation over time. The reception of this tool through experiments and interviews is discussed, and reflections on future work offered.

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Chunky and noisy,  
but with stars in their black feathers,  
they spring from the telephone wire  
and instantly  
they are acrobats  
in the freezing wind.  
And now, in the theater of air,  
they swing over buildings,  
dipping and rising;  
they float like one stippled star  
that opens,  
becomes for a moment fragmented,  
then closes again;  
and you watch  
and you try  
but you simply can't imagine  
how they do it  
with no articulated instruction, no pause,  
only the silent confirmation  
that they are this notable thing,  
this wheel of many parts, that can rise and spin  
over and over again,  
full of gorgeous life.  
Ah, world, what lessons you prepare for us,  
even in the leafless winter,  
even in the ashy city.  
I am thinking now  
of grief, and of getting past it;  
I feel my boots  
trying to leave the ground,  
I feel my heart  
pumping hard. I want  
to think again of dangerous and noble things.  
I want to be light and frolicsome.  
I want to be improbable beautiful and afraid of nothing,  
as though I had wings.

## INTRODUCTION

Emergence, when an entity is observed to have properties its parts do not have on their own, is hailed within philosophy, complex systems theory, theories of evolution, art, and beyond as a beautiful phenomenon. One of my favorite instances of emergence and one of the most awe inducing to see is the murmuration of starlings described in *Starlings in Winter*. Oliver describes how such a humble, clunky bird, when together with others, flocks and forms a cohesive entity from which beautiful motion and dances emerge. At the individual level, each bird follows a simple set of laws, such as how close to stay to the few birds around it. At the group level, however, this simple set of rules manifests in beautiful, complex, dynamic ways based on interdependent interaction.

We have all been with people when our shared space starts to feel electric. It feels like something special is happening, transforming, evolving, and the group's energy feels connected and in-synch. It can feel slow and monumental, fast and electric, or as if you have almost merged with those around you. This phenomena has excited and inspired researchers to wonder, could we really be physically aligning? Upon exploration, researchers found that in some instances, the pace of our breathing adapts in pace to those around us.<sup>1</sup> We mirror the actions of those we are near.<sup>2</sup> Research even shows that for some, *heart rhythms* synchronize.<sup>3</sup>

But beyond the physical, we tap into each other's energies, emotions, and co-create some collective feeling or spirit. Think of moments where you have felt true electricity during a brainstorm, each person responding to the one before, building seamlessly off one another. Imagine playing on a sports team and moments where you felt completely aware of and in touch with your teammates, responding to their movements without a single thought, but in harmony. Or when sharing deeply and vulnerably with a friend, and feeling *seen* by them in ways that are transformative and feel like they slow time.

Within moments like these, transformation, growth, evolution, and deep connection emerge. Ideas produced in that brainstorm propel a group mission to new spaces and heights not imagined before. Teams push the boundary of their own capacity and what is thought to be peak excellence further and further. And sharing deeply and openly with a friend can transform the relationship, enable each individual to grow, learn, and foster a connection that endures for a lifetime. I see these as uniquely human instances of emergence. Emergence, while not necessarily a

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<sup>1</sup> Vacharkulksemsuk, Tanya, and Barbara L Fredrickson. "Strangers in sync: Achieving embodied rapport through shared movements." *Journal of experimental social psychology* vol. 48,1 (2012): 399-402. doi:10.1016/j.jesp.2011.07.015

<sup>2</sup> Chartrand, T. L.; Bargh, J. A. (1999). "The chameleon effect: The perception-behavior link and social interaction" (PDF). *Journal of Personality and Social Psychology*. 76 (6): 893–910. doi:10.1037//0022-3514.76.6.893

<sup>3</sup> Yoon, Heenam et al. "Human Heart Rhythms Synchronize While Co-sleeping." *Frontiers in physiology* vol. 10 190. 11 Mar. 2019, doi:10.3389/fphys.2019.00190

supernatural feeling, is special in that it exists *because of* the group, because of the connections of each individual to the whole, an interdependence from which special moments emerge.

Of course, people might feel connected and electric but not identify that feeling with such a powerful word as emergence. Further, many might not even strive for an awe inducing, radical experience of emergence though they seek to tap into some connection or transformation. For example, if a group of strangers comes together for the first time in an Alcoholics Anonymous meeting, the likelihood that they reach a feeling that participants would describe as "emergent" is low. To seek that peak feeling could feel forceful, inorganic, and strange as relational connections just start to form. However, these spaces still have many qualities of emergence and enable the group to feel more connected, heard, and perhaps transformed than most everyday interactions. This special feeling falls somewhere on the spectrum of everyday interaction and radical emergence, that I will define for this thesis as an *interdependent experience*.

Yet, it is not purely the presence of the people together that allows for this specialness. We have all had experiences where we are in a group that feels disconnected, fragmented, and dull. A group might know they hope to reach an interdependent experience, but might not know the process of how to get there. For example, perhaps I know I want to understand my group better, understand our shared story and where we get our values, but it can seem like an impossible journey for us to navigate without a guide, partner, and process. Or as a design group, we might know we want to reach that co-design moment where we build off one another, challenge each other, and respond to one another seamlessly, but we might not know how to create the environment or what questions to ask to make that happen. Or, I may have deep conflict with another group I crave to resolve, but do not know where to start.

To merely come together to try to understand ourselves, create a design, or resolve a conflict without some intentional structure or preparation can lead to wasted time or spiraling,<sup>4</sup> when a group or individual loses focus and becomes distracted, perhaps focusing on one idea that is tangential to the goal, not productive, and moving further from the desired path.<sup>5</sup> Some research even shows that those who reflect and seek pursuits such as self understanding without structure or scaffolding can develop self-deprecating, self-disparaging narratives in that pursuit, causing harm and pain.<sup>6</sup> A similar result of added harm is possible in moments of discussion across conflict and addressing struggle without proper intentionality and preparation, for well intentioned words can cause a group to be paralyzed with a painful misunderstanding.

As groups and communities have sought for these experiences throughout human history, different practices, methods, and crafts have been designed and developed to help them tap into that interdependence space. Some

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<sup>4</sup> Reese, E., Bird, A., and Tripp, G. (2007). "Children's self-esteem and moral self: Links to parent-child conversations regarding emotion": Erratum. *Social Development*, 16(4), 819. <https://doi.org/10.1111/j.1467-9507.2007.00432.x>

<sup>5</sup> Robyn Fivush, Kelly Marin, Megan Crawford, Martina Reynolds and Chris R. Brewin (2007) Children's narratives and well-being, *Cognition and Emotion*, 21:7, 1414-1434, DOI: [10.1080/02699930601109531](https://doi.org/10.1080/02699930601109531)

<sup>6</sup> Ibid.

describe their designs as intentionally “disrupting spaces in which individuals and teams can step back from their daily routine; explore their own deepest motivations,” others use games and play to dive into a different toned, but still interdependent space.<sup>7</sup> These practices can include conversation facilitation, conflict resolution, coaching, physical reflection and theater, some forms of teaching, some co-design facilitation, collective meditative practices, and beyond.

Some design choices for these practices, methods, and crafts include deciding 1) who is coming to the gathering to help the group reach that space 2) who is guiding the gathering, or in other words, who is the facilitator and 3) what is needed to “hold the space” (which refers to the process, craft, tools, and rituals needed to get the group to that interdependent space, respond and react to emotions and ideas, hold them there, and take them back to their normal space). The design can manifest physically and materially, such as the way a facilitator instructs a group to sit, what to bring with them, what tools they use to help the gathering along, or what smells, sounds, and colors fill the space. The design can also manifest as preparatory work for participants, such as bringing something to the gathering that carries great meaning or having a story or quote prepared to share with others. Further, it manifests in the rituals a facilitator chooses to set the tone of the space, be it practicing a meditative and thoughtful moment together or taking part in a collective dance. These gathering designs can incorporate rules and expectations of the group, helping inform their ways of being in the space. Such expectations can manifest as inviting quiet reflection and sharing with no interruption, or energetic humor and play with games and rapid brainstorming. And finally, the designs incorporate how the group is invited to participate, be it through physical expression, storytelling, turn taking aided by a talking stick, critical thought, deep listening, and so forth. For this thesis, I first defined these methods, practices, and crafts as *ancient social technologies*.<sup>8</sup>

Why technology, one might wonder, for technology in the modern age is often associated with motherboards and screens. Yet, I wonder, can technology extend beyond virtual environments and hardware? This challenge was first brought to my attention in a Participatory Action Research course taught by Dayna Cunningham and Katrin Kaufer, who referred to one of their intervention methods that brings groups and individuals into that emergent space as a *social technology*.<sup>9</sup> Their method of Social Presencing Theater, which I will elaborate on in Immersion, uses a facilitator to guide participants to use their bodies as an expression and reflection mechanism to identify patterns, pressures, and openings for next steps that might have been hidden or hard to access. This intervention is an art, craft, and systematic treatment onto an existing social system that disrupts habitual ways of interacting. The origins of the word, “technology” defined it as a “science of craft”, from Greek τέχνη, techne meaning, “art, skill, cunning

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<sup>7</sup> Millman, Debbie. “Design Matters with PRIYA PARKER.” Debbie Millman, [d.rip/debbie-millman/posts/design-matters-with-priya-parker-A8RzH.html](https://d.rip/debbie-millman/posts/design-matters-with-priya-parker-A8RzH.html).

<sup>8</sup> The term “social technology” was first used at the University of Chicago by [Albion Woodbury Small](#) and [Charles Richmond Henderson](#) around the end of the 19th century “as the use of knowledge of the facts and laws of social life to bring about rational social aims.”

<sup>9</sup> Presencing institute, <https://www.presencing.org/aboutus/presencing-institute/what-we-do>

of hand," felt instinctively appropriate for Social Presencing Theater and other facilitation and reflection practices I had been studying.<sup>10</sup>

I choose "technology" for AST requires 1) a combination of skills, finesse, craft, process, and practice to be implemented within a group to 2) reach a clear, defined end goal. Technology, defined as "the sum of or knowledge of techniques, skills, methods, and processes used in the accomplishment of objectives"<sup>11</sup> more comprehensively and specifically describes the nuance and complexity of dialogue across difference, conflict resolution, coaching, physical reflection, co-design, and so forth than "process" or "practice" can ("a series of actions or steps taken in order to achieve a particular end" and "the customary, habitual, or expected procedure or way of doing of something", respectively). Further, within this definition, I look specifically at a kind of technology that is old, ancient, a kind that describes ways of intervening within groups, a kind that humans have used for centuries ever since we began gathering and using rituals in specific, unique, intentional ways, an earlier definition of technology that highlight techniques and skills age-old groups have developed.

The "social" in ancient social technology specifies that each of these technologies is an intervention into a social system. More than one person is present, and the people are interacting with one another. The journey through the interdependent space, furthermore, inherently suggests dependence on one another rather than isolation or self-sufficiency. With this in mind, an isolated individual mindfulness practice is most likely not an ancient social technology, though a collective mindfulness practice could be.

Within social networks and computer mediated communication, the language of social technologies often has the connotation of cellphones, instant messaging, Twitter, Facebook, or Zoom. However, I see these social technologies first as social technologies of transmission, of individuals or groups communicating information back and forth often in a transactional way, and second as focusing on technology as modern machinery, industry, and software. Further, a definition of social technology is used in social and political theory to discuss the design of large scale social systems, focusing on social as defined by society, rather than as defined by companionship. I specify the ancient social technologies I discuss in this thesis as 1) technologies of relation over transmission, 2) technology as the sum of techniques, skills, methods, and processes used to reach a defined goal (rather than hardware and software), 3) social as not of society, but of human relationships, and finally 4) social technologies that require group interdependence to reach special moments of connection, transformation, and electricity, rather than some outside resource..

Now, in this modern era and amid the physical distancing that is happening while I write this thesis in April of 2020, many AST facilitators try to do this work virtually through using *computational social technologies* such as Zoom and WhatsApp. Many have found success doing that work online, with a new found freedom and accessibility from using

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<sup>10</sup> Technology ("science of craft", from [Greek τέχνη](#), *techne*, "art, skill, cunning of hand"; and -λογία, [-logia](#)<sup>[2]</sup>)

<sup>11</sup> Buchanan, R. A. (2019, October 20). History of technology. Retrieved from <https://www.britannica.com/technology/history-of-technology>

remote video calls, such as reaching a wider, more diverse array of people, seeing each other in a more intimate way in each user's home, or unlocking capacities of computational technology like Google Documents or platforms like Miro<sup>12</sup> (an online white boarding and brainstorming tool to allow more visual, tactile co-creative thinking online) to enhance their sessions beyond what is accessible while in person. And though for many, moving online has not lost what makes AST powerful and has in fact expanded capacity, others have found this transition from in-person AST to computational social technologies difficult and limiting, losing some of what makes ASTs valuable.

While tools like Zoom and Google hangouts prove truly powerful and useful, truly works of science fiction realized,<sup>13</sup> to suggest that video calls is the limit, that they reach the boundaries of what is possible in terms of fostering interdependent spaces online, in my opinion, is cutting imagination short. It is clear that our modern computational social technologies were not designed to scaffold or enable the use of ASTs with ease. They were not designed with attention paid to the deep, transformative, emergent work that could take place on those platforms. Rather, the labor and responsibility of making those online interactions and relationships reach those interdependent moments falls completely on the facilitator. Yet, in communities who use ASTs, there is great wisdom and knowledge of how to design interactions that I feel has been untapped. And I wonder, what could occur online if we designed online spaces with that knowledge? Not to mimic in-person AST, but to enable easier online use? Even further, what if we took more full advantage of the digital medium to enable easier online practice, perhaps to take ASTs to new levels by using unimagined techniques, methods, and crafts impossible without the support of computational social technology?

In *Starlings in Winter*, Mary Oliver's describes the synchronicity and grace of a flock of starlings that move as one. She describes the absolute wonder that is a starling murmuration, and how incredible that such a monumental mass could be composed of individual, unassuming birds. She describes one's effort to understand: "and you watch / and you try / but you simply can't imagine / how they do it / with no articulated instruction, no pause, / only the silent confirmation / that they are this notable thing, / this wheel of many parts, that can rise and spin / over and over again, / full of gorgeous life." Oliver describes this desire to be like that murmuration, this urge to feel light and think of dangerous and noble things, almost as if it were impossible and just a dream.

I think it is safe to say that most of us feel these urges to be like starlings, to be connecting, growing, and evolving in emergent spaces. And it is *not* impossible, for humans often mirror the starling. A good social field, generative spaces, emergence, electricity, transcendence, all describe the energy and shared experience created when ASTs are at their best. We come together as individuals to take part in that murmuration. I wonder, can we explore and play with the bounds of current computational social technologies to try to ease these emergent, starling moments?

In this thesis, I explore how designing online interfaces informed by ancient social technologies can enable that interdependent or emergent space online. Even further, I explore how we might design that space to go *beyond*

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<sup>12</sup> Miro. <https://miro.com/>

<sup>13</sup> Verne, Jules. *In the Year 2889*. 1889. Print.

what in-person practices might allow by taking greater advantage of the virtual medium through intentional signalling, data collection and reflection, and architectural and artistic design that is not bound by the rules of physical spaces.

## KEEPER

I present in this thesis Keeper, a tool designed to extend virtual calls by scaffolding the use of ancient social technologies within modern computational social technologies. With a design informed by a deep investigation into four ancient social technologies, Keeper visualizes and mediates online, synchronous, audio and video conversations. Keeper challenges a traditional two dimensional interface through use of “space” and tone. The tool scaffolds ASTs with features like a talking stick and guidelines, but retains key affordances of the digital medium by incorporating private messaging and conversation data visualization. Keeper fosters socially beneficial group dynamics by making visible conversation measures to promote equitability, and it prompts reflection and learning by offering visual maps of a conversation over time. The reception of this tool through experiments and interviews is discussed, and reflections on future work offered.

## CONTRIBUTIONS

I see this thesis as having a few key, overlapping and interwoven contributions to the space of computational social technology design, ancient social technology design, and human computer interaction design:

1. An ethnographic analysis and collection of four ancient social technologies
2. Design principles and methods for designing online spaces informed by ancient social technologies to scaffold AST use online (or to have any meaningful, specific, intentional discussion online)
3. A template of themes and key exploration areas for designing such a tool
4. An Open Source tool as one example of an outcome after following these principles and themes
5. Data of online conversations, surveys, and interviews using and evaluating that platform

## OVERVIEW

In the following chapters, I outline my design research process. The first chapter, *Context*, reviews some relevant literature in computer mediated conversation and describes related works. The following chapter, *Design*, outlines my methodologies and principles and how I came to those methodologies and principles. Then, *Immersion* outlines my learnings and experiences within the AST space. In *Ideation*, I name the key design themes and explorations for the project and discuss my iterative design process. For *Evaluation*, I outline my evaluation and analysis of the tool. And finally, I reflect on my current work and my dreams for future work in *Reflections and Dreams*.

# CONTEXT

## RELATED THEORY

### *Signals and Cues*

Within biology and biological theory, there exists a distinction between animal cues and signals. Cues are "any feature of the world, animate or inanimate, that can be used ... as a guide to future action."<sup>14</sup> Within humans, social cues can manifest as body language, the kind of vocabulary and tone you speak with, facial expressions, even the clothing one wears, or how one smells. A distinction exists, however between cues and signals, for signals are intentionally and consciously shown to communicate, while a cue also can be unconscious, passive, and without intention. Signals can be used to communicate your authentic feelings and reactions, but also used to mislead or misdirect. For example, I can experience excitement and happiness within, but signal calmness or disappointment with my body language or facial expressions to mislead who I am communicating with.

From smiles, to thumbs up, to key words, many signals have been translated to online spaces. On Facebook a user can press the "like" button, the icon of which is a thumbs up, a human signal. Similarly, the "heart" icon on Instagram is also a mechanism to show support. Both of these signals are designed and embedded into their respective platform. Outside of embedded signals, everyday users have found ways to develop their own signals online. Simply within text, the use of the asterisk to \*emphasize\* something is a signal, just as writing in italics can signal some *drama*.

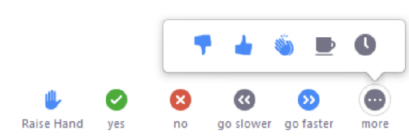


Figure 1.1, Zoom Video Call hardcoded signals

This similar phenomenon occurs in video and audio calls, both with hardcoded and user crafted signals. For example, platforms such as Zoom hard code signals within the platform with their "Raise Hand" button or thumbs up and thumbs down buttons. Users craft signals when in an audio call, a sharp breath in or a small "um" or cough to signal a desire to speak.

In a video call, many face to face (F2F) signals remain, such as the ability to raise one's hand or part one's lips to signal desire to speak. It can further maintain social signals such as facial expression and some body language that would be lost or must be translated outside of video.

Video calls communicate more deeply than other media however, for a wide array of visual cues and signals come from the space each user is in. The lighting, their cat in the background, the plants, and so forth all are signals and cues for the others on the call. This can add playfulness and useful or humanizing context. However, video can also lead to an overload of unnecessary or distracting signals, which I will elaborate on further in the next section.

<sup>14</sup> Stegmann, U.E. John Maynard Smith's notion of animal signals. *Biol Philos* 20, 1011–1025 (2005). <https://doi.org/10.1007/s10539-005-9020-8>

*Computer Mediated Communication*

As long as communication media have existed, scholars have wondered about the differences and disparities between media in terms of quality and efficiency of relationship and conversation. There has been a great deal of research, design, and theory within the computer mediated communication (CMC) community, and for this thesis I will quickly review three relevant theories: Social Presence Theory (SPT), Media Richness Theory (MRT), and Social Information Processing Theory (SIP). This thesis most closely aligns with Social Information Processing Theory, which is a reaction and challenge to SPT and MRT. Therefore, I present them in this progressive order from what I see as a more reductive view of the capacity of CMC and it as a limiting factor for communication, to a more nuanced, imaginative view of what CMC could become with SIP.

First, as presence is incredibly important in ASTs, I look to Social Presence Theory. Social presence is defined by how well a medium comicates intimacy and warmth, and how much a medium enables personal relationship development. Theorists of SPT explore how different kinds of CMC enable different levels of social presence, and many argue that any CMC enables less social presence than F2F conversations, for there are fewer nonverbal signals and cues across a computer than there might be in person. Within this theory, the form of CMC that allows for most social presence is the video call. While there are links between higher social presence and increased satisfaction with learning, the theory also acknowledges that different tasks require different levels of social presence.<sup>15 16</sup>

Approaching a similar topic with a different frame, Media Richness Theory similarly looks at the quality of conversation across mediums. However, Media Richness Theory looks at the medium and what it offers as it's primary lens, suggesting that there are "rich" media that communicate excess information (F2F) and "lean" media that have less information (text), with all CMC falling on that spectrum displayed in Figure 1.2. A primary goal within Media Richness Theory is to acknowledge that different media serve different purposes. In the case of a complex, ambiguous task, richer media is appropriate to offer as much information, cues, and signals as possible for the most effective communication, While lean media might be sufficient and preferred in more clear-cut conversation.<sup>17</sup> Further, in conversations where excess information is preferrable, research has shown that in some instances, video

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<sup>15</sup>Hostetter, C., Busch, M.: Measuring up online: the relationship between social presence and student learning satisfaction. *J. Scholarsh. Teach. Learn.* 6(2), 1–12 (2006)

Richardson, J.C., Swan, K.: Examining social presence in online courses in relation to students' perceived learning and satisfaction. *JALN* 7(1), 68–88 (2003)

<sup>16</sup> Mennecke, B.E., Valacich, J.S., Wheeler, B.C.: The effects of media and task on user performance: a test of the task-media fit hypothesis. *Group Decis. Negot.* 9(6), 507–529 (2000)

<sup>17</sup> Lantz, A.: Meetings in a distributed group of experts: comparing face-to-face, chat and collaborative virtual environments. *Behav. Inform. Technol.* 20(2), 111–117 (2001)

and F2F show no significant differences in terms of performance or satisfaction, while others found video to not be preferable to audio.<sup>18 19 20</sup>

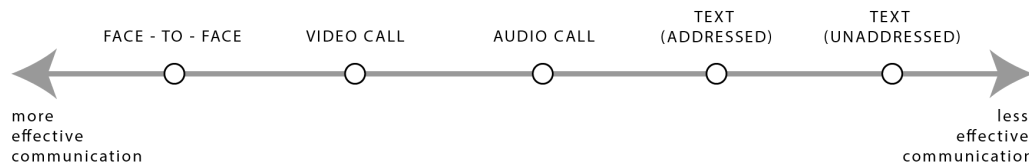


Figure 1.2, *Spectrum of Richness of Media within Media Richness Theory. Addressed text references letters and email, unaddressed references posters and bulk mail*

However, this thesis challenges these theories and the spectrum in Figure 1.2, for many tested F2F against CMC using basic media as CMC, such as the plain video call or phone call. Rather, this thesis aligns with Social Information Processing Theory (SIP), for I wonder if CMC could not only offer valuable and rich interactions, but enable capacities unseen in F2F or even video conversations. SIP challenges the idea that communication and relationships are restricted or stunted by the lack of cues or signals of CMC compared to F2F interaction. Rather, it builds off Media Richness Theory, suggesting different media are appropriate for different tasks, and it also suggests that users might compensate for cues and signals lost across media by sharpening their communication. For example, one study observed groups of participants engaging in relational work and problem solving tasks. Using CMC, the group communicated more clearly, self disclosed more, and asked stronger questions than in F2F scenarios. F2F participants, it seemed, relied more heavily on visual feedback that might not have been meaningful or efficient.<sup>21</sup> Further, “While online environments lack the visual and verbal cues of face-to-face discourse... many people were employing compensatory mechanisms, such as emoticons, to reduce the ambiguity of a text passage or convey emotional intent (Derks et al., 2008).” For example, I might use emojis, all caps, asterisk for emphasis, and so forth in a text medium to ensure my message comes across the way I want it to, for I know it is likely to be misread if I do not. However, not feeling as much concern or awareness of how my signals and messages might come across in person, I might feel less compelled to make my feelings explicit believing F2F offers enough signals and cues for it to be interpreted how I intend. This lack of attention paid to how I communicate might leave more room for misinterpretation. SIP theory suggests humans have a great communication capacity and will adjust or augment the space to adapt to their expressive needs.

<sup>18</sup> Fish, R.S., Kraut, R.E., Root, R.W., Rice, R.E.: Evaluating video as a technology for informal communication. In: Proceedings of the SIGCHI Conference on Human Factors in Computing Systems CHI 92, pp. 37–48 (1992)

<sup>19</sup> Olson, J.S., Olson, G.M., Meader, D.K.: What Mix of Video and Audio is Useful for Small Groups Doing Remote Real-Time Design Work?, pp. 362–368. ACM Press, Denver (1995)

<sup>20</sup> Whittaker, S., O’Conaill, B.: The Role of Vision in Face-to-Face and Mediated Communication, pp. 23–49. Lawrence Erlbaum Associates, Mahwah (1997)

<sup>21</sup> Tidwell, L.C., Walther, J.B.: Computer-mediated communication effects on disclosure, impressions, and interpersonal evaluations: getting to know one another a bit at a time. Hum. Commun. Res. 28(3), 317–348 (2002)

This thesis acknowledges the loss of signals and cues as one moves further down the spectrum from rich to lean media, but aligning with SIP theory, I explore in this thesis if the modern video call is actually the *ultimate* CMC in terms of presence right behind F2F. Further, I hope to explore in this thesis if the most rich media is ideal and preferable for emergent spaces. I question that video calls alone, how they stand today, are the ultimate online platform for ASTs. When some participate in Zoom calls, they become intensely aware of all user's cues, their clothing, their home, in a way that could be almost distracting. This can be a great joy, for example, during the Coronavirus pandemic a colleague would have her children on the video call, bringing laughter and smiles to all present. It can be humanizing and disarming to be on a zoom call with a colleague in their home when their cat pays a visit or their roommate walks behind them. On the other hand, your eye is drawn instantly when a person scratches their nose, rocks in their chair, moves their monitor, eyes flash while reading, switches between screens, and so on. Do we need these signals? Are these simply distracting and an overload? It is important to see expressions, but also to be together in the moment. Is there a way to balance expression signals, allow for humanization and joy, but reduce background and muddy signals?

Further, within human-computer interaction (HCI) and interface design, there is a critique of the limits within which our modern interfaces and interaction systems are designed. "We are using the computer as a paper simulator, which is like tearing the wings off a 747 and driving it as a bus on the highway."<sup>22</sup> This thesis also explores if flat, "paper simulator" designs lead to the ultimate CMC, or if breaking those bounds offers value.

## RELATED WORKS

To give more context to the landscape of work that is relevant in this space at the intersection of AST and computational social technologies, I explore different technologies and designs that act as interventions in social systems that manifest as social technologies as I have defined them, though they might not seek emergence or interdependence explicitly.



Figure 1.3, *Digital Hearth of the Local Voices Network*

Within the Lab for Social Machines (LSM) at the MIT

Media Lab along with their partner non-profit, Cortico, we explore how technology can augment and aid conversation through tools like the digital hearth and the Local Voices Network.<sup>23</sup> <sup>24</sup> The Local Voices Network gathers groups for facilitated discussions to foster deeper community connections and to hear perspectives of those outside their community. Conversations are convened by a facilitator, and a group sits together around a table with

<sup>22</sup> Donath, Judith. *The Social Machine*. 2014. Print

<sup>23</sup> Local Voices Network. <https://lvn.org/>

<sup>24</sup> Fischer, W. (2020, January 24). Local Voices, Better Journalism. Retrieved from <https://medium.com/centerforcooperativemedia/local-voices-better-journalism-b3e1faa0a768>

a digital hearth in the middle. The digital hearth, made of warm-toned wood with a soft orange LED glow, is designed both to set the tone of the conversation (gathering around the metaphorical and physical “hearth”) and act as a recording and playback device for the facilitator’s use. The facilitator holds and records rounds of discussion, and will use the small rectangular box to play snippets of conversations from other groups. The project uses the platform, Leaven, to visualize, annotate, and allow exploration of those conversations by facilitators and participants. Intending to use technology to allow sharing and listening across physical bounds, the project promotes deeper and broader understanding of one’s community through a social technology, hardware-software hybrid intervention. Of course, these goals do not directly align with mine, however this technology helps facilitators guide groups towards deeper connection, a goal that does align with my own goal of connection and interdependence. I hope to build on this technology by exploring how interfaces and virtual computational technology can do some of that work, not just hardware.

One exploration into augmenting human behavior in conversation are two projects from within the Media Lab’s Human Dynamics group: Meeting Mediator,<sup>25</sup> and Breakout.<sup>26</sup> Taemie Kim created Meeting Mediator in an effort to improve collaboration within groups through visualizing the distribution of time spoken and turns taken live to the group through a screen around their neck. Each person is represented by a box in the corner of the visualization. The brightness of the green color shows the interactivity levels of the group (rapid turn taking leads to a richer green), the orb position shows where the balance of the conversation lies, and the thickness of the line visualizes speaking time.

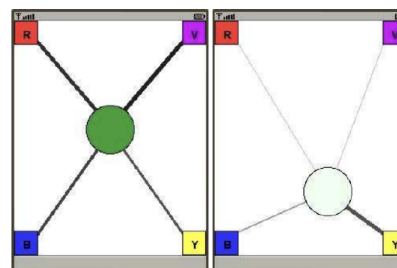


Figure 1.4, Interface of Meeting Mediator

In an effort to test the visualization’s effect on collaboration, Kim brought groups of four together and asked them to brainstorm and solve a puzzle. Through experiments, Kim observed groups with and without dominant people, or individuals who have greater drive and influence over the conversation than others not necessarily in a harmful way,<sup>27</sup> and with and without Meeting Mediator. She found that the visualization aided the group to distribute time more evenly, increase interactivity, and reduce time spoken over one another. Further, when a dominant person was present, the visualization made their energy more contagious to the rest of the group, and those who were not dominant took up more space and spoke more than if they were in a group with

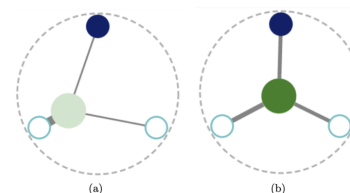


Figure 1.5, Interface of Breakout

<sup>25</sup> Taemie Kim, Agnes Chang, Lindsey Holland, and Alex Sandy Pentland. 2008. Meeting mediator: enhancing group collaboration using sociometric feedback. In Proceedings of the 2008 ACM conference on Computer supported cooperative work (CSCW '08). Association for Computing Machinery, New York, NY, USA, 457–466. DOI:<https://doi.org/10.1145/1460563.1460636>

<sup>26</sup> Calacci, Dan and Lederman, Oren and Shrier, David and Pentland, Alex. (2016). Breakout: An Open Measurement and Intervention Tool for Distributed Peer Learning Groups.

<sup>27</sup> Bales, R.F. Interaction Process Analysis: A method for the study of small groups. Addison-Wesley (1950).

only non-dominant people.<sup>28</sup> Kim found that Meeting Mediator improved group dynamics through added politeness and energy, collaboration, and problem solving efficiency.<sup>29</sup> Breakout, an online version of Meeting Mediator, filled a similar need but made the visualization and concept open for widespread use in video calls.<sup>30</sup> Currently, Breakout has evolved into a startup, Riff Analytics. This product is now accessible for companies and groups to use to improve collaboration within virtual work. Even further, Riff has explored data and metrics beyond those explored in Meeting Mediator to report back to groups a more comprehensive reflection of their conversation including metrics on interruption, flow, domination, and emotional sensitivity.<sup>31</sup> These features make great use of the affordances of virtual interaction that in-person interaction does not allow for, such as visualizing metrics back to a group in the hope of influencing that group. Further, it alters interaction in a socially beneficial way by reflecting that data back to participants. It does not, however, *disrupt* in the way ASTs will by making a space and environment feel special, but rather stops short of that by focusing on metrics to improve collaboration rather than improve connection or approach emergence.

Other relevant interventions and designs explore social interactions and technological interventions from a critical

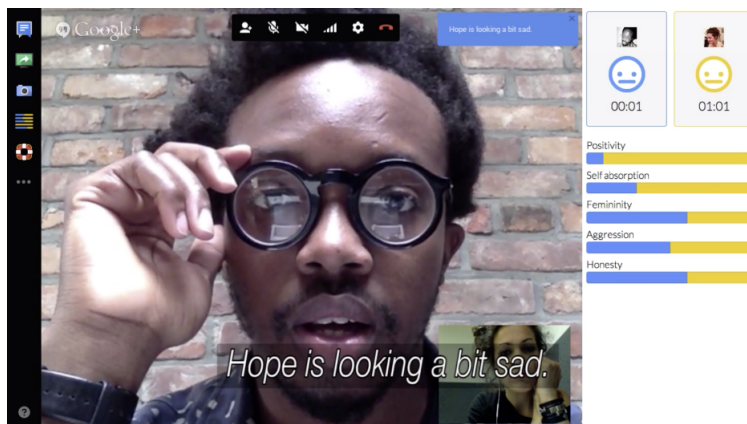


Figure 1.6, Interface, visualization, and nudges from US+

lense. An artist, programmer, and activist, Lauren McCarthy creates artwork, installations, and performance pieces that focus on “examining social relationships in the midst of surveillance, automation, and algorithmic living.”<sup>32</sup> With this frame, she creates pieces like the Tools for Improved Social Interaction, a series of wearables that cause a user pain if they do not smile or touch people, in an effort to challenge societal expectations and definitions of “good” social interaction and their worth.<sup>33</sup> Another project, pplkpr,

<sup>28</sup> Kim, T., Chang, A., Holland, L., Pentland, A.S.: Meeting mediator: enhancing group collaboration using sociometric feedback. In: Proceedings of the 2008 ACM conference on Computer supported cooperative work. pp. 457–466. ACM (2008)

<sup>29</sup> Kim, T., Hinds, P., Pentland, A.: Awareness as an antidote to distance: making distributed groups cooperative and consistent. In: Proceedings of the ACM 2012 conference on Computer Supported Cooperative Work. pp. 1237–1246. ACM (2012)

<sup>30</sup> Calacci, Dan and Lederman, Oren and Shrier, David and Pentland, Alex. (2016). Breakout: An Open Measurement and Intervention Tool for Distributed Peer Learning Groups.

<sup>31</sup>Riff Analytics. <https://www.riffanalytics.ai/>

<sup>32</sup>Lauren McCarthy. <https://lauren-mccarthy.com/>

<sup>33</sup>“Tools for Improved Social Interacting” Lauren Mccarthy, [lauren-mccarthy.com/Tools-for-Improved-Social-Interacting](https://lauren-mccarthy.com/Tools-for-Improved-Social-Interacting).

is an application that quantifies one's relationships using data pulled from a user's physical and emotional state. That data will then inform how the app suggests a user should manage those relationships.<sup>34</sup> Finally, the most relevant of her projects and perhaps most subtle or hidden critique is a Google Chrome Application, *US+*, that uses voice, language, and facial analysis to display metrics of the conversation, such as how positive, self absorbed, feminine, aggressive, or honest a user is being. The tool will then give nudges towards a "better" conversation or even have interventions, such as auto-muting someone who has been speaking too much.

Though this work is satirical and critical in ways that mine is not, I see this work as relevant. First, the design of technologies that intervene in social scenarios define what "good" and "bad" social interaction look like. They could nudge groups towards good social interactions as they define them, in ways that can reduce social interactions into one dimensional vision of what is "good" or "healthy." Further, data collection of social interaction can be a mechanism of surveillance and control, and pose security and privacy risks for those who are users of the tech that collects this data.<sup>35</sup> Finally, in my eyes, her work touches on the idea that technology and whoever designed it are filled with biases and non-universal, subjective ideals of social behavior, and we as designers must be cognisant of this fact and critical of work that does not acknowledge it. I elaborate on this idea more within my design principles.

However, her work does not engage with the subtleties and nuances of how technology can be used in a productive way to aid, scaffold, reflect, and enable growth within social interactions, but rather only highlights a subtle, slightly dystopian use of technology to automate away uniquely human work and hard-code biased and reductive values into technology and online interaction instead. And while a useful critique with important and biting reminders that technology and its designers should not be hailed as omniscient, the project is art and a warning, but not an exploration into how some of these ideas could be used constructively. In fact, key themes such as reflecting dynamics back to groups could perhaps be constructive in a non-dystopian, human-centric way if different methods and principles were used.

Next, the work of Judith Donath and her former group in the Media Lab, Sociable Media experimented, explored, and innovated in digitally mediated interaction. Questions they ask in that exploration include: "How do we perceive other people on-line? What does a virtual crowd look like? How do social conventions develop in the networked world?"<sup>36</sup> Within the group, they explored the idea of visualizing social dynamics of a group within a space live back to that group.<sup>37</sup> They explored visualizing social networks through Comment Flow, a system

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<sup>34</sup> pplkpr (n.d.). Retrieved from <https://lauren-mccarthy.com/pplkpr>

<sup>35</sup> Naughton, J. (2019, January 20). 'The goal is to automate us': welcome to the age of surveillance capitalism. The Guardian. Retrieved from <https://www.theguardian.com/technology/2019/jan/20/shoshana-zuboff-age-of-surveillance-capitalism-google-facebook>

<sup>36</sup>Sociable Media. <https://smg.media.mit.edu/>

<sup>37</sup>Telhan, Orkan. "Materials with Computational Experience and Style." To appear in [Journal of Personal and Ubiquitous Computing](#), A Special Issue on Material Computing, Forthcoming 2010.

designed to remember, map, and visualize conversations and exchanges between groups and individuals over time.<sup>38</sup> And the group experimented with audio as a medium for an asynchronous social network.<sup>39</sup> All projects are exciting and challenge how we hold and take up space online. However, the two I find the most relevant are a series of small projects in the Second Life Projects collection, and Chat Circles.

Second Life, an online game with avatars and an interface intended to simulate the real world, allows users to create avatars, speak with other users, get educated, explore fashion, or even dabble in business.<sup>40</sup> Virtual reality (VR) spaces in themselves are relevant work, for they challenge traditional CMC mechanisms and expand beyond the traditional two dimensional CMC paradigm. Yet, the virtual reality design of Second Life, like a lot of VR, is meant to be as close to real life as possible, to the point of restricting what is possible in the virtual world and limiting the online realm. Drew Harry challenges the goal of "as close to real life" avatars and spaces in his Second Life Projects. One project, Information Avatars,<sup>41</sup> dreams of avatars in Second Life that are not humanoid, but abstract

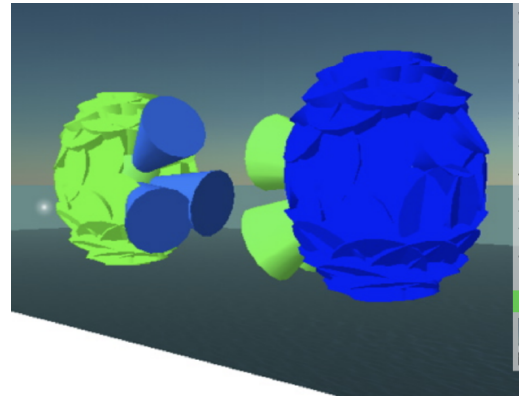


Figure 1.7, Two avatars growing towards each other in Information Avatars

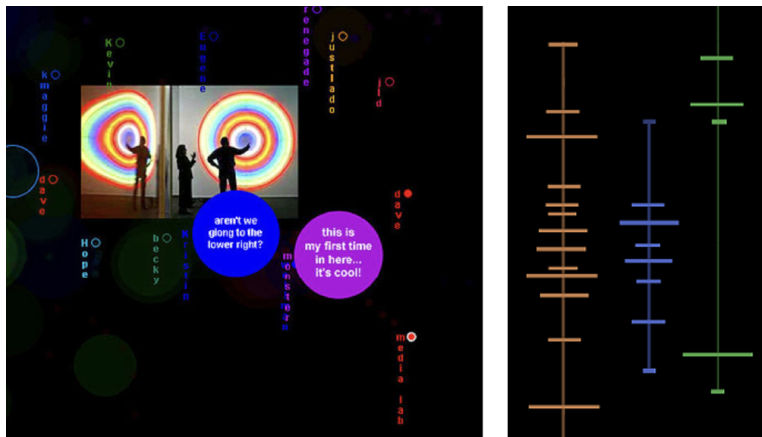


Figure 1.8, Chat Circles and the Map of interactions in Chat Circles over time

visualizations of information that change as they interact with other users. The closer one avatar gets to another, the more it will morph and adapt to look like the other, signifying a relationship. Another piece, Information Spaces,<sup>42</sup> describes creating rooms within Second Life that try to not only mimic some aspects of the real world, but take advantage of the affordances of the online space. In an example room, Harry uses the space to make decisions by denoting one side as the agreed side and the other as disagree, and moving objects

<sup>38</sup> Comment Flow. Retrieved from <https://offenhuber.net/project/comment-flow/>

<sup>39</sup> Zinman, A., RadioActive: Enabling Persistent Mobile Communication for Groups. Alt.CHI 2007, April 28 - May 3 2007, San Jose, CA

<sup>40</sup> Second Life. <https://secondlife.com/>

<sup>41</sup> Harry, Drew. (2007). The projects: towards a sociable architecture for virtual worlds. 18. 10.1145/1389908.1389932.

<sup>42</sup> Ibid.

around to share your vote.<sup>43</sup> Second Life is not necessarily designed for socially beneficial interactions or emergent experiences, but I find Harry's exploration into the abstraction of avatars to signal information inspiring and directly relevant to my work.

Chat Circle is a visualization of conversations, a chat room, that pulls away from the efforts of visualizing the most realistic towards more abstract models using simple shapes and colors. Chat Circles' goal is "to use graphics to convey the dynamics of conversation as well as to unveil the patterns of activity that emerge through the interaction among users."<sup>44</sup> Upon entering the space, each user is a color circle. The text they use sits within their Circle, and the brightness adapts over time based on participation, fading if the user does not speak. Along with this live support, a graphical log shows the dynamics and conversation over time. This exploration breaks traditional bounds of a chat room in an interesting and directly relevant way. I wonder, however, how we can lean into that exploration further, break more boundaries of how we use interfaces in CMC, but also introduce constraints or specificity for what kinds of communication occur through those interfaces.

Finally, as suggested in the introduction, a great deal of recent research and product design is oriented around "self-transcendence," the overcoming of the limits of the individual self and its desires in spiritual contemplation and realization, as well as "technowellness" and "techno-spiritual design," also with an individual focus on wellbeing and spirituality or mindfulness.<sup>45</sup> Further, products are designed for meditation, emotional control and increasing emotional intelligence and awareness, and inspiring awe and wonder for nature in the user. A useful map of the ecosystem of this design space can be seen in Figure 1.9 on the following page created by a group of researchers who surveyed the existing space and how it has developed over time.<sup>46</sup>

Application examples of such technologies include the Calm application, which guides users through a calming process inspired by nature to reduce anxiety.<sup>47</sup> Further, researchers have explored transcendence-inducing methods in virtual reality such as displaying amazing moments in nature to inspire awe and transformation.<sup>48</sup> Some groups focus explicitly on these practices as spiritual and in relation to some religion or god, while some focus on story building or crafting worlds outside of our own to aid transcendence and wellness.

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<sup>43</sup> Doesinger, S. (2008). *Space between people*. Prestel.

<sup>44</sup> Judith Donath and Fernanda B. Viégas. 2002. The chat circles series: explorations in designing abstract graphical communication interfaces. In *Proceedings of the 4th conference on Designing interactive systems: processes, practices, methods, and techniques (DIS '02)*. Association for Computing Machinery, New York, NY, USA, 359–369.

<sup>45</sup> Gaggioli, Andrea and Chirico, Alice and Triberti, Stefano and Riva, Giuseppe. (2016). *Transformative Interactions: Designing Positive Technologies to Foster Self-Transcendence and Meaning*.

<sup>46</sup> Kitson, Alexandra et al. "Immersive Interactive Technologies for Positive Change: A Scoping Review and Design Considerations." *Frontiers in psychology* vol. 9 1354. 3 Aug. 2018, doi:10.3389/fpsyg.2018.01354

<sup>47</sup> Calm Application. <https://www.calm.com/>

<sup>48</sup> Quesnel, D., and Riecke, B. E. (2017). "Awestruck: natural interaction with virtual reality on eliciting awe," in 2017 IEEE Symposium on 3D User Interfaces (3DUI) (Los Angeles, CA), 205–206.

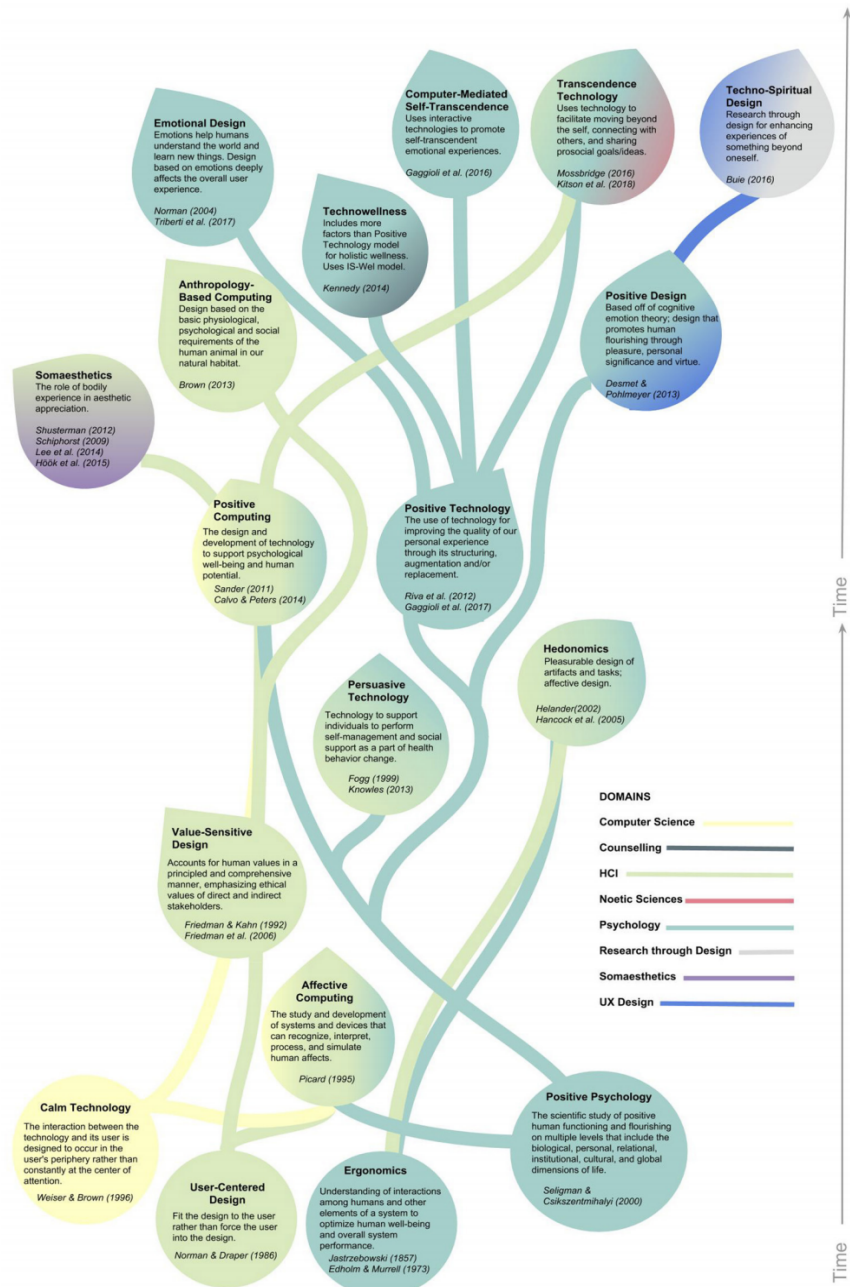


Figure 1.9: “ Existing domains of technology for positive functioning and well-being: moving along the y-axis is the passage of time on a non-linear scale that depicts the growth of different fields that stem from the foundational three domains of Computer-Science, HCI, and Psychology. Each color represents a different domain; the stems show the progression of the domain, feeding into the next; and the leaves are colored by the influences from those domains. Leaves represent the first conceptualization of an approach, and do not imply the cessation of progress, e.g., Affective Computing was first introduced in the 1990s and is still relevant today.”<sup>49</sup>

<sup>49</sup> Ibid.

And while within transcendence technology and other ego-centric transcendence inducing technologies suggest that such work will promote better and deeper relationships with others, this relationship building acts as a sort of side effect of the individual transcendence, not as the main focus of the technology. Rather, researchers who conducted a thorough study of the transformative design space found almost no projects designed for collective moments of transcendence, let alone collective moments of emergence.<sup>50</sup>

### *Summary*

In summary, this thesis builds on previous research in the computer mediated communication and interface design space. It challenges the “paper simulator” model of interface design, building off of work from the Sociable Media group. Further, I explore in this thesis how data can be used to enhance or distort virtual meeting spaces beyond that of in-person meeting spaces, like Sociable Media, Human Dynamics, and Lauren McCarthy have done. In this thesis, I build off work from the Lab for Social Machines and Cortico such as the Local Voices Networks’s digital hearth by exploring how human and hardware-software technology hybrids can create technologically enhanced, but human-first systems. Finally, building off theory in the computer mediated communication space, this thesis challenges that video is the most efficient and effective medium after face to face to have meaningful communication, and challenges that nothing comes close to face to face interaction in terms of connection online.

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<sup>50</sup> Kitson, Alexandra et al. 11.

## DESIGN

The following section outlines the design methods and principles I used and why I chose them.

## METHOD

When designing the structure of this research, I hoped to sit at the intersection of the old and new, at that cross section of exploration, innovation, and curious discovery, and learning from old wisdom, more ancient practices, and ASTs. I hope to enact critical design that challenges traditional design values and instead hopes to design with an eye and intention towards social transformation. Keeping this in mind, such a design intersection of the old (ASTs) and the new (computational social technology interfaces) inherently carries with it opportunities to walk-over, disrespect, or exploit the wisdom embedded in the ASTs. To avoid this, I moved forward with the following methodology. This research has three main stages, adapted from IDEO's design methodology<sup>51</sup>:

1. IMMERSION: Ethnographic study, observation, and participation within facilitation, coaching, and circle keeping both online and offline.
2. IDEATION: Design and develop a tool to support those within this space. Includes design, testing, and iterating phases internally.
3. IMPLEMENTATION: Evaluate with non-facilitators and expert facilitators from the respective fields from the ethnographic study. Deploy an initial prototype within this group.

With this methodology, I hope fostering an intimate understanding of the practices I design for and design informed by will aid me as I design in an effort to support them. Though presented in three steps, the process was not always linear, but rather would often overlap. My first stage, *Immersion*, occurred primarily throughout my first year, and continues on today. It consisted of taking facilitation training, building a community in that space, developing enough to start my own facilitation practices, and learn from the wisdom of those already in each facilitation space. *Ideation* was the iterative design process, and *Evaluation* encompasses analysis, user tests, interviews, and deployment.

## PRINCIPLES

Further, beyond the implementation of the three step design research method, the following design principles helped direct the decisions made throughout this process. Some versions of these principles have been present throughout the research process, however they have developed and evolved with the research. This set of principles was informed by my *Immersion* phase.

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<sup>51</sup> "Methods." Design Kit. Accessed May 17, 2020. <https://www.designkit.org/methods>.

### *Prioritize experience over performance*

As we can see through related works, there is great interest and momentum built around understanding and augmenting conversations and social systems. The goals of these works are to improve collaboration, introduce interventions to prompt reflection, critique existing social hierarchies (such as domination as manifested in air time in a conversation), and satirically make the technologies we take for granted, our normal tools, seem weird and problematic.

With this work, I hope to not measure how well a group can perform, how quickly a conversation can finish, or how evenly speaking time is distributed, but rather how the platform has improved the experience of the participants and facilitator. I do this through user classification informed by psychological personality analysis, user design interviews, and surveys informed by user feedback interviews and assessments surveys used traditionally within ASTs. Focusing on experience and the richness of the space created is in-line with the goals of the ASTs I draw from in a way efficiency is not.

### *Flexibility*

This thesis sets out to design for not one, but many ASTs. And though these forms often share quite similar values, the craft and process each practice uses manifest differently. With this in mind, it seemed essential that the platform's features be customizable for each method. Further, the features need to be customizable depending on the group, as well. A group of children that is struggling to not interrupt one another might require different features than a group that is nervous to speak, though they might be taking part in the same AST. For these reasons, flexibility should be embedded in any tool created for the space over rigidity.

Yet, flexibility does *not* suggest an unintentional, watered down, white washed, or vague space. Though there is room for experimentation, and flexibility, the features used, just like ASTs themselves, should remain intentional, specific, and purposeful in order to reach emergent spaces.

### *Design for Emergence*

For this process, it was essential to me to design with the ideal goal of emergence, falling somewhere on the spectrum from normal interactions, interdependent experiences, and emergence. Key features of emergence to keep in mind include: 1) people are essential and all carry contributing weight in the journey towards emergent moments, 2) a clear path does not need to exist, but with organically develop through the insight and energy each participant gives to the space, 3) having a facilitator's guidance can be useful, for their small simple touches at the small scale will lead to changes at the larger scale and 4) emergence can stem from disruption, which can be hard to accept for it might manifest as discomfort or tension, but is useful and should not avoided.

### *Scaffold Human Capacity*

Within the Lab for Social Machines (LSM), we make the assumption that humans have some innate capacities, such as creativity and social, emotional skills, that machines do not. In this sense, holding space is uniquely human. Being able to read the emotions or body language of a person and decide how to respond with curiosity and empathy is a deeply human trait that requires finesse and grace. To be in-touch with the energy of the room and using that to inform questions is a highly nuanced skill within which I feel like a novice even after studying for over a year. It feels almost magical that people are in-tune with these frequencies, and I am not sure technology in its current form could mimic such acts, but perhaps more importantly, the beauty, relationships, and communicative field created by facilitators is so special, to try to automate that away would be tragic and should not be attempted. I hope to, instead, identify ways machines can support humans to better explore and practice their unique capacities. This is key to identify where automation is helpful, and where it might be harmful.

However, some tasks of facilitation do *not* have that powerful feeling to them. With that in mind, I hope to design to emphasize and enhance the humanness, those magical moments and spaces, by building technology that scaffolds and supports the facilitator through their more mundane tasks. By easing these tasks, I believe more energy and mental-emotional capacity of the facilitator can be dedicated to the nuances tasks of facilitation, enabling a richer experience than if their mind also had to focus on the more mundane.

Finally, my last three principles are informed by the radical and exploratory design of online spaces to augment or enable interaction. These are taken directly from Judith Donath's work.<sup>52</sup>

#### *Be innovative*

"Explore extraordinary possibilities." A key theme I highlight in the introduction is the limits with which we have restricted interface design. With this in mind, I hope to not mimic the in-person world, or replace it. Rather, in this design process, I hope to explore how we as designers at the intersection of ASTs and computation social technologies might explore and experiment within interface design and what we think is important or necessary in these spaces.

#### *Be legible*

"Bring clarity to a complex and abstract environment." While expanding into a more innovative, exploratory interface design, I hope to emphasize legibility and accessibility. The goal is not to experiment with traditional interface design for the sake of it, but rather to explore for the goal of easing the practice of ASTs online. To explore and innovate in a way that makes signals, tools, and interfaces totally inaccessible and illegible directly contradicts that mission. Therefore, I incorporate legibility as a principle.

#### *Be socially beneficial*

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<sup>52</sup> Donath, Judith. *The Social Machine: Designs for Living Online*. Cambridge, MA: MIT Press, 2014.

“Support the emergence of desirable social norms and cultures.” Finally, even those who practice ancient social technologies can have biases or problematic societal norms embedded within their groups. For this reason, I hope to design with the intention of not only enabling ASTs more easily online, but also revealing biases or unequal patterns that might exist within the groups that practice the ASTs.

## IMMERSION

Awestruck by the grace which coaches, facilitators, and circle keepers hold a space and enable folks to do challenging, deep work, I signed up for as many facilitation training sessions I could. I specifically focused on and became more experienced in ones I found to be accessible (I could find training in the practice) and personally powerful. In the following chapter, I will offer an overview of learning and guides within each practice. I will present them chronologically, in the order I trained in them, for my experiences in each often guided me to the next AST in a progressive way.

Then, I will discuss observations of, interviews about, and my own experience with these practices online. I will explore the use of reflection and memory in these practices, and will end the chapter outlining synthesizing patterns I observed and lay out the questions that drove the rest of this thesis. To begin, I outline four in-person ASTs.

## IN - PERSON

Many ASTs are multidimensional, but within each practice I see content, craft, and process.<sup>53</sup> The *content* is informed by the purpose of the gathering or AST session, which I will not spend time on for this thesis for there are innumerable possibilities, from crafting narrative to teaching to co-design and beyond. The *craft* starts to get at how the facilitator holds the space, what questions they ask, what to remember when facilitating or practicing, how to be. The *process* refers to the implementation of their technology, to the execution and what makes it work. What rituals must take place? What processes are essential? What tools should one use?

For this thesis, I design to ease the translation of the in-person *process* online, and try to scaffold the *craft* a bit. The content and craft are what I see to be the uniquely human components of facilitation, and though I hope to not automate or teach the craft to facilitators through the thesis, I hope to ease their practice of the craft. With that in mind, each AST is broken into craft, process, and reflections.

## ESSENTIAL PARTNERS

At the beginning of this research and design journey, I was deeply interested in polarization in the United States and how to ease tension and conflict with accountability and without erasing differences. After a series of research projects that deepened my interest, I took training courses with Essential Partners (EP), who's practice aligned with the Local Voices Network's (a project I had been working on that I reference in *Context*) core mission of dialogue across divides. Initially founded by a family therapist in-tune with the dysfunctional nature of American political discourse, EP cut its teeth fostering dialogue between pro-life and pro-choice groups in Boston. This history immediately caught my eye. "Essential Partners equips people to live and work better together in community by

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<sup>53</sup> Ganz, Marshall. "Public Narrative Coaching Guide." 2019.

building trust and understanding across differences,”<sup>54</sup> and the group continues to strive for “a world of thriving communities strengthened by difference, connected by trust.” In their readings and courses, I saw a sharp, refined guide to engaging in tense dialogues, especially across ideological divides.

## PROCESS

A rough, abbreviated, semi-paraphrased sketch of their outline for starting a dialogue<sup>55</sup>:

- Offer a warm entry to everyone who enters
- Opening comments to remind the participants about the objective of the dialogue (and history of it, if it has one)
- Introductions “to help people become known to each other as people.”
- Agreements, reached by consensus, about how the group wants to engage with each other.
- Opening questions posed by facilitators, designed ahead of time, with the following goals:
  - To generate a shared pool of information about the concerns and interests of those in the room
  - To reveal information ordinarily silenced on the issue; to encourage participants to reflect upon and speak from their experience
  - To enhance curiosity about others’ views
- Questions of genuine curiosity “to encourage listening guided by curiosity and interest and to support and expand upon speaking that is fresh and engaging”
- A middle phase, highly personalized to a group’s needs
- Next steps
- Reflections and parting words to allow the group to reflect on their process, growth, and the ecosystem of the conversation, and say anything they did not have the chance to during the conversation.

The welcome and opening set the tone of the space, and is essential in dialogue across differences. To feel isolated, unwelcome, or vulnerable in an already hot space can lead to hostility, aggression, and close-mindedness. Starting dialogue in that space is deeply challenging and from which is hard to emerge. Rather, making the space feel as if it neither favors nor looks down on anyone enables a dialogue. Then, a brief history of the group creates context for why all congregate together, and begins to set expectations for what will happen in the following session.

Agreements, reached in consensus, allow each person to contribute and participate in the construction and design of the space. This is *essential* in most facilitation practices, and carries great weight when used in spaces that hold tension or hostility. To create shared agreements, the facilitator might offer one agreement as an example. The agreement can be as pragmatic, logistical, and based in the conversation practice as “no interrupting” to as abstract and based in conversation content as “be respectful.” After the facilitator explains and offers an agreement, she will go around the room inviting each person to offer their own. If there is confusion, agreements conflict, or someone

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<sup>54</sup>“How to Work with Essential Partners.” Essential Partners. Accessed May 17, 2020. <https://whatisessential.org/how-work-essential-partners>.

<sup>55</sup>“Outline for a first dialogue.” Essential Partners. <https://whatisessential.org/resources>

feels uncomfortable abiding by an agreement, they can be altered. However, it is essential that the final agreements are reached in consensus. By reaching consensus, each person feels welcome and as if their voice matters in this space and are more likely to be followed. Next, the facilitator will go through rounds, this is sort of the meat of the conversation, when that deep work begins and powerful relationships and stories emerge. This phase is highly modified depending on the gathering's purpose.

Finally, most facilitation practices create space for reflection and a closing at the end. Reflection opportunities are offered for the whole group to participate, and ask what each person's thoughts were about the session. This reflection can be framed as "how did this feel?" "what did you notice?" "what was a moment that stood out to you?" and so forth. Such questions and reflection time allow the participants to actively contribute to the construction of the session and future dialogues, as well as offering pattern identification and closure to the session.

### CRAFT

Before a dialogue, a facilitator prepares the dialogue's structure and questions with the identified goal in mind be it identified by the group in a previous session or through patterns observed in pre-dialogue interviews with participants and research. Looking specifically at dialogue across differences, facilitators' framing is poetic, caring, and invites greater nuance and complexity to discussions that can so often reduce to slogans and over-propagated taglines of political agendas. EP guides participants to ask questions to prompt reflection, re-engage complexity within one's self, and strive for shared understanding rather than agreement. For example, when having a conversation with "an opponent," EP offers some guidance:

*Avoid words that raise your listener's defenses. Express your feelings and views so they become sources of contact and learning rather than alienation and antagonism. Open your mind to learning something new. Listen and seek to understand.*

*Begin by telling each other about personal experiences connected with the development of your views. Then speak about "the heart of the matter" for you.<sup>56</sup>*

Creating space for complexity is key in EP's practice, for it frees the group from stereotypes that can unintentionally self-perpetuate. With that goal, I found their guidance about the craft to be some of the most rich aspects of their teachings and training. This unique frame of coming together specifically across polarized differences set their style apart from others I explored.

### REFLECTIONS

EP's emphasis on complexity and reflection was challenging for me and many in a highly productive way. This act of seeing someone you disagree with and humanize them is incredibly hard. Yet, in my experience implementing their principles and some of their practices, humanization does not feel impossible and dialogue can ensue. With this in mind, their craft has deep value.

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<sup>56</sup> "Moving Beyond Partisan Polarization: Some First Steps." Essential Partners. <https://whatisessential.org/resources>

And though I never practiced with Essential Partners, I took their teachings with me as I discussed with conservative people from my own home. It was within those discussions that I pivoted my focus from discourse across divides to discourse within communities.

## CIRCLE

Of course there is value in coming together across differences. Empathy and understanding are invaluable. However, I came to understand the struggle and pain many communities face internally from observing my own communities and those adjacent to me. And I feel a deep empathy for that internal struggle. How hard it is to ask someone to do the work of engaging complexity and reflection of groups unlike yourself when you are experiencing turmoil in your own community, or when that practice within your own group might be limited. Further, it seems directly in violation of foundations of dialogues across difference for groups to come together when one might actively dehumanize the other. I then became interested in how we might help communities heal from within themselves before necessarily coming to the table across differences. Perhaps this is not a sequential process and can happen simultaneously. This led me to explore Circle, an AST based on healing and restorative values.

## PROCESS

Circle practice stems from Native-North American traditions, African Indigenous traditions, and can be seen in the practices of many non-western peoples. While the practice has many uses, such as decision making, community building, and learning<sup>57</sup>, it became appropriated and widely recognized within Western spaces as a mechanism for Restorative Justice in the 1970s. For this section, "Circle" references the actual practice, "circle" suggests the shape.

The practice has five main structural components: the circle, centerpiece, talking stick, keeper, and agreements.<sup>58</sup> First, all participants and facilitators sit in a circle, and will speak in turns around that circle. This way everyone sees each other plainly, sits at about the same level, and holds the shape. The circle signals a continuous cycle, where there will always be another round, suggesting the ability for growth, restoration, and transformation. Nothing besides the centerpiece (which is close to flat) sits between the group. If you have never sat in a circle like this before, you can feel vulnerable. Generally, day to day people sit with a table between one another or some kind of barrier, be it a desk, counter, conference table or coffee table. But to sit and see one another in their whole selves, with nothing between, feels both strange, vulnerable, and intimate.

The centerpiece sits at the Circle's center on the floor. I have seen centerpieces ranging from a child's painting to an elaborate collection of objects. In the most traditional forms, and by traditional I mean the forms closer to the original practices of Indigenous peoples, the center piece is composed of objects and references to each of the elements, often including shells, plants, bowls of water, candles, and so forth. The objects that create the

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<sup>57</sup> Davenport, Mary. "Using Circle Practice in the Classroom." Edutopia. George Lucas Educational Foundation, August 16, 2018. <https://www.edutopia.org/article/using-circle-practice-classroom>.

<sup>58</sup>"The Five Key Components of a Restorative Circle." Restorative TCS LLC, September 13, 2019. <https://restorativetcs.com/key-components-of-a-restorative-circle/>.

centerpiece often sit on a round of elaborate fabric. In some multi-session Circles I have been a part of, the keepers will invite participants to bring objects from home that have great meaning with them in the next session. Then, the keepers will invite the participants in an early round of the Circle to tell the story of that object and place it in the centerpiece, or lighting candles within it, co-creating a centerpiece with great meaning for the collective. The point of the centerpiece is to represent this as one whole community, one circle, and in some instances to remind the group of the world, nature, and ancestors. Finally, it acts as a gentle, mindful resting place for participants' eyes.

The talking stick signals whose turn it is to speak. The talking stick is not thrown or passed out of the Circle's order, but passed in order, signifying the cyclical nature of the Circle, and representing there will always be another chance to speak. Further, highlighting that it is one person's time to speak invites deep listening without interruptions, allowing everyone to feel heard and actively participate in deep listening. With the talking stick, the Circle becomes more equitable, as well. It pushes back against the social hierarchies that exist within the group, such as male or white domination of a discussion. Rather, it invites each person to speak, not by simply saying to the group, "Any ideas? Questions? Stories?" and asking someone to do the labor of stepping up, but by signalling to each person, "Now is your time, you have all of our attention." I intentionally use the word, "invites," for consent is essential and anyone can always pass their turn. The talking stick can be brought by the facilitator or by a participant. Along with all objects within the Circle, the talking stick should be chosen with care and have meaning. To introduce the talking stick, it is common for whoever brought it to tell it's story and why it is meaningful to them. Sometimes, keepers will invite participants to choose a talking piece from objects within the centerpiece as well.

At any point necessary, but often at the end of a round, the keeper can suspend the talking stick. Allowing the keeper to respond to the needs of the room, suspending the talking piece will break that Circle rhythm, and invite the group to speak more casually and "popcorn" style, without order. Further, if the keeper wants to give a break to the participants on their left and right from having to speak first always, they can leave the talking stick in the center of the Circle and invite a participant to go, grab the stick, and start the round from their spot after the prompt.

The keeper, or facilitator, organizes the Circle, often brings the centerpiece and talking piece, starts rounds, and so forth. Being keepers of an indiginous practice, settler practitioners will acknowledge the land their Circle is on and the indiginous peoples who lived there. Keepers can be from the community or outside the group conveying. If outside, they often must do relational work before keeping Circle, especially if the Circle is responding to harm or conflict. If it is a Harm Circle, a great deal of pre-interviews and work must happen beforehand to make sure everyone is ready to be in the Circle. No bad faith actors or people who do not acknowledge harm caused should be in Circle. Other Circles, such as Talking Circles, have less risk and consist of "people talking together to re-form relationships with each other and the universe" that focus on relationships and community.<sup>59</sup> Varying in age and skill, some practitioners and schools invite students and young people to hold Talking Circles.

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<sup>59</sup> Mirsky, Laura. "Restorative Justice Practices of Native American, First Nation and Other Indigenous People of North America: Part One." IIRP, April 27, 2004. <https://www.iirp.edu/news/restorative-justice-practices-of-native-american-first-nation-and-other-indigenous-people-of-north-america-part-one>.

Finally, shared agreements must be brought forward at the beginning of the Circle. Shared agreements, as a co-created list of guidelines the group reaches consensus around and consents to follow for the duration of the Circle, creates a standard set not by one or two powerful individuals, but the collective. Similarly to dialogue across difference's agreements, this co-creation is more truly decentralized and equitable, and in turn yields a greater buy in and respect than laws decreed and enforced by authority yielding individuals. Consensus is the default decision making mechanism within Circle. Within consensus, not everyone needs to have everything they want exactly. However, each person needs to feel comfortable and consent to any decision.

#### CRAFT

Outside of these five pillars exist a range of other norms depending on the needs of the group and the type of Circle. For example, a ritual occurs at the beginning and end of the Circle to mark the space as special and to do a sort of tone setting. These openings and closings are prepared ahead of time, chosen by the keeper or another participant, and can range from a group meditation to a physical activity to a poem.

In Restorative Justice, where this practice became recognized and more widely used in the United States, Circle practice brings together someone who has harmed, someone who was harmed, and key members of their communities. In retributive justice, or the traditional theory of practice in the criminal justice system and what many Americans would define as justice today, the three questions when harm has been done are: (1) What law was broken?, (2) Who broke it?, and (3) What punishment is warranted?<sup>60</sup> In Restorative Justice however, the questions shift from rules and punishment to the people involved in the actions: (1) Who was harmed? (2) What are the needs and responsibilities of all affected? (3) How do the parties together address needs and repair harm?<sup>61</sup>

While Circle keepers intervene less often than in other practices, they do a great deal of preparation ahead of time, including intentionally choosing the openings and closings, the rounds, ensuring the space is ready, choosing a talking piece and designing a center piece, and so forth. Rounds generally focus on individuals telling their own experiences, stories, feelings, growth moments, et cetera. Openings and closing spread beyond a simple welcome to poems and storytelling, physical activities, and singing to set the tone that the Circle is together and beginning. Further, the keepers actively hold the space and respond to how each individual is sharing and what is being shared. If people start sharing deeply and emotionally, the keeper might take a moment to acknowledge and thank the participant for that vulnerability. The structure of Circle, however, is decentralized in many interesting ways. For example, if someone share's trauma or deep pain, that weight does not fall only on the facilitator, but the entire group to hold and support that person.

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<sup>60</sup> Boyes-Watson, Carolyn, and Kay Pranis. *Circle Forward: Building a Restorative School Community*. St. Paul, MN: Living Justice Press, 2015.

<sup>61</sup> Ibid.

Circle and restorative, peacebuilding practices have proven to have positive effects on expulsion and suspension rates within schools, social and emotional learning, and helping youth “develop prosocial skills and attitudes.” Further, Talking Circles develop “a sense of community and civic spirit, empathy, and a sense of belonging and connectedness” increasing the well-being of children and adults who participate.<sup>62</sup>

## MY EXPERIENCE

I have had the privilege to be a part of a wide variety of Circles, ranging from the deeply spiritual and connected to nature, closer to the original practice of Indigenous Americans, to more westernized Circles with any hints of spirituality wiped away. Many practitioners would challenge that a Circle with little spirituality is a Circle at all.

Circle practice shares some similarities in agenda structure to Essential Partners (opening, rounds). However, the intensity of space's tone, the structure of the way dialogue occurs, and the ritual around the space is heightened. No Circle starts without a ritual, an opening, some reading or poem or mindfulness to set the tone of the space and mark the sanctity of the space. In most other practices, this opening is simply a welcome, description of what is happening, or a demonstration. Further, It is such a unique experience to have everyone listening to you in a room, and you be the only person invited to speak for your turn. The talking stick carries so much weight and is so deeply respected, that time is almost disregarded. The Circle will take as long as it needs so everyone can share what they need. It can be intense, overwhelming, induce nerves, but can also be an incredible and rare moment of feeling seen.

I have participated in Circles of women and femmes healing from or speaking of their experiences with sexual violence, Talking Circles with friends, Talking Circles with middle school students, Circles reflecting on meditation practices, anti-racist Circles, and so forth. I would say this is one of the practices within which I have spent the most time and have facilitated the most within.

With this in mind, I have found that Circle creates a physical space that pulls one out of their habitual ways of being into a new, mindful, present space where everyone is invited to be heard and to be heard for as long as they want or need, a unique and special practice I see as perhaps the most widespread of the four I explored.

## COACHING

“[Coaching] is fundamentally developmental, in that the coach helps the coachee find answers within themselves rather than develop dependence on external advice.”<sup>63</sup>

Coaching, unlike Circle, has an energy that is often described as “aggressive” or intense. Coaching engages directly with a person, at high intensity, with deep listening, interruptions, and every word and phrase spoken carries great

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<sup>62</sup> McCarney, Willie (2006). “A Restorative Justice Approach To Working With Children In Residential Care.” North Ireland: UNICEF

<sup>63</sup> Ganz, Marshall. “Public Narrative.” Resistance School, July 21, 2018. <https://www.resistanceschool.com/course/public-narrative/>.

directionality with force exerted by both the coach and the coachee. However, coaching is filled with love, compassion, and empathy from both parties, and is a deeply intimate process, in which the coachee and coach journey together through the coachee's memories and experiences filled with joy and pain to identify and exemplify values and origins of the coachee. All Process and Craft descriptions are adapted from Marshall Ganz's Public Narrative Course and Coaching Guide, a coaching specifically tailored for community organizing, leadership development, and Public Narrative development.<sup>64</sup>

## PROCESS

While Circle is process heavy, I see coaching as craft heavy, with less emphasis on the ritual but a great deal of emphasis on the ways coaches should perform their coaching.

One of the first process components is demonstrating what the coach hopes to see from the coachee through demonstration, a clear craft moment. For example, if I hope to coach someone in their personal narrative, I should share mine first to demonstrate what I hope to get from them, and to set the tone for the level of depth, vulnerability, and detail I hope to achieve with them.

Then, within coaching, there are five steps: observe, diagnose, intervene, debrief, and monitor. These steps are cyclical and repeat with each new coaching session. The first, observe, requires deep listening and questioning. In this moment, the coachee will tell their story, and the coach "shouldn't feel shy about asking specific, 'stubborn' questions,"<sup>65</sup> but rather make sure they have a deep understanding of the story and what the coachee is trying to say. Next, in the diagnose stage, the coach should identify what area the coachee is struggling with. Three options are: motivational (effort/heart), informational (knowledge or skills/head), or strategic (performance strategy/head). Does the coachee not have the motivation to tell their story? Are they afraid or embarrassed? Are they not convinced? Or perhaps, does the coachee not understand how to tell their story? Do they understand what it is you are asking of them in their story? Or finally, is the coachee not approaching the task with the appropriate frame? Are they misrepresenting key elements?

Then, the coach intervenes. Though the coachee might be struggling with multiple components of their task, the coach chooses one place to focus their intervention. A coach can have a correctional intervention, or a developmental one. Corrections usually suggest an informational problem was diagnosed, and are offered through showing or telling the coachee the information they need. Developmental interventions most often manifest as a series of questions to help the coachee identify their motivation or strategy moving forward. I will dive into the craft of the intervention more in the following craft section.

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<sup>64</sup> Ganz, Marshall. "Public Narrative Coaching Guide." 2019.

<sup>65</sup> Ibid.

However, the first step in the intervention is to highlight something successful and powerful that they shared, and then name the intervention point. The final step is to “wrap up” and offer a sort of summary, key points, and questions to leave with as the coaching session ends.

## CRAFT

Within the interventions, as well as in the entire process, there are key practices to keep in mind: questions and statements, guideposting, emotional presence, holding authority, and soccer and pingpong.

### Questions and Statements<sup>66</sup>

Question asking feels like the most recognizable part of coaching. Unlike many ASTs that emphasize allowing there to be silence, making sure everyone feels invited to speak and to not interrupt, coaching allows interruptions and interventions that often take the form of rapid or deep questioning. Now, this questioning is not intended to be rude or to suggest what someone is saying is not important. Rather, these questions are asked empathetically and fueled by genuine curiosity. The coach does not have a destination necessarily that they are trying to direct or force the coachee to reach. But rather, they explore the coachee’s experiences with them through these questions. When telling of your own experiences, it can be easy to become focused on what others were doing in that time, to get caught up in details that might not have much value, or perhaps to only talk about certain frequencies of that memory, such as what happened and not include how you felt, what you were thinking, and so forth.

From my perspective, these questions help unveil what is already inside the coachee, but what they might have a difficult time accessing or might never be able to access on their own, for their habitual patterns of thinking do not enable activating that part of your thinking. If I was never taught to reflect on my emotions and to listen to my heart or gut, it is unclear whether I would ever be able to access that part of my thinking without someone helping guide me and enable me to learn to access it.

Such questions should be direct and clear. One question should be asked at a time, allowing the coachee to answer. Questions should remain open-ended whenever possible, and allow the coachee to reflect on their answer rather than answering yes or no. Questions should be fueled by the coach’s natural curiosity, their natural intuitions. Often, these natural intuitions lead the coach and coachee exactly where they are looking if they explore. If ever it seems like the path you are going down is unproductive or not where you are finding what you look for, it is alright to redirect down another path.

### Guideposting<sup>67</sup>

Guideposting is the act of letting the coachee know what you are about to do when you intervene before you start. When intervening, especially when it is a developmental intervention filled with questions, the coachee can be

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<sup>66</sup> Ibid.

<sup>67</sup> Ibid.

confused and uncertain of the point or goals of the coach without a guidepost. This uncertainty or almost lack-of-trust can disrupt the process and make it difficult for the coachee to do that work of sharing deeply. The transparency of a good guidepost before beginning changes the experience and trust levels, allowing for a more open, clear, calm yet challenged experience for coach, coachee, and all who watch. Further, by incorporating clear language of what your strategy is as a coach to the group and coachee contributes to their skill growth so they can both be pulling value through being coached, but also through learning and watching the craft of coaching to take with them when they leave.

#### Emotional Presence<sup>68</sup>

To be emotionally present, it is essential that the coach sets the tone of their coaching session at the beginning. This tone setting can start by modeling what you are after that day, such as their story if they are coaching for public narrative. Then when the coaching begins, coaches create and hold "empathetic tension." Many times, I have heard coaches remember moments of this tension as moments where magic happens. One can hold it through maintaining eye contact, showing engaged and welcoming body language, repeating and mirroring back to the coachee what they are saying to signal understanding and deep listening, and to set the pace of the coaching session. Striving for the sweet-spot pace, the coach balances rapid-fire questions with spaciousness, allowing the coachee to fill empty space when they are on the right track. I have explained that the energy and experience of coaching is quite different, perhaps more aggressive, from most ASTs listed here, and this is true. However, coaches carry that spacious, social and emotional energy that it seems all who practice ASTs have. And within the coaching process, many moments and strategies used reference and reflect those in other facilitation practices. Deep empathy, making space, allowing others to speak, listening intently, and so forth are still incredibly important, just mixed in with rapid fire questioning and a sort of invasive intensity that does not exist in other practices I have seen.

Further, emotional presence within coaching mandates that the coach notice and acknowledge when others are emotionally present. If a coachee becomes vulnerable, that is a key moment that the coach engages. In some instances, emotions will come forward and arise within coachees. Rather than minimize these emotions, a coach should "lean in, recognize it, and hold it."<sup>69</sup>

#### Hold Authority<sup>70</sup>

Committed focus is always a goal in coaching, and often there are strict time limits. Not only is the coach's job to help coachees identify those deeper stories and ideas, but also to keep the group on time, in focus, and moving forward. To do this, the coach must interrupt, with confidence, strength, and authority, though not in an unkind way. Further, it is important to hold the coachee and whoever else is within the group accountable, be it to time, your shared agreements, or answering questions.

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<sup>68</sup> Ibid.

<sup>69</sup> Ibid.

<sup>70</sup> Ibid.

### Soccer and Pingpong<sup>71</sup>

Finally, there are two methods a coach can use to facilitate the conversation. If the coachee tells a vulnerable story or a key element of their story, the coach might choose to use a pingpong approach, focusing just on the coachee, asking them questions, and engaging in a back-and-forth one-on-one coaching moment. However, often coaching occurs in groups. In this case, to keep the group activated and to facilitate everyone's learning as they develop their story and learn to be a coach, the coach can practice the soccer method. In the soccer strategy, the coach invites the other members of the group to participate in the coaching of the coachee for that round. This can be helpful for the group to identify key moments that resonated with them, ask questions for clarity or coaching questions, and so forth. If using this strategy, it again is important for questions offered by the coach to start are clear and direct so the group does not sit in a confused state.

### MY EXPERIENCE

For many, including myself for a long time, the first image that pops into mind when thinking of a coach is your childhood soccer coach or Bill Belichick. Yet, my understanding of what coaching could be was redefined by first coaching experience in the fall of 2018.

I remember my first session being coached. My coach unearthed stories of rough times that were hard to share, bringing with them tense, harsh emotions. Yet, by the end of our 15-minute session, the tone changed. As I tried to speak my mother's words of wisdom about bravery, my eyes welled and my voice silenced. He pointed as if he found what he was looking for, "There. That's it." He explained that my emotion is not necessarily of sadness, but signals immense care and a core personal value. And I remember thinking: rarely have I felt seen in such an authentic, deep way as I was then, and rarely have I understood myself so clearly. I am not sure I would have gotten to this point, identifying what a meaningful moment that was for me and my mother and how much that has dictated my path, without some help journeying through my experiences. That was a moment for me; I remember walking away from the session thinking: if only people from my community had that skill, if only the groups I observed on Twitter in previous research, a tense and hostile space, could receive this coaching or offer it, I wonder if that internal healing and understanding could happen and we the transition from hostility to trust and understanding would seem less daunting.

I then began learning to coach and practice coaching with youth and adults, ranging from Harvard Fellows, Marines, Boston middle and high schoolers, labor union leaders, and friends and family. Circle feels like we sit together on a new and different plain, which is intense. However, Coaching has an intensity that is perhaps more potent, in that it is densely packed with active, almost aggressive work to explore the coachee's experiences and find what she needs, together. Yet, Coaching's emphasis is on that relational work, how the coach engages with the coachees, and what that process looks like, and less attention is paid to the space around, the ritual setting, and so forth.

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<sup>71</sup> Ibid.

With this in mind, Coaching's practice has been an integral input in my design process, specifically the side of coaching that is inline with the other ASTs for this thesis. Namely, coaching in groups. This form of coaching uses the techniques described, but with groups who are organized together and share a similar goal or mission, such as a group organizing to advocate against youth incarceration. In these group coaching sessions, the way the coach goes through their process and uses their craft can disrupt groups out of their habitual ways of thinking and working together to dive deep into what brings them together as a group. While a group is coached, new levels of connection and understanding can emerge as the group leans more on one another, collectively identifies their goal, and grows towards interdependence. While in that space, they can identify their shared narrative with the help of the coach because of each other's presence, interdependently.

## PRESENCING INSTITUTE

The Presencing Institute, a collective of different practitioners, innovation platforms, radical methodologies, and creative spaces, evolved from the MIT Center for Organizational Learning.<sup>72</sup> Filled with systems dynamics students, the group hoped to explore the intersection of systems design, organization transformation, and creative spaces. Years later, a group of leaders came together in this space: "their intention was to create a holding space for cultivating presencing as an emerging movement of deep innovation and renewal in organizations, society and self," which came to become the Institute.<sup>73</sup>

This Institute offers some similar structures to other forms of facilitation, but also explores more radical and unexpected ASTs as well. With too many crafts and branches to name, I will focus on two for this thesis: Theory U and Social Presencing Theater (SPT). I choose Theory U, for that thought framework overlaps and shares values with many of facilitation practices observed in this thesis. Social Presencing Theater, on the other hand, shares similar values but manifests in a creative, expressive, experimental way that engages the body in ways I have not seen in any other practices and demonstrates how wide the range of ASTs can span.

## PROCESS

The U of Theory U stems from the map of the U Process. Traversing the U, a group "moving down one side of the U (connects to the world that is outside their institutional bubble), to the bottom of the U (connect to the world that emerges from within), and up the other side of the U (brings forth the new into the world)."<sup>74</sup> This U reflects the process of tapping into that social field, suspending our reduced versions of ourselves to invite the complex, going together through our memories, emotions, and selves.

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<sup>72</sup> "Our Story." Presencing Institute. Accessed May 17, 2020. <https://www.presencing.org/aboutus/presencing-institute/our-story>.

<sup>73</sup> Ibid.

<sup>74</sup> "Theory U." Presencing Institute. Accessed May 17, 2020. <https://www.presencing.org/aboutus/theory-u>.

Like other practices, this journey requires key muscles and capacities: listening, observing, sensing, presencing, crystallizing, prototyping, co-evolving. Pulled from the Presencing Institute's process<sup>75</sup>:

1. Listening: "The foundational capacity of the U is listening. Listening to others. Listening to oneself. And listening to what emerges from the collective. Effective listening requires the creation of open space in which others can contribute to the whole."
2. Observing: "The capacity to suspend the "voice of judgment" is key to moving from projection to focused and peripheral observation."
3. Sensing: "Seeing the system from the edges. The preparation for the experience at the bottom of the U requires the tuning of three inner instruments: the open mind, the open heart, and the open will. This opening process is an active "sensing" together as a group. While an open heart allows us to see a situation from the current whole, the open will enables us to begin to sense from the whole that is wanting to emerge."
4. Presencing: "The capacity to connect to the deepest sources of self—to go to the inner place of stillness where knowing comes to surface."
5. Crystallizing: "When a small group of changemakers commit to a shared purpose, the power of their intention creates an energy field that attracts people, opportunities, and resources that make things happen. This core group and its container functions as a vehicle for the whole to manifest."
6. Prototyping: "Moving down the left side of the U requires the group to open up and deal with the resistance of thought, emotion, and will; moving up the right side requires the integration of thinking, feeling, and will in the context of practical applications and learning by doing."
7. Co-Evolving: "A prominent violinist once said that he couldn't simply play his violin in Chartres cathedral; he had to "play" the entire space, what he called the "macro violin," in order to do justice to both the space and the music. Likewise, organizations need to perform at this macro level: they need to convene the right sets of players in order to help them to co-sensing and co-create at the scale of the whole."

As a method of change and transformation intended to break old habits and enable new ways of thinking, a user of Theory U's goal is to dive deep into "the source" and from there ask oneself "Who is myself? What is my work?" After reaching that source and Presencing, a new system and way of being can be co-created and futures envisioned. Otto Scharmer, one of the craftsmen of this method, perhaps sums it best in his own words: "the gist of this framework is simple: the quality of results produced by any system depends on the quality of awareness from which people in the system operate. The formula for a successful change process is not 'form follows function,' but 'form follows consciousness.'" <sup>76</sup> Like many ASTs, this method and framework attempts to disrupt individuals and groups from habitual ways of thinking to a moment and space of deep presence and consciousness, from which emerges new understanding and insight.

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<sup>75</sup> Ibid.

<sup>76</sup> Ibid.

## CRAFT

One craft within TheoryU or that uses TheoryU is Social Presencing Theater (SPT). SPT “is not ‘theater’ in the conventional sense, but uses simple body postures and movements to dissolve limiting concepts, to communicate directly, to access intuition, and to make visible both current reality, and the deeper – often invisible – leverage points for creating profound change.”<sup>77</sup> SPT uses the body and performance to dive deeply into that process described in Theory U by using physical gestures and moments.<sup>78</sup> A practice within SPT is the Stuck exercise.<sup>79</sup> A key part of this expressive practice is often non-verbal, and an interesting instance of ASTs moving beyond traditional communication patterns into expression through body movement from which meaning is made.

As Lakoff and Johnson discuss in *Metaphors We Live By* (1980),<sup>80</sup> humans understand abstract ideas by reframing them in metaphorical terms. These terms often reference a physical, lived experience. To feel “stuck” in something at work or in your community might refer to trying to start a community initiative and not being able to. The language we use often refers to “hitting barriers,” “experiencing friction,” “moving slowly,” “coming to a halt,” or as used in SPT, getting “stuck.” All of this language so clearly references a physical experience though the journey that one talks about is abstract and does not necessarily manifest physically. That initiative one hopes to start, or that relationship one is trying to foster, or many tasks in life have no physical manifestation, especially within our bodies, yet we feel in relation to them, talk of them, and use physical language to describe them, metaphorically.

I see the Stuck exercise as a beautiful, poetic manifestation of this metaphorical practice. To begin, a participant should identify something in their life that makes them feel stuck. “You have a feeling of what the texture and the quality of what it feels like to you in your specific situation too feel stuck.”<sup>81</sup> Then, they create a sculpture of that feeling with their body. In a group, and each person observes the “stuck,” that sculpture, for a moment. Then, the sculptor sits down, but allows a moment before the next person shares their sculpture. The creator of SPT describes this moment as a “pause to leave an echo, or feel the sense of the shape so everyone can feel it resonate.”<sup>82</sup>

While someone offers their stuck, everyone around them should observe using the “I” language, “I see, I feel” and so on. Then as a group, they can collectively discuss each other’s stucks with this language. Practitioners explain that it is essential to keep the language out of the problem solving space. The point of this reflection and discussion is not to say, “I saw you have tension in this arm, which I think translates to the fight you had with your friend last

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<sup>77</sup> “Social Presencing Theater.” Presencing Institute. <https://www.presencing.org/aboutus/spt>

<sup>78</sup> Ibid.

<sup>79</sup> “Stuck Exercise.” Presencing Institute. <https://www.presencing.org/news/news/stuck-exercise>

<sup>80</sup> Lakoff, George, and Mark Johnson. *Metaphors We Live By*. University of Chicago Press, 1981.

<sup>81</sup> “Stuck Exercise: Part 1.” Presencing Institute. <https://www.presencing.org/news/news/stuck-exercise>

<sup>82</sup> Ibid.

week," but rather to frame it as "I saw great tension in your arms, which made me feel like some big force was pulling on you."

Then, each person will present their stuck again. The stuck sits at the first stage of the U, the listening and observing stages. Then, with the U, one will move deeper into observation and sensing by "clarifying" one's shape for "movement, just like verbal language, can be muddy or very clear."<sup>83</sup> To clarify is to lean more into that stuck. Listen to one's body and feelings deeply and intensify that shape. A sculptor's intuitions and feelings, in this moment, are a "goldmine of information, and *everything you need is in the mess.*"<sup>84</sup> With instructions to let go of thoughts, doubts, and listen to their body, they lean more into the sculpture. Curiosity should drive as they wonder, "what is happening here?" and they sense their body and sculpture more.

Stuck, as a state, is unsustainable.<sup>85</sup> There is tension, weight, and stress on one's body that naturally wants to release. And in this state, the participant might be able to see a "crack" in the "stuck," a place that wants to release. The participant should hold this state momentarily, offer a slight release, and glide into the bottom of the U, the presencing space. Then, allow the crack to expand, and follow that path. Take that journey with the sculpture, and allow the "future possibilities" of the right half of the U to emerge. Allow the movement to come to an end, and see what sculpture remains. This is sculpture two. Once in sculpture two and afterwards, it is important to look back and reflect on that journey and transition from sculpture 1 to sculpture 2. What happened? What forces allowed for the transition from 1 to 2?

This exercise can be completed alone, with observers, or in a social way. One person can create a sculpture from their stuck and use friends and colleagues as forces in that sculpture. Then, as they emerge to the second sculpture, the group can collectively reflect using the "I" language, "when you did this, I felt that. When I saw this, I did that." The goal of this practice is to "access this 'body knowing,' there is something that shifted, and something happened to get over [from sculpture 1] to [sculpture 2]. Did it start small and get bigger, have a travel pattern? What happened? Reflecting on that, it feels very different, there is something about that journey that tells me about my actual situation."<sup>86</sup>

## REFLECTIONS

The SPT process with Theory U is an exploration into what can happen if humans embody physically or reflect collectively about what it feels like in our current spot in life and pay attention enough to understand and see what wants to emerge.

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<sup>83</sup> "Stuck Exercise: Part 3." Presencing Institute. <https://www.presencing.org/news/news/stuck-exercise>

<sup>84</sup> Ibid.

<sup>85</sup> Ibid.

<sup>86</sup> "Stuck Exercise: Part 4." Presencing Institute. <https://www.presencing.org/news/news/stuck-exercise>

I am a deep believer in your body and mind connection, and love Social Presencing Theater's foundational assumption that your body can tell you something about your current barriers, as well as how to emerge through them. From my perspective SPT's founders took Lakoff's idea of metaphor and absolutely ran with it and experimented beautifully with it in a way that can be reflective unlike any other ASTs I have seen. How disorienting it is to be asked to express struggles in your life through physical, bodily sculpture. How uncomfortable at first. But in an exciting way, that communication and expression begins to flow through you. And, shockingly, to express yourself and that feeling of hitting a barrier, feeling pressure, feeling stuck, feels like it communicates *better* and more truly through that physical expression. That feeling of your gut going in, that ping you get with a painful or frustrating thought, in a Stuck ooment, that's an easily relatable feeling. Though the abstract ideas and barriers we talk about may remain in that abstract space, our body still experiences them physically. And communicating that struggle in a new, surprising way through physical expression can bring rich, new information and deep insight.

In my design process, I chose to not explore physical manifestations of reflection with bodies, but think there is richness in this space that should be further explored. Rather, an implied value of SPT guides this thesis, the idea that there are many forms of communication or expression that we may have never thought to explore, that might feel uncomfortable or different at first, but that can offer even deeper means of communication or reflection. Further, I take how much important physicality and presence are within reflective processes, and wonder how to experiment with them in online spaces.

## DESIGN FACILITATION

I would like to take a moment to acknowledge co-design and participatory design facilitation practices and skills. Many of the previous facilitation tactics described above inherently are co-creative processes. They co-create, co-design, co-hold a space, collectively deconstruct one's own biases or experiences or understanding, and then remix, rebuild, redesign a narrative or share something again. Some, such as practices within TheoryU, are designed with co-creation as the explicit goal as well. However, the ability to touch something, to draw, to mold and mix is deeply valuable in many co-design or co-creation spaces, and I want to acknowledge that this thesis does not explore that space, and Keeper was not designed with those more visual, tactile experiences in mind. Rather, the scope of this project is limited to what can be co-created or co-held by auditory stimuli, by voice, by language, and so forth.

## ONLINE

### OBSERVATIONS

The following collection of observations are both my own views from participating or observing these practices held online, and the views of facilitators that practice their respective techniques online and in person. Interviews were on average an hour long, with a series of consistent questions and questions that organically arose from the flow of the conversation and my own curiosity. For observations of and interviews around remote facilitation, I looked primarily at Circle telephone calls, Circle Zoom calls, massive open online courses (MOOCs) hosted on Zoom, smaller, but still

large courses on Zoom, Coaching on Zoom and Google Hangouts, and mindfulness calls. For the purposes of this section, I focus primarily on the limits technology creates and the new freedoms it introduces. I will touch on the craft and process of practicing ASTs, holding space, online.

## MEDIUM

Observing Circles held on Zoom or over the phone, I saw groups have friction and struggle, and groups feel emergence and electricity. On some such occasions, with technology's mazes less memorized, online Circles created tension as technology literacy for some was low, and access to essential resources like a stable internet was inconsistent across participants. After the welcome and opening reading, some Circle practitioners established the order of the circle by sending the list of names in the chat, asking the group to follow that order. Others used a model where once someone finished, they would say "pass to X" and pass the imaginary talking piece through the Zoom until everyone had gone. On phone calls, the "pass to" practice also occurred, while in other instances, some groups abandoned the Circle order all together and simply jumped in when there was a moment.

Though the energy of the online space was quite different, no one was together, there was an added layer of openness offered as each person was within their own home environment. Further, in some virtual Circles, participants gathered from across the country and across the world to participate. People joined in the middle of the night, showing immense interest and dedication to being a part of that Circle.

## FOR COURSES

I observed two online courses, one within the u.Lab<sup>87</sup> and another as a public narrative for organizing course<sup>88</sup>. After observation, participation, and interviews with the head facilitators, these are the key learnings I found.

Zoom is the ideal platform for class meetings compared to Google Hangouts, Facetime, or other video call platforms.. There is a large capacity to have many people on a call in Zoom, with some special instances of classes of 1000 people.<sup>89</sup> With up to 49 participants, all can be viewed in gallery view simultaneously.

Within Zoom, breakout rooms have proven integral to the success of such large courses. In person, it is easy for the teacher or facilitator to ask the room to turn to the other person next to you and discuss. In online spaces, this proves more challenging. Zoom solves this issue by implementing breakout rooms, a tool that allows the facilitator to create a series of separate Zoom calls, assign different participants to each call, and hop between calls to observe discussions. Further, the lead facilitator can end the breakout rooms and bring everyone back to the main call at any

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<sup>87</sup> u.Lab. <https://www.edx.org/course/ulab-leading-from-the-emerging-future>

<sup>88</sup> Public Narrative: Leadership, Storytelling, and Action. <https://online-learning.harvard.edu/course/public-narrative-leadership-storytelling-and-action>

<sup>89</sup> Scharmer, Otto. "A New Superpower in the Making: Awareness-Based Collective Action." Medium. Field of the Future Blog, May 15, 2020. <https://medium.com/presencing-institute-blog/a-new-superpower-in-the-making-awareness-based-collective-action-83861bcb9859>.

time. In courses with 25+ people, it is quite difficult for each person to speak when all together. However, if groups break off into breakout groups, everyone gets a chance to speak their piece. The small groups can then choose an ambassador to share a summary of their conversation to the large call.

The chat, with a private and group messaging, can be key for backchanneling.<sup>90</sup> As a unique capacity granted by technology that is not replicated during in-person discussions, many practitioners found the chat to be valuable and important, especially for them as a communication and intervention tool. For example, I remember being on a zoom call facilitated by a narrative coach. In a sort of meta way, the call was a facilitated discussion of many coaches practicing coaching. It was my turn to coach another person through his story. Before he began, the facilitator asked me what my goal was for this coaching session. I said to practice interrupting when necessary (a key skill necessary in coaching practices). The person began telling his story. When he was finished and the coaching session began, I let him go on for quite a long time though he was moving down an unproductive path. Privately, in the chat, the facilitator shot me a note of encouragement and a private reminder to interrupt. This private nudge allowed her to not interrupt, but give me a heads up and offer encouragement so I would do the work of interrupting the storyteller.

Outside of private communication, these online courses use the chat as a good way to ask questions without trying to interrupt the speaker. The speaker can read the question and choose to answer now, hold off, or ignore. Some users, I have found simply raise their hand as if they were in a room together to signal their question. Further, Zoom has hard coded buttons in the platform such as "raise hand." Further, anecdotally, through examples of online learning I have seen with children I held Circle's with and college aged student courses, some students who are normally disengaged feel invited to participate more, ask more questions, and speak up through the chat than they would if they had to verbally ask.

## VIDEO

With almost every expert facilitator that holds space online I interviewed, there was one key surprise: "Video allows for *even more intimacy* than being in a room together, in some ways." That key intimacy is sourced from the clear, close, straight view the grid of a Zoom call allows for that an in-person experience does not. If we are in a Circle, the design of the space allows everyone to have as clear of a look of each other as possible, in a sort of vulnerable way with nothing between. Yet, though we are physically close, the person you sit next to can be quite hard to read seeing as you do not have a clear view of their face. Interestingly, Zoom accomplishes that clearness by having everyone facing each other directly, completely through the camera and grid. On Zoom, there is no relief or hiding unless cameras are off, for all users have a direct view at all times.

Humor and playfulness can be incorporated in unique ways when using video platforms for a call, such as using funny backgrounds or avatars in a call. But when online, new dimensions of expression emerge, such as the physical

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<sup>90</sup> "A backchannel is a conversation that takes place alongside an activity or event. Back channels or back-channeling is common at conferences where attendees use tools like Twitter to discuss the various presentations in near real time." Backchannel chat - <http://backchannelchat.com/What-Is-A-BackChannel>

space a user chooses to be visible in. There is an element of humanization that occurs online as participants on a call can see the homes of one another. Something special happens when a professor is bombarded with a toddler on screen or their child or partner walks behind them that rarely happens in person. A new revelation that this person is a real person, has a life outside of education, and lives in an apartment with a playful cat or lots of plants or movie posters on the wall creates a dynamic and multi-dimensionality to individuals in a reductive world.

The intimacy of video is also limited. A key human communication tool, a signal, is the gaze. When we share a room, I can make eye contact with someone to signal my intention. The room can see when I gaze into the distance, when I maintain focus, and when I wish to speak or be called on. In video calls, users' gaze is downward, cannot connect with another's, and is often lost or greatly dampened as a useful signal though the group may be able to see each person's eyes. This distorted version of intimacy and a sort of privacy, furthermore, can enable lurking. A user can pin another user's video without them knowing, allowing them to stare and watch closely in a way they would not be able to without seeming odd while in person, violating feelings of some privacy or protection. Further, if some users' cameras are off while others are on, a lopsided dynamic can ensue where some lurk with full privacy and others are seen openly.

Further, as discussed in *context*, though the added components of humanization and playfulness that comes from in-home video, comes an excess of information. This can be an overload, for example, if I am observing the background of your home, your kitchen, your children and cats walking in the background, all information that is interesting, amusing, and humanizing, which can be an amazing communication tool and signal in some settings, but perhaps not valuable to our communication.

## AUDIO

In audio only circles without video, something special happens as well. While exploring podcasting a year ago, I read many blogs of podcaster's about the power of audio. One quote in particular sticks with me to this day: "Audio is one of the most intimate forms of media because you are constantly building your own images of the story in your mind and you're creating your own production."<sup>91</sup> Another podcaster elaborates on this intimacy, suggesting it happens "partly because it plays directly into your ear, partly because the human voice is so powerful, and partly because the listener has to participate in their mind's eye."<sup>92</sup> Some Circle practitioners reported that audio did feel further from in-person interaction than video calls, but was quite different and special. For this thesis, I wonder if an audio-only environment can do some of the work of place-building, or offering the impression that the group is all sharing one space by remaining in that mind's eye. Further, though it erases some signals, such as facial expression and body language, does it add a level of depth and intimacy like these podcasters describe? Is that valuable in a multi directional communication space like in ASTs, or simply in broadcasting media like podcasts?

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<sup>91</sup> Wen, Tiffanie. "This Is Your Brain on Podcasts: Why Audio Storytelling Is So Addictive." The Atlantic. Atlantic Media Company, July 22, 2015. <https://www.theatlantic.com/entertainment/archive/2015/04/podcast-brain-why-do-audio-stories-captivate/389925/>.

<sup>92</sup>"Plugging into the Brain: Podcasting Offers a Deeper Connection." Rally, March 19, 2019. <https://www.eventbrite.com/rally/united-states/your-brain-on-podcasts/>.

## PROCESS

First, many facilitators have teams while facilitating online. Someone primarily holds the space, while another person manages technological problems, groups people into breakout rooms, keeps time, helps participants that might be struggling to get online, and collects questions that might be brought forth in the chat.

Facilitators explained that at the beginning of the call, when everyone arrives, acknowledging they are there is quite important. The welcoming of participants to a space can be more challenging online, for one cannot make eye contact and smile or nod, and it is always hard to speak directly to each participant if there are over 24 or so present (in person or online). Depending on the length of the session and number of participants, facilitators invite each person to speak and say hello. If that is too much to do in the allotted time, facilitators can ask that participants say hello through the chat, or join breakout groups and have everyone welcome one another, share why they are there, and come back to the space and report back. Online, it can be easier for participants to fade to the background, so acknowledging presence, hearing different voices, and so forth is essential. Some facilitators will incorporate technology like Google Docs to invite participation, as well, and allow people to collectively develop questions and contribute in one shared space.

The facilitator often still takes a moment of mindfulness and silence at the beginning of the call. However, as opposed to visualizing the group physically together or the energy created by that shared space, mindful moments such as in u.Lab can be imagining the network connecting all participants across the city or globe on the call.<sup>93</sup>

Finally, some online facilitators that balance teaching and conversation facilitation limit themselves to 10 minutes of speech before engaging the whole group in interactive ways. Much longer than 10 minutes, facilitators explain, and they might start to lose the group. Others find that their teaching components cannot be supported by more socratic, collective contribution methods when online. Rather, they find themselves lecturing more than they would in person to get the key teachings before moving to a conversation stage.

## CRAFT

One of my favorite takeaways from these interviews was the idea of frequencies within facilitation. One facilitator offered the example of *impulses* as a frequency he is in touch with to explain the concept. He was sensitive to the impulses of a group, and was able to get a shared sense of people's needs and impulses such that the group can really work without calling on each other. One basic example of this feeling is when there is a group in a circle and the facilitator asks the group to count to twenty, each person taking a turn at random, no one interrupting each other. At first, people interrupt and trip over one another, but eventually the group gets in touch with each other's impulses enough to know when someone else is going to speak, and they can work together more smoothly.

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<sup>93</sup> Experienced on a Mindfulness call with Otto Scharmer

However, when facilitating, there are numerous frequencies a facilitator can be in tune with, and numerous frequencies individuals simply participating in a space can be more inclined to recognize and see. For example, I might be able to look around a room I facilitate and be in tune with emotional frequencies. Maybe I can sense colors or hazes around each person of their emotions in that moment. Another person might be more in tune with the impulses of the room, intune with who craves to jump in to speak, who is ruminating, who feel disengaged. Perhaps a facilitator is uniquely in tune with a room's histories and traumas, perhaps they can sense the generational pain of individuals within the space. Perhaps a facilitator can see when one speaks for others, when one is dominating, and so forth. However, these frequencies are fuzzy, muddy, and almost impossible to tap into online. Video can help, but feels like it barely helps. This facilitator said he felt as if he was almost blinded online.

A facilitator who specializes in organizing work and leadership named a similar concept in a different language, the *emotional current* of a space. However, emotional current felt markedly different than frequency. He explained that in person, the "aha moments come to people through moments of tension." Tension, moments of discomfort, of challenges, are symptoms of growth, discovery, the pain just before the understanding, the break down of muscles so they can rebuild again within facilitated discussion. However, with the great value of tension comes fragility as well. If moments of tension are reached and not held well by the group or the facilitator, the tension can resolve in harm, conflict, or pain that does *not* lead to further understanding, disrupting and challenging those involved in unhelpful ways.

Therefore, being "tapped into an emotional current" can be essential in facilitation. It offers a "sense of where people are at, who is feeling discomfort" and gives the facilitator the chance to "lean into that opportunity" that comes with tension. The facilitator explains, "In person, we're all holding [the tension] together, and I can create the energetic space to do that. When it's done, well, everyone was a part of it. Online, it is hard to build a moment of tension that is sustained." He went on to explain that emotional current is mostly lost online. It can be easy to do intellectual work, but the tension that can be essential for growth and transformation is hard to support. People start to feel as if they are not seen or that they can disengage, and fostering a strong tapping into it at that point can feel deeply challenging.

## PRACTICE

Before finally diving into designing a platform, I ran three preliminary tests on Google Hangouts with friends, and one in-person test to see if any relevant findings could stem from practicing facilitation online myself. For all three, we participated in a Circle-esc or less structured discussion about our experiences with creation and creativity. The tests included having these Circles with video and without, with a queue of people in line and without, and asking the group to not interrupt.

Of course, these observations are heavily biased by the group participating, 4-8 graduate students from the Media Lab or recent college graduates who know each other in the context of academia and friendship, therefore prompting more humor and jokes, as well as the academic debate they practice habitually with one another. From these initial tests, I took a few key observations.

## QUEUE

For one call, in order to make a make-shift queue of sorts, I simply randomized the order of the group's names and put the list in the chat. I instructed the group to answer questions in that order. A clear initial problem with this process is at the end of each turn, there would often be a pause before the person who had just spoken announced, "I'm done." Alternatively, the person following them in line would ask if they had finished. That interaction was not graceful and interrupted the flow of the conversation.

Without a queue or list of who is to speak next, the discussion was jerky, even with a facilitator pushing the process along by inviting individuals to speak. With the introduction of interruptions, the group became more lively, filled with jokes, but also more intellectual, less in that space of depth, and more unequal. This kind of conversation was less intimate and vulnerable, but more playful and friendly.

## VIDEO and AUDIO

With camera's off, less communication occurs with the loss of body language and expression feedback. This can be powerful in some ways, and deeply uncomfortable in others. In one of my initial tests, there was a moment when a participant shared deeply while cameras were off. Towards the end of her sharing, it was clear to see her voice started shaking, not out of tears but rather uncertainty, and she trailed off a bit with a sort of invitation for others to agree. Everyone else had their microphones muted, and there was a moment of silence before they all unmuted and gave positive words of affirmation. In this moment, it became clear that if there are no cameras, there should be hardcoded ways for people to signal positive affirmation, support, or agreement.

## REFLECTION and MEMORY

Finally, I would like to touch on the practice of reflection and memory within facilitated spaces. Reflection feels like constantly flexed muscle through these facilitation practices. To participate in Circle, one is asked to tell of moment's from one's own life, to identify and name the emotions one feels, and even express why these emotions might be occurring. Coaching, especially in narrative spaces, similarly demands a participant to explore back into their memories and practice a deep reflection to pull that memory into the present, into a story. Constantly, the facilitator asks the group to turn inward and find ways to understand and articulate what their mind or body is telling them and respond to that feedback.

Further, the facilitator often invites the group to reflect on their process and the time they've spent together. How were the dynamics? How was your interaction with others, how did your interactions feel? Why? Any goals you set at the start of the conversation, did you meet them? Was the space electric? Was it dull or angry? What tangible outcomes are we leaving with?

Almost all facilitators practiced some sort of reflection and memory activation after discussions to learn from their process as well. Some example questions they might ask themselves, "How did that feel? Were there any moments I

felt I did not know what to do? Were there great moments of tension? When did I feel the group shift? Why did we shift?" If there are multiple facilitators or members of a team holding a space at once, they might have the privilege to reflect and make meaning of what happened in the conversation before together. However, memory is notoriously devious and fickle, and language, tone, feeling, can all be misremembered and in practice, unreliable. When I asked facilitators how they reflected and prompted their own learning, it seemed as if facilitators had tried and true practices, but had been experimenting and trying to find new ways to synthesize and reflect. Excitement and curiosity grew when discussing this issue. Quickly, it became clear finding conversation synthesizing and reflection mechanisms had potential use-cases for facilitators and those who had many conversations over time.

With this in mind, some facilitators will take notes during the discussion. However, many feel weary of this, for note taking can unnerve participants as they wonder, "What did I say? Did I say something wrong? Why is she writing that down?" though the notes are most likely their own private thoughts. To get around this dilemma, some facilitators and facilitator teams will nominate one person to be the designated listener or note taker. It can be special to have a human input in the memory and reflection process, for they can identify key moments that might be short, but have great meaning and take note of that rather than the long discussion that felt stagnant for the group. Yet, even with that note taker, facilitators still expressed that the note taker and listener is not ideal.

To get that accuracy, some groups will record their conversations through audio and video, and go back and watch them. Yet, trying to understand dynamics of a conversation through video feels flat, inefficient, and inaccurate in different ways. There are different energies, sensations, cues, and signals that can be picked up on when in person, so the room feels alive, dynamic, growing and shifting. To translate that simply to video feels like a flattening of all that dynamism. Furthermore, a lot of facilitators suggested they rarely watched the videos anyway for reflection.

My favorite practice of memory creation and tool for synthesis and reflection is graphic facilitation or scribing.<sup>94</sup> Graphic facilitation, graphic scribing, and other such visual thinking and reflection occur by a scribe who draws the themes, stories, moments, and patterns or hidden dynamics of a conversation, and lives with details filled out later. This practice has the power of the human touch, in that it gives weight to moments that are more meaningful and less weight to those that are not. Further, the visual better captures the dynamic, feel, energy of the space than any video or audio alone could. And as this happens live, the graphic and the facilitator creating it can have impact and influence on the discussion by reflecting back key components of where the group has been to the group, and making visual the path they have taken to get there as well as the most valuable points. That live reflection can help guide the group forward and identify patterns more clearly.

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<sup>94</sup> Bird, Kelvy, and Claus Otto Scharmer. *Generative Scribing: a Social Art of the 21st Century*. Cambridge, MA: PI Press, 2018.

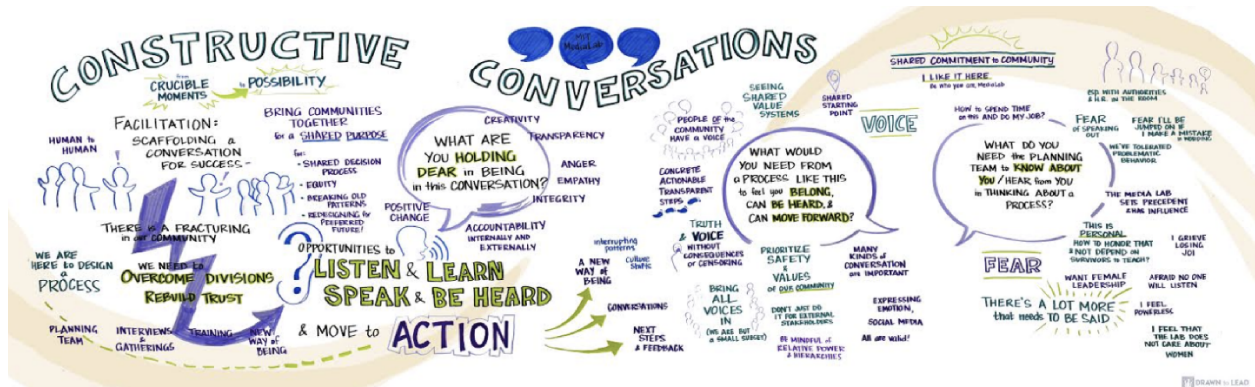


Figure 3.1, Example of a finished product of graphic scribing of a MIT Media Lab Culture and Communication town hall, crafted by Rosi Greenburg of Drawn to Lead

Graphic scribing and facilitation seemed to be one of the most innovative and exploratory memory and synthesis mechanisms that offered great use, but it requires great skill that can be hard to come by.

From this brief exploration into the reflection, synthesis, and memory components of these facilitator's practices, and after some brainstorming and creative thinking with these facilitators, we identified a few key questions around how computer mediated communication and interfaces could possibly aid this memory and reflection process. We wondered:

1. How might CMC and the data it collects help synthesize and summarize conversations?
2. How might an interface collect meaningful data to analyze the conversations?
3. How might CMC make the conversation dynamics and content visible to the facilitator who can then later use it as a reflection tool?

## SUMMARY

In summary, I have observed experiential, methodological, and reflective themes in these ASTs. To start, I have observed and felt four main *experiential* themes, all of which are deeply challenging to describe, so for some, I rely on the words of others

## SOURCE

Fundamentally, these practices assume that the source of lies within each person and community, that each person is able to acquire the skills they need, and each person is able to develop the strategies needed to reach their goals, but can be incredibly hard to access, develop, and learn alone. Each offers a way to guide participants on that journey as they uncover what is within them already.

## REFLECTION

"Magic is the knowledge of naming, the theory and practice of critiquing this world and increasing our power."

The Ignorance Institute, *How to Destroy the World* (2014)

I see naming and reflection as closely tied, almost one in the same. To be able to listen to thoughts, emotions, body signals and cues, and identify and *name* what one is experiencing and theorize about why, is truly powerful. To be able to look back on past experiences and listen to yourself closely, how you tell the story, what factors were at play, how does this influence the way you experience the world now, does feel magical in many ways. Deep reflection is essential within each AST.

## ONENESS

*Every so often a Celtics game would heat up so that it became more than a physical or even mental game, and would be magical. That feeling is difficult to describe, and I certainly never talked about it when I was playing. When it happened, I could feel my play rise to a new level. It came rarely, and would last anywhere from five minutes to a whole quarter, or more. . . . At that special level, all sorts of odd things happened: The game would be in the white heat of competition, and yet somehow I wouldn't feel competitive, which is a miracle in itself. I'd be putting out the maximum effort, straining, coughing up parts of my lungs as we ran, and yet I never felt the pain. The game would move so quickly that every fake, cut, and pass would be surprising, and yet nothing could surprise me. It was almost as if we were playing in slow motion. During those spells, I could almost sense how the next play would develop and where the next shot would be taken. . . . My premonitions would be consistently correct, and I always felt then that I not only knew all the Celtics by heart, but also all the opposing players, and that they all knew me. There have been many times in my career when I felt moved or joyful, but these were the moments when I had chills pulsing up and down my spine.*

William F. Russell, *Second Wind: The Memoirs of an Opinionated Man*, 1979. (Pulled from Otto Scharmer, *Theory U*).

"Starling. The synchronized movement patterns of a starling flock is also known as a murmuration. Guided by simple rules, starling murmurations can react to their environment as a group without a central leader orchestrating their choices; in any instant, any part of the flock can transform the movement of the whole flock. Collective leadership-partnership. Adaptability."

Definition of Starling, adrienne marie brown, *Emergent Strategy* (2017)

A good social field, generative spaces, emergence, electricity, transcendence, all describe the energy and shared experience created when these ASTs are at their best.

## JOY

"For Spinoza, the whole point of life is to become capable of new things, with others. His name for this process is joy.

Joy? What? Doesn't joy just mean happiness, with some vaguely Christian undertones?... A joyful process of transformation might involve happiness, but it tends to entail a whole range of feelings at once: it might feel

overwhelming, painful, dramatic and world-shaking, or subtle and uncanny. Joy rarely feels comfortable or easy, because it transforms and reorients people and relationships. Rather than the desire to exploit, control, and direct others, it is resonant with emergent and collective capacities to do things, make things, undo painful habits, and nurture enabling ways of being together.... Spinoza's concept of joy is not an emotion at all, but an increase in one's power to affect and be affected. It is the capacity to do and feel more. As such, it is connected to creativity and the embrace of uncertainty. "

- carla bergman and Nick Montgomery, *Joyful Militancy: thriving resistance in toxic times* (2017)

Finally, embedded within all such ASTs exists what I see as this pursuit of joy or spaces enabling joy, through transformation, nurturing ways of being together, emerging into something new, growing and learning, healing, engaging discomfort for evolution, and beyond.

To try to enable such experiences the promote emergent transformation, there are a few main *methodological* themes consistent throughout these ASTs:

## TO NE

Another word for tone setting could be *ritual*, defined as enabling transitioning from one stage, to another.<sup>95</sup> Each practice sets the *tone* of the space through openings, closings, facilitator demonstrations (demonstrating your vulnerability and story first), the way people are organized in the space (sitting in a circle), what objects are brought to the space (center piece, meaningful objects to you or others), what is made visible, sounds, smells, the kinds of questions asked, who participates, who leads, and so forth. The key message with tone is that the space we inhabit together for the duration of the session is special and outside of your normal habitual spaces.

## EXPECTATIONS

Guidelines or values are almost always co-created with the entire group and consensus reached, and all are agreed to before the sessions begin, allowing for a co-created space that welcomes all and that everyone is more likely to respect. They remain visible throughout the whole conversation.

## VOICE

All practices highlight and emphasize the value of the voice. Each person deserves to be heard and listened to, and the group should make space for each other. Beyond making space, individuals must take up space, and share deeply. Further, within voice I incorporate contribution, meaning each person contributes to molding the space, be it through bringing a meaningful object to contributing to the guidelines and expectations.

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<sup>95</sup> Parker, Priya. *Art of Gathering: Creating Breakthrough Spaces That Transform the Ways We Live, Love, Learn and Lead*. Penguin Publishing Group, 2018.

## ROUNDS

Each has rounds consisting of questions, activities, and tasks designed ahead of time by the facilitator to initiate the process to whatever goals the group has for that day. These can manifest as physical expressions (Social Presencing Theater), questions (Circle, Dialogue Across Difference), story prompts (Coaching for public narrative) and beyond.

## SYNTHESIS

And finally, to evaluate the effectiveness of accomplishing their goals through such tactics, each AST incorporates *reflection* and *synthesis* into their process for learning and growth within the methodology and experience.

## DRIVING QUESTIONS

I decided to try to design a space that could have similar themes, goals, and methods embedded into it. In this pursuit, and in the pursuit of designing a platform informed by my design principles and my learnings, I developed questions to guide my design and evaluation explorations.

Methodological Questions:

Can we create a platform that has the methods of ASTs (rounds, guidelines, respect and invitation of voice, and tone setting) embedded into it? How might we design the platform in a way that promotes use of these practices?

Experiential Questions:

Can we create a platform that helps prompt reflection and naming, without shaming and silencing? That allows people to feel more connected and a part of that oneness? That whole? Can we design a platform that mirrors the act of all coming together, feeling the energy you all share? And can we create a platform that promotes that Spinozan definition of Joy, of challenging growth and change, of vulnerability and emergent transformation?

Emphasizing Humanness is one of my design principles. And with that in mind, some of the experiential themes of facilitation fall under what I would identify as a human powered need, not one that can be filled by a machine. A website is not going to make that Spinozan Joy happen for a group. Yet, I design the space with this uniquely human work in mind. I do not design to try to fill that need with technology, but I can try to design the technology to make that work easier (or at least not actively inhibit that work) for those who have the skill to fill that need.

Reflection Questions:

How might we synthesize and summarize conversations? How might we collect meaningful data to analyze the conversations? How might we make the conversation dynamics and content visible and legible to the facilitator to use as a reflection tool?

#### a NOTE on PREPARATION

These questions were designed to drive the design of a live structure that can support facilitators as they hold space online. However, a key component for facilitation is the preparation that occurs ahead of time. While in the proposal for this thesis, I devote great time to discussing how a platform could aid preparation, I do not explore this theme within my ideation process, though I believe it would add great value for facilitators or learning facilitators. I describe the results of a few brainstorming sessions for the structure and flow a preparation process could potentially take in Appendix A. My exclusion of scaffolded preparation does not represent disinterest, but rather a capacity limit and scope definition for this thesis.

# IDEATION

Within ideation, I develop and iterate on the design of Keeper, a platform designed seeking to answer my driving questions.

From my initial training, observations, and discussions, I developed a set of four main themes to explore with the Live design of the online space: scaffold, mirror, tone, and metaphor. Each of these themes are inseparable. The scaffold is embedded with mirroring components. The components designed with tone in mind, inherently act as a scaffold as well, removing some of that tone setting work from the facilitator. However intertwined each of these themes are within the design, I have broken them down into these categories for ease of explanation.

Before diving in, it is important to acknowledge the limits of and values encoded in this design. I hope to do this with a critical design<sup>96</sup> lens, in that I intended in this project to design to positively influence social systems. However, there are values hidden in plain sight within the tool that deserve critique in themselves.

With a critical lens, it is clear each key feature, metric, and style embeds value within my design in a way that is not universally applicable to all conversations, but has impact. For instance, I will explain nodding or speaking after someone as positive, interruption as negative in the Scaffold and Mirror sections . However, in many cultures and spaces, interruption is a sign of deep listening, suggesting a positive interaction.<sup>97</sup> Further, labeling interactions as positive or negative at all is highly reductive. An interaction can be tense, painful, gruff, and interrupting yet push the group forward in a highly constructive, needed direction.<sup>98</sup>

A question and critique I received after interviewing facilitators (discussed in Evaluation) was: "Are the metrics you choose the most important measures of a conversation? Are the values encoded in this design universal across facilitation practices?"

My answer is undoubtedly no. Conversations are incredibly nuanced, complex, dynamic, with forces and currents influencing the space and people ranging from existing relationships outside of the conversation, to the language used during the conversation, to the speaking patterns of the group. Some of these forces are measurable, some are absolutely immeasurable.

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<sup>96</sup> Bardzell, Jeffrey and Bardzell, Shaowen. (2013). What is critical about critical design?. 3297-3306. 10.1145/2470654.2466451.

<sup>97</sup> Makri-Tsilipakou, Marianthi (2015). "Interruption". The International Encyclopedia of Language and Social Interaction. John Wiley and Sons, Inc. pp. 1–7. [doi:10.1002/9781118611463.wbielsi088](https://doi.org/10.1002/9781118611463.wbielsi088). ISBN 9781118611463.

<sup>98</sup> Ibid.

Excluding immeasurable forces, such as the histories of people within the group, other dynamics of conversations are measurable through natural language processing (NLP) such as vocabulary used, tone, rate of speech, and language similarity. Yet, NLP is still trained on some biased and flawed data, often disguised as objective.<sup>99</sup> Even beyond NLP, self reported feelings of comfort, excitement, nervousness, and beyond could offer value and interest, but the design choice of what feeling to enable has bias and subjectivity. Taking a step back, conversations in themselves can range from the humorous, playful spouts with friends, to the deep, challenging work around conflict. Conversations are not monoliths and designs and metrics and signals should not be blanketed over a variety of types.

Though I hope to explore these ideas and ideas of conversations in future work, they are outside of the scope of this thesis. Rather, I restrict my metrics to a few key measures that are 1) intuitive, easily understandable, and legible to a user, 2) proven to have impact in conversations, 3) do not require the recording of speech, live transcription, and live analysis of NLP, and 4) try to push the conversation and group dynamics toward that which exists in ASTs that have proven benefits.

This chapter describes my design process in two sections, the Live Design, and the Map and Summary. To start, the Live Design refers to the circle platform, the orbs, the guidelines, the metrics and so forth, everything on the interface but the Map. Within the Live Design section, after I walk through the architecture, tone setting mechanisms, the scaffolding and signals, I will show two annotated diagrams of the interface, the first is a user view, the second is the facilitator view.

Next the Map and Summary are reflections of the conversation over time post-conversation. They were not included initially in the Live Design structure, however I experimented with how the live drawing of the Map as a component of the Live Design could aid or support a conversation.

I designed the user interface and experience, and built the interface in javascript with the Processing and p5.js library.<sup>100</sup> Belen Saldias Fuentes single-handedly built the entire backend and server at an incredible rate, and graciously brainstormed, problem solved, and re-adjusted or redesigned the backend in order to make this platform possible.

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<sup>99</sup> Sun, Tony, Andrew Gaut, Shirlyn Tang, Yuxin Huang, Mai El Sherief, Jieyu Zhao, Diba Mirza, Elizabeth Belding, Kai-Wei Chang, and William Yang Wang. "Mitigating gender bias in natural language processing: Literature review." arXiv preprint arXiv:1906.08976 (2019).

<sup>100</sup> p5.js. <https://p5js.org/>

## LIVE STRUCTURE

### METAPHOR and ARCHITECTURE

Before I joined the Lab for Social Machines, I was going to be an architect. I adore architecture and how beautifully spaces inform the way we are, the energy we carry, and our emotions in a space. And though the architecture space ended up being not right for me at this point in my life, landing in the facilitation space does not seem far from designing the built environment.

Have you ever been in basements with low ceilings and no windows? Perhaps dark walls? How did it feel? What about the aisles of a cathedral? With ceilings reaching what feels like miles above, and elaborate stained glass and golden alters?

The point here is that built spaces influence us and set the tone of our way in a moment, how we feel, act, move. And within facilitation, we often talk about “holding space” or the space around us. A facilitator, in my mind, carries a similar weight as the architect. They design the space a group enters. They instruct the group to sit in a circle, they set the tone through their language and presence, and they can bring deeper meaning to the space through sound, objects, and scents. The architect sets the tone of her space by her use of light, shapes, and materials. She brings deeper meaning through symbols and imagery. And though the architect cannot respond to the social systems at play within the spaces she crafts like a facilitator might, it often feels like the space itself responds.

Theorists of human-computer interaction talk about online spaces as just that, spaces. They should be treated like an architectural space, a park, a library, or a living room, that require design, construction and fabrication that will then be populated by people. Today, many social communication platforms are designed with these spaces in mind, but do not explore or experiment outside of flat, linear, file-like organization. The internet and virtual spaces allow for the imagination to flourish, to break our traditional understandings of physics in space, and expand beyond file-like organization.

I choose the language of metaphor to name this section, for as I explained when describing Theory U, we as humans think and speak in physical terms. For example, language such as “I’m hitting a wall” or “having a writer’s block” suggests that the act of writing is being physically blocked, though the process is trying to describe an abstract idea of not being able to think of the words to say. As Lakoff writes in *Metaphors we Live By*, “the system of conceptual metaphors is not arbitrary or just historically contingent; rather, it is shaped to a significant extent by the common nature of our bodies and the shared ways that we all function in the everyday world.” We handle and describe abstract ideas informed by the physical world. This can be seen in the ways we use online interfaces now, such as buttons. Buttons are a physical object that designers took and used online, for this was a metaphor that was intuitive and clear for users.

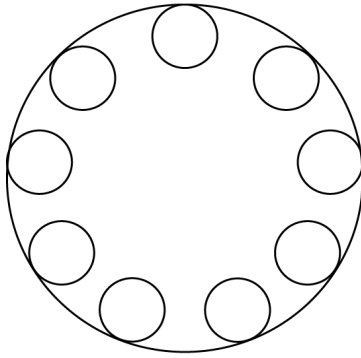


Figure 4.1, Diagram challenging if organization must be grid based online. What about a circle?

So I wondered, what would introducing the metaphor of *space* so often used in facilitation practices and translating it into something visual and real feel like online? How would it manifest? To explore this, I made Keeper three dimensional and engaged with the idea of the architecture of Keeper.

I started first by challenging that participants needed to be organized in a grid like a Zoom call. Rather, I wondered what it would mean to organizing participants and into circles. The grid is an efficient and effective use of space in an online interface, but does not offer the feeling of sitting in a circle, being close to someone else, or being next to someone like a AST can. Further, in many ASTs, sitting in a circle is essential in in-person practices, but rarely possible online. Finally, in many online spaces, it can be easy to disappear or

fade to the background for ,

Thinking about how participants would be represented, it could be through video, photographs, icons, perhaps just a chat. However, it felt essential that their presence was felt constantly, like the whole collective presence is felt when one sits in a facilitated discussion. So, they needed to have some sort of avatar of visual always on the screen.

As discussed briefly in *context*, some platforms choose to make avatars as life-like as possible, resulting in uncanny, video game-esc avatars that communicate only as far as possible as computer avatars can, such as estimated physical features, while leaving most signals and cues behind. I see this as incredible work and challenging, but unnecessary without adding much value. If anything, pursuits such as these mimic the real world in a virtual space to the point of limiting the new liberties allotted in that virtual space, such as showing new signals, limiting an avatar to earthly bounds, or communication mechanisms. it might detract from what other information online avatars might be able to communicate, like the Information Avatars described in *context*. Therefore, I decided to keep avatars deeply abstract and use simple shapes to allow for different information to be expressed through them than a picture of a user or a life-like avatar might. I chose the circle, as the most human shape deeply embedded with symbolism, and explored how to make that circle or orb feel more human and alive in the following tone setting section through animation and light.

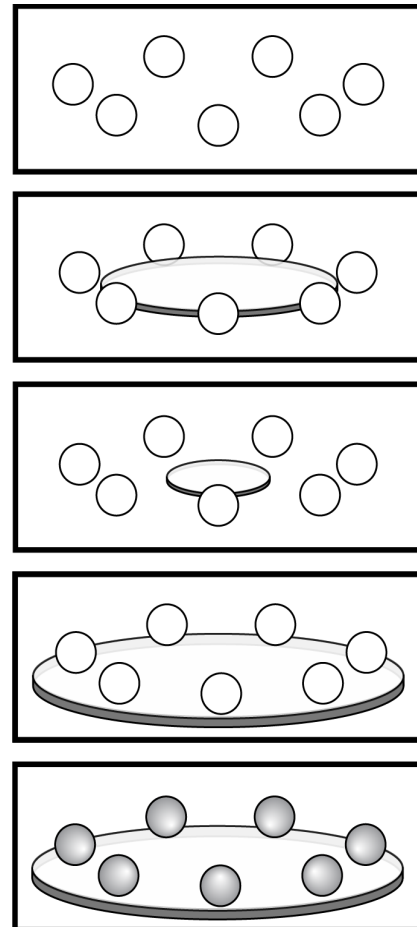


Figure 4.2, Diagram pushing the platform into a third dimension, wondering how can we unite the orbs?

Then, I wondered further about Lakoff's metaphor of space. In order to break that restrictive grid further and prompt the space to push closer towards emergence spaces filled with relationship and connection, I wanted to make the circle feel more spacious and with perspective. To accomplish this, I first oriented the circle so a user's avatar will always be closest to themselves. Then, pushed that Circle into a third dimension, closer to what one might experience in person without making the interface restricted to earthly physics. Instantly upon adding this dimension, it felt much more like a group sitting with one another, close somehow spiritually or emotionally if not physically with people next to each user. Finally, each person remained in the same spot the entire time, allowing for some spacial memory throughout the conversation as well.

Most facilitated dialogues happen around a circle with a centerpiece, a table, or nothing in between. Some practices highly push back against having tables between, for it can prohibit vulnerability. However, nothing uniting the orbs together felt strange and as if everyone was floating with nothing between. I decided to place them on a platform, and found that united the whole while keeping true to the nothing-in-between rule of some practices.

I then explored how the space could be augmented to further cement the feeling of an architectural space. Through experimentation, I eventually settled on crafting the architectural component and physicality through the platform and the orb's themselves, and allowed the rest of the space to remain plain. To place in a "room" felt as if it limited the space to feel claustrophobic and small. Other containers and gradients seemed unnecessary, not necessarily promoting a closeness or specialness in a meaningful way. Further, I hoped to allow for some aspects of the interface to remain flat, enabling me to implement other features with ease.

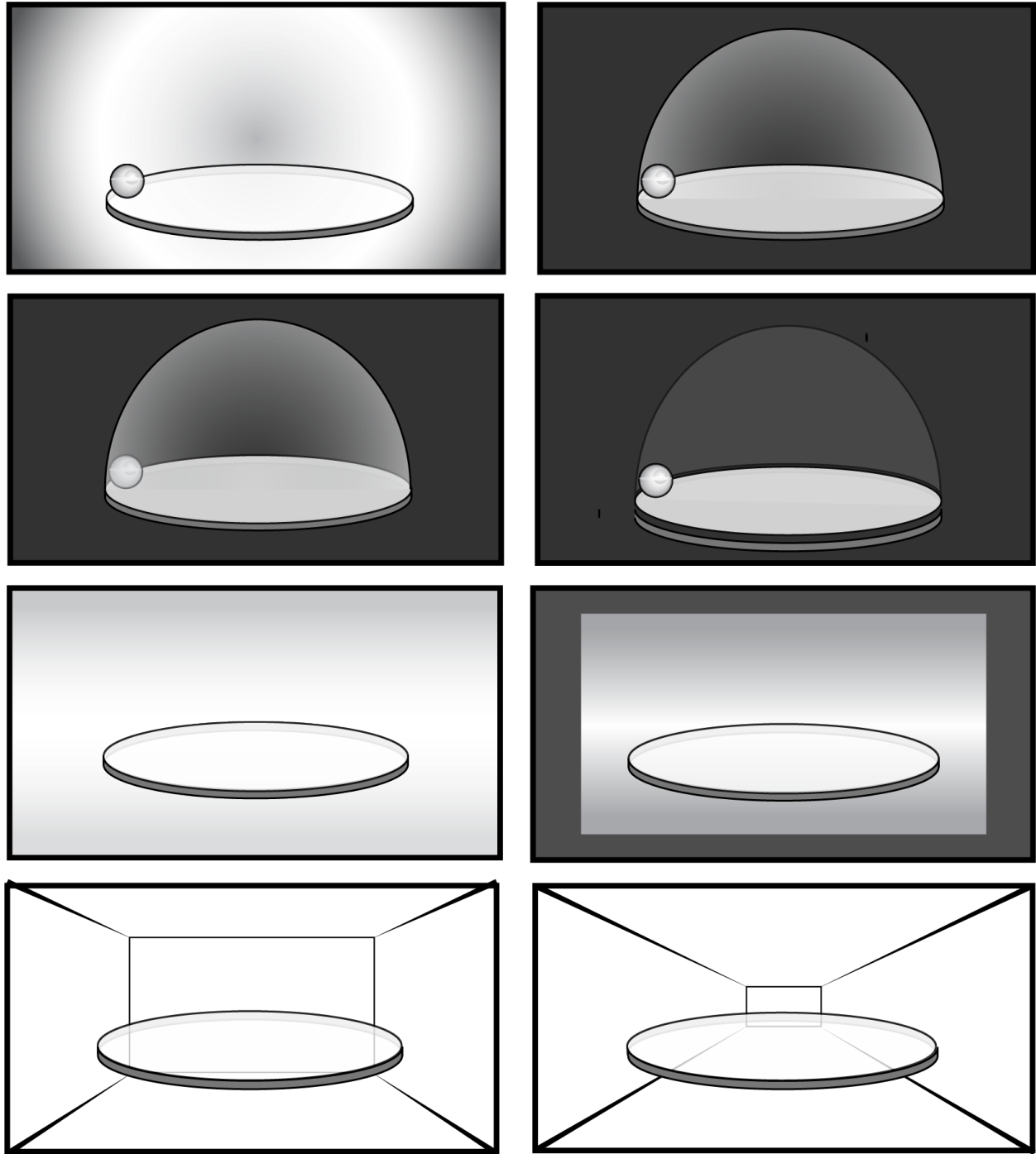


Figure 4.3. Initial sketches exploring how to make an online space feel physically spacial

I explored the space of the table itself. How could it be designed to promote that feeling of being physically present? I decided to give each orb a shadow, small "seats," giving some more security and intentionality, like each orb is supposed to be there, than would exist if an orb were statically and precariously sitting on a flat surface. Then, to give each orb a shot of energy and liveliness to help promote a human feeling, I have them slightly float above their seats and shadows.

Finally, most architectures of sacred spaces pay special attention to light, shape, and the process of entry. In the tone section I will discuss light and shape a bit more, but for the architecture, it felt important to create a sort of “waiting room” or hallway before you can formally enter the space. Though in my dream, that hallway might be more elaborate or include animation, it currently is truly a waiting screen, bare with only instructions to wait until the facilitator tells you to enter the space. However, that waiting period acts as almost a hallway towards that more sacred space before you can click the “enter” button to start, with a basic introduction of what the space is.

In the end, this space was designed as a sort of hybrid of virtual reality and a website interface. In it, I play with and try to push the boundaries of what we understand as a website or the structure within which we have a virtual call.

Throughout this process, I have felt a tension around the architecture of the space. My core insecurities and questions around it wondered, “Is this the wrong use of architecture? Does this architecture not align with the medium of online space? Should space, when online, necessarily be two dimensional? Is the best, most efficient use of the screen’s real estate not making it feel like a three dimensional space, but rather take advantage of the two dimensions and the ability to transform screens at the click of a button? Is this too literal, and in fact *restricting* of the interactions possible on the web?”

Within Keeper, I was privileged to design as both the architect and the facilitator. Like an architect, I design the space with the intention to influence those who inhabit it to have socially and emotionally intelligent, deep, emergent discussions. To do this, leaning into metaphors we live by and dimensions of sacred architecture felt like an exploration too exciting for me to pass up. Further, that physical dimension of facilitated discussions is so important in holding space and so often lost online. To these questions, I say no. After experimentation, play testing, and user interviews, the spatial component and architectural design of the space seemed influential and important, and this continues to be a space I hope to explore in the future further.

## TO NE

Within all these forms of facilitation exists a tone setting which influences the energy of the space and the emotion and energy state of those who enter the space. Tone setting, further, demarcates the space as *special* and in some languages, sacred. I attempt to design this specialness into Keeper through my use of colors, light, animation, shapes, and sounds.

## COLOR

*Yellow is the typically earthly colour. It can never have profound meaning. An intermixture of blue makes it a sickly colour. It may be paralleled in human nature, with madness, not with melancholy or hypochondriacal mania, but rather with violent raving lunacy.*

*The power of profound meaning is found in blue, and first in its physical movements of retreat from the spectator, of turning in upon its own centre. The inclination of blue to depth is so strong that its inner appeal is stronger when its shade is deeper.*

*Blue is the typical heavenly colour.*

—Wassily Kandinsky, *Concerning the Spiritual in Art* (2009)

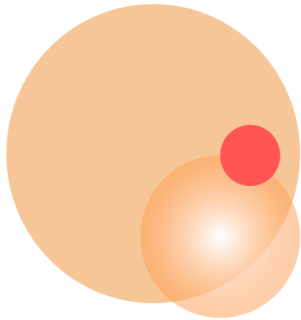


Figure 4.5, Initial earthy warm toned monochromatic/analogous colorway with red highlights

I decided to keep the space monochromatic in order to be able to use color in a meaningful, expressive way, such as a method to signal emotion. So, I began exploring what colors I would use as my foundation. First, the colors of the space began as muted neutrals, tans and camel tones. The space intended to be warm, welcoming, and calming. These neutrals mimicked nature and felt gentle. However, the vastness associated with such light colors did not create the experience of intimacy, closeness, and specialness I shot for. So, I transitioned to darker, more calm tones. The space simultaneously felt more special, stronger, and monumental without feeling sad or frightening. However, pure azure blue is harsh on the eyes, and I began experimenting with softening the blues.

Later in my process, I fell upon the Kandinsky quote above referencing the heavinlines of deep blues. This idea that they promote depth, inwardness, and reflection deeply excited me, and offered explanation for these feelings of being engulfed by blues. Kandinsky goes on to talk of harmony: "The use, side by side, of red and blue, colours in themselves of no physical

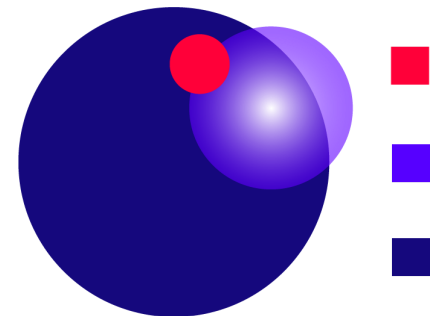


Figure 4.6, Second and final monochromatic/analogous colorway with red highlights

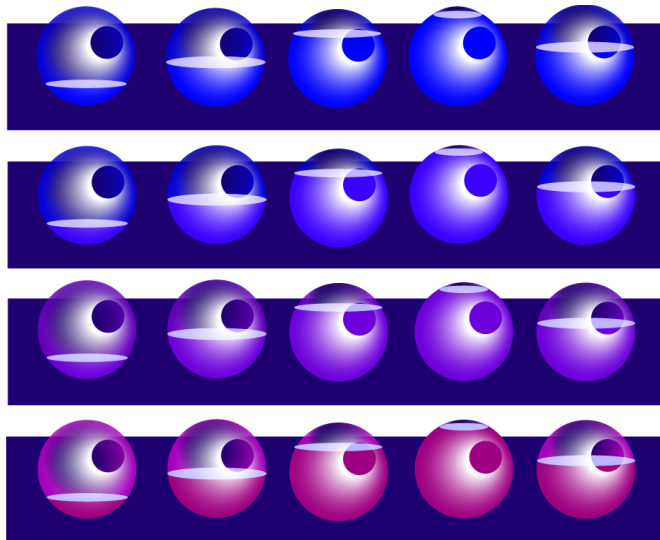


Figure 4.7, Experiments with combination of blues and reds, finding pure blue to be more hurtful on the eyes

relationship, but from their very spiritual contrast of the strongest effect, is one of the most frequent occurrences in modern choice of harmony... One often sees in such pictures the Virgin in a red gown and a blue cloak. It seems that the artists wished to express the grace of heaven in terms of humanity, and humanity in terms of heaven."

I love Kandinsky's poetic language as he describes these colors, this harmony, and the power, humanness, and heavenliness of blue and reds. I neither wish to suggest that I see Keeper or the space it creates as similar to heaven, nor that I read this book and chose the color pallet because of it. I

chose the dark blues and violet because I thought they felt right and looked lovely. However, in pursuit of creating a space that references the specialness and sacredness of many of these facilitation practices, transitioning from seeking a feeling of “warmth” to one of calm, peace, “humanity in terms of heaven, heaven in terms of humanity,” felt beautifully metaphorical and natural. I left the space mostly blue, with orbs and details tinted more violet, merging the heavy blues and the humanist reds to an in-between space. Further, I kept all alerts a pure red, a gut decision, but one I want to back up with a history of artists nurturing moments of harmony.

## LIGHT

Closely tied with the colors, I tried to strategically use the illusion of light to give each user and the talking piece a glow. This glow was intended to enhance the life-feeling of each participant, the soul, the heart. Yet, not only does the participant have a life or light force, but the space they inhabit has some magnetism, and there should be some sense of collective light as well.

Therefore, not only does the glow of each person’s orb come from within, it has direction, each glow being pulled to or reflected from the center of the larger, collective circle.

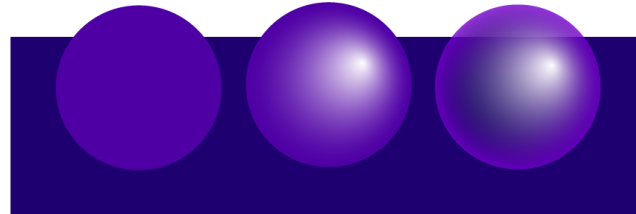


Figure 4.8, Experiments with use of glowing light and beginning explorations of opacity

## SHAPE

Circles, given Circle practice, seemed like an obvious choice for shapes to guide the space. The circle represents cycles, oneness, no beginning and no end, and gathering<sup>101</sup>. The circle carries weight and symbolism in many cultures, and is unique in regard to all other two dimensional shapes, having no sides and only one, uniform surface. Further, the calm and specialness of the circle fell in line with that of the blue and the whole goal of the space.



Figure 4.9, Simple shape explorations

## SOUND

“Sound is what gives animation its texture, depth to a two dimensional image where you can feel the crunchiness of the grass, the weight of the plane, as if you’re living it.”<sup>102</sup> In an effort to make the space more immersive and holistic, sound is linked to the signals and the opening. A student from the undergraduate research opportunity program, Aria Kydd, explored how music can promote the same values of the emergent spaces Keeper hopes to enable. She then developed sounds and composed melodies to play while the participants transitioned from the waiting room to the main screen using ¾ time, melodies, and instruments used in meditative and sacred spaces.

<sup>101</sup> Boyes-Watson, Carolyn, and Kay Pranis. Circle Forward: Building a Restorative School Community. St. Paul, MN: Living Justice Press, 2015.

<sup>102</sup> “The Immersive Realism of Studio Ghibli.” Asher Isbrucker Nov 23, 2016. Video.

Further, each signal has a percussion sound associated with a user clicking it. This adds life and depth to the space, makes the signals more prominent and communicates more than without sound. Sounds further try to prevent any signal from getting missed. Sounds were designed before but implemented after the user studies.

When playing with sound, I am reminded of Joe Hisaishi, the composer and soundscape craftsman of many Hayao Miyazaki movies, who breathed life into many animations and spaces through the detailed and intentional use of soundscapes. For future work, I am interested in exploring how to use sound and silence to offer even more dynamism to the space.

## ANIMATION

Each communication signal is animated slowly, as to not show rush or panic, but in a way that mimics natural systems and the human body. For example, if something appears such as the “flag” signal, it does not appear all at once, nor does it accelerate linearly into its position. Rather, it accelerates logarithmically, attempting to mimic the initial speed and then slow of something rolling and experiencing friction until rest. Further, the “talking” signal, the glowing, pulsing orb, is meant to mimic breathing, opening quickly, and then closing slowly. Similarly, the “nod” signal is designed with the same logic.

Idle animations, or the animation of each orb on the screen when someone is on the page, are intended to show presence and signal that a participant is listening. This idle animation is meant to mimic breathing or a heartbeat by opening quickly, and then closing slowly around the orb.

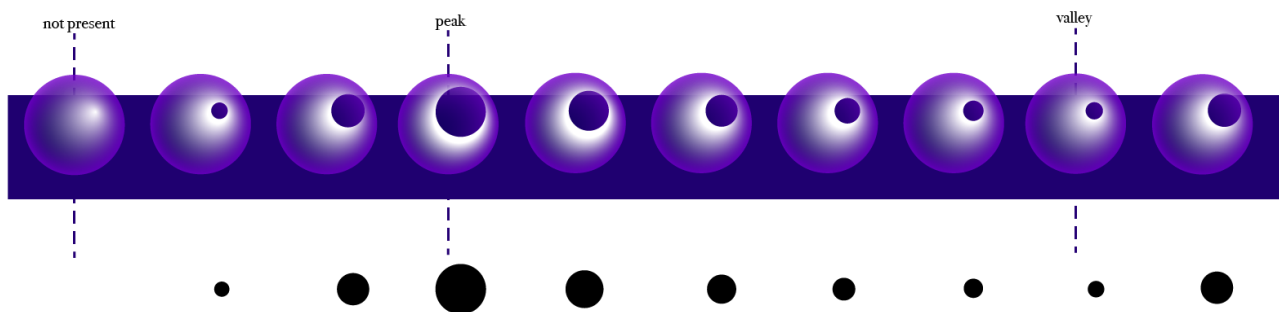


Figure 4.10, Visualization of the idle animation over time. Designed to mimic breathing, with the orb's opening growing quickly, and then closing more slowly. Shows presence on the platform

Alert animations are meant to signal that something is happening or has changed and needs to draw the users' attention to it. They will fade in from nothing to red. Then, if the content of that alert is intended to remain for the conversation, such as if the content is a question, it will fade to white. This animation happens for questions, guidelines, and messages. Further, the same alert red will animate in for interruption hazes and will fade out when the interruption ends. The fade is meant to be gentle and also mimic the physical movements of natural things.



Figure 4.11, Visualization of the alerting animation using the question feature as an example

Finally, there are cumulative animations, or simply the metrics calculating live and manifesting in Keeper as animations. The rate of animation depends on the metric, however most are subtle, fade in or slowly grow, and only gently change over time such as the water line in an orb or relational arc.

## SCAFFOLD and SIGNAL

Within the design principles outlined for this project, I named *Emphasize Humanness*, and gave it the alternative title of *Scaffold over Foundation*. The intention here, as stated before, is to support the facilitator or a group as they do their uniquely human work, not replace them. I wonder, can a tool aid the tasks that feel more mundane than the nuanced components of facilitation, the tasks that require less critical or creative thought such as keeping track of how long someone speaks or interrupts or who is next in line to speak? What round the group is on and how much time should be designated to each round? Perhaps this automated labor could free up some more mental bandwidth for the participants and facilitators to do that uniquely human work of deep listening, thinking critically and creatively, and embracing vulnerability.

Included in scaffolding are some of the embedded signals of the platform I will soon describe, including “raise hand,” “nod,” and “flag.” Further, the organizational tools such as the queue and talking stick scaffold. Finally, short term feedback, such as the speaking and interrupting hazes and an orb’s opacity also help signal to the group what is happening in the space, where the focus should be, where it should be not, and who is being left behind, further scaffolding the conversation.

### VIDEO and AUDIO

First, I chose to use audio as the primary communication mechanism instead of video. As described in *Immersion*, a great deal of attention was given both to the unique intimacy of video, as well as to the unique intimacy of audio. The audio medium allows for personal vision building as someone tells a story, video adds a huge swath of non-verbal emotional cues and signals for users to have a more in-depth view of the other participants. Further, video allows for added personality and humanization by seeing into someone’s home, while audio allows for more focus and concentration, free from the distractions of excess, unnecessary visual cues.

For this initial design, I found the benefits of audio (a new kind of intimacy, personal world building, and increased focus and potency) to outweigh the benefits of video in terms of humanization and non-verbal cues. Further, a hybrid system that allows for video as well as a semi-virtual-reality space with the architecture and tone setting of Keeper felt busy, with too many places in one platform (the virtual place of Keeper, as well as every physical space individuals bring into the call). Emergence suggests togetherness, and to be so aware that we are physically distant by seeing the different physical space others are in might influence the group to feel emotionally or mentally distant as well, inhibiting emergence.

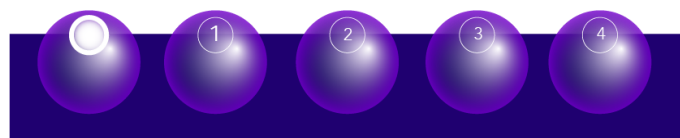
Finally, I hoped to reduce instances of lurking with video, and lean into the potency of the audio signal not muddled by the excess visual cues in a video environment, which I hypothesized might allow them to lean more into the content and feeling of what was said rather than the visuals, also enabling a more emergent experience.

This decision was huge and promised great influence on the energy of the conversation, and was made with a gut instinct. Therefore, I tested Keeper in two states, one with audio only, and another with video to explore if my instincts and hypotheses were correct.

#### TURN TAKING SCAFFOLDING

A clear, easy lift made visible by my online facilitation observations and practice was to implement a queue. This queue would relieve the burden of the facilitator having to call on participants, saving time and their mental bandwidth. Further, introducing a talking piece further reduces that burden, allowing participants to signal when they are finished speaking, when they want to speak, and so forth. When the queue is empty and no one has the talking stick, the talking stick will sit in the center of the Circle. To get it, someone can drag the piece to themselves or click the "join queue" button. If someone has the talking stick, another person can join to be next in queue. If the person with the talking stick is finished speaking, they can drag the talking stick to the center of the circle. If no one is in the queue, the talking stick will stay in the center. If someone is in the queue, it will jump to the next in queue. The person finishing their turn can also "pass" the talking stick to the next person in the queue by dragging and dropping it in their orb. They can also hit the end turn button. If there is no one else in the queue but the person with the stick wants to pass it to someone, they can drag and drop it in their orb and it will be that person's turn. The drag and drop features hope to lean into the metaphor of being in a physical space together, and retain the flexibility and rigidity that come with a talking stick.

If someone is in the queue, their place in the queue will be visible by both a number in their orb and a displayed list of people in the queue in the queue box.



*Figure 4.12, Users with the talking stick and in the queue*

To signal when someone is speaking, a white glow will form around their orb. If the interruption haze feature is turned on by the facilitator, a red glow will form around someone interrupting. If someone interrupts, in an effort to design with empathy, the "join queue" and "raise hand" buttons will glow, as well as the note taking feature, inviting the participant to write down their idea, raise their hand ask a question, or join the queue to speak so the

group can hear everything the person with the talking stick wants to say.<sup>103</sup> This tries to do some of the emotional and social labor of reminding someone to wait their turn for the facilitator.

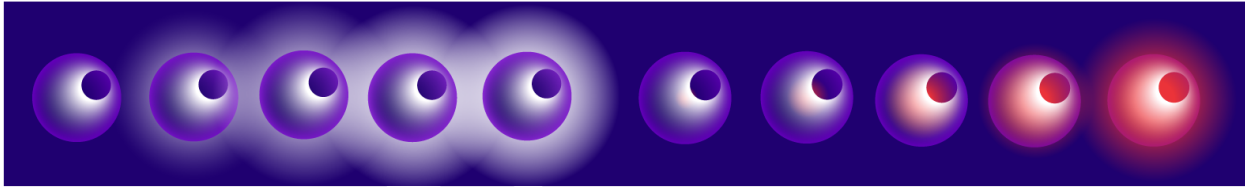


Figure 4.13, Visualization of the speaking haze, white for in turn, red for interruption

Further, each orb begins as transparent. However, each time the participant takes a turn or speaks during their turn, the orb will become opaque. Then, as time goes on and more participants take turns, their orb's opacity will decrease again. This hopes to signify in a legible and clear way when someone has spoken recently, and when their voice has been less heard in the conversation, again making visible dynamics that might otherwise be hidden, doing emotional and social labor.

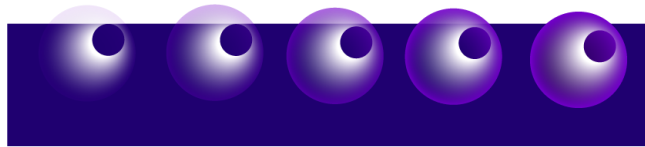


Figure 4.14, Demonstration of range of orb opacity

#### USER SIGNALS

User signals encompasses the signals a participant chooses to share with the rest of the group to aid communication. As referenced in the animation section in Figure 10, to signal presence each user's orb will open and close in a rhythmic motion when they are on the platform, signalling that they are listening. This opening and closing hopes to portray a sort of breathing, open to hear you, "I am alive and present" signal.

When a user hits the "nod" button, a white ring will form around their orb and grow 1.5 times their size quickly, and then become 1.2 times the size, and oscillate between these points three times. Then, the white ring will fade back to the size of the orb and disappear. The inspiration for the visual was first snapping, then nodding, both signals of affirmation and approval, whether it be "liking", "resonating" with, or simply understanding and empathizing with something someone has said. This will contribute to a positive relationship arc with whoever is speaking, a metric I will describe in the mirror section. Right now, the "nod" does not have directionality, meaning when someone nods, the pulsing white circle shows around their own orb, not who they are nodding too. This was intended to suggest a user is nodding at what is being said, not necessarily only at one person. A relationship arc will form, however, from their orb to whoever is talking or has the talking piece. For future iterations, I would like to explore directionality.

<sup>103</sup> In response to feedback offered by Marc Exposito Gomez

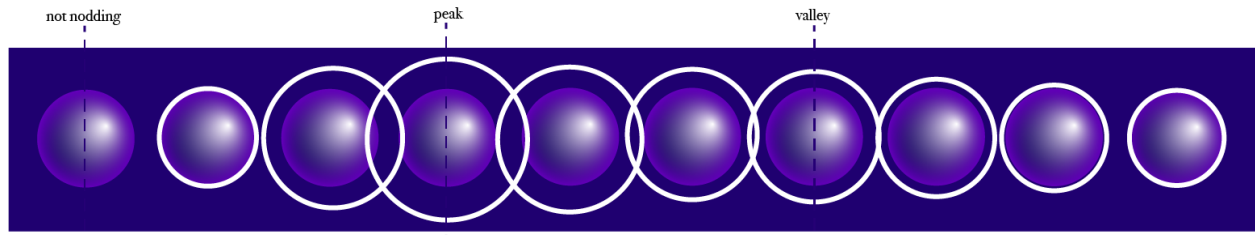


Figure 4.15, Nodding signal, also mimicking the pace of breathing

Next, the “flag button” can be clicked if something said has personally harmed a user, made them feel dehumanized, invalidated, or hurt them and they would like to address it. One question I often received was, “why doesn’t the flag go for the person being flagged? Why do I show up red?” The idea here was the flag signals internal hurt, not to shame another person for doing or saying something “wrong.” The intention behind the flag is to embed within the platform the value of expression and transparency, and to actively invite participants to put into words pain that they might experience in a moment or from someone’s words, especially if that person is unconscious of the pain they have caused. Flagging is meant to be a signal to enable deeper, more relationships based on challenging and helping one another grow, which can sometimes be hard to do.

These can be powerful teaching moments, but can also begin to form as a method of control and domination for whoever is flagging. For example, if I disagreed and disliked a participant, I could nit pick and “flag” during their turn multiple times, in turn taking the attention from them. This is one of the more controversial and fragile signals, for it has the ability to teach and push forward, but also to derail and disrupt a group and cause harm in itself. The “flag” will make a user’s orb glow red until they hit the “flag” button again.

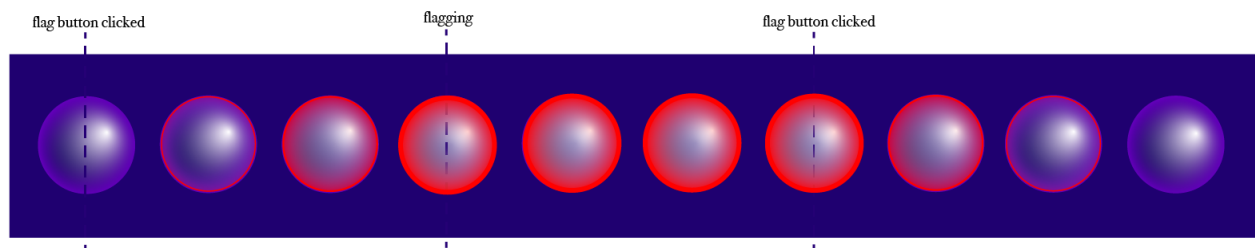


Figure 4.16, Flag signal

The “raise hand” button can be used when a user does not have the talking stick and does not want it, but wants to engage in conversation with whoever has the talking stick. They might have a question, a comment, an idea, a reflection about what the person with the talking stick is saying, and wants to keep the focus on that participant but intervene in some way with questions and comments. The intention here is to allow a more dynamic conversation *if* the person with the talking stick wants to receive questions and comments.

A person can “raise their hand” by clicking the “raise hand” button, and a small red orb will pop up on their orb. The person with the talking stick then has the ability to click that orb and give that user permission to speak. If they do click it, the small “raise hand” orb will turn white. If it is white, the participant with their hand raised can speak

and that speaking will count as in their turn, not interruption. A positive relationship arc will form between the users. Then, the user can put their hand down at any time by clicking raise hand again.

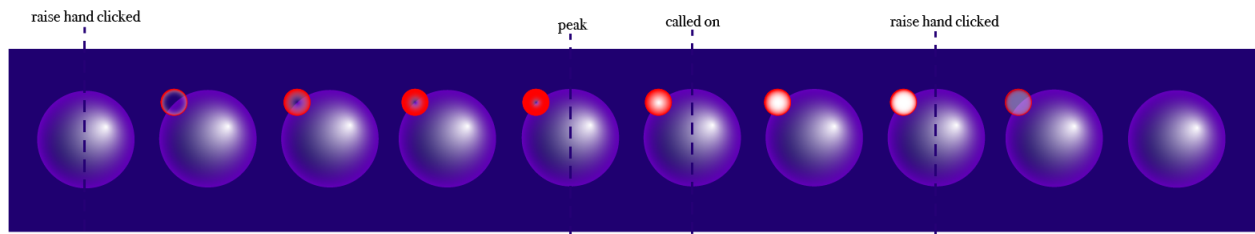


Figure 4.17, Hand Raised signal. When first clicked, the signal will fade to red. When called on by the person with the talking stick, the signal will turn to white.

By introducing the “raise hand” feature and giving that power to the person with the talking stick *or* the facilitator to invite the raised hand person to speak, that burden of calling on someone who might have a question or monitoring the question chat is made more visible, transparent, and decentralized. The small red orb is intended to notify, and reference the orb of the talking stick without mimicking it totally.

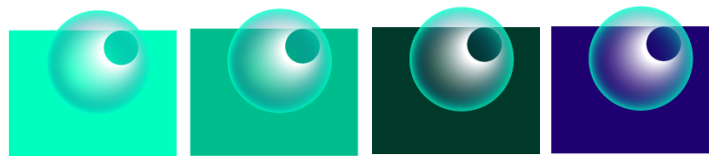


Figure 4.18, Changing colors to signal changing emotions, with environmental change

Finally, I wanted to experiment with signalling emotion. I first explored each user being able to adjust all of the color of their visual space in order to reflect their mood. As in, if I wanted to express my emotions through the seafoam green, I could set my environment to that seafoam green. Then, my entire environment would change from blue to green, and my orb would render on every other person’s screen as that seafoam green though the rest of their environment will remain the same. I experimented with muting and darkening the rest of the environment to soften the glare on the user’s eyes and maintain the darkness-glow balance of the space. In the end, I tried to strike a nice middle ground by allowing the individual to alter the hue of their personal orb, while maintaining some consistency and mood balancing by making the rest of the environment’s colors immutable.



Figure 4.19, Changing colors to signal changing emotions

## MESSAGING and NOTES

To try to take advantage of the liberties of online communication, there is a space for facilitators to message participants and participants to message facilitators by hovering over their orb and clicking the white message tab that appears. The goal with messaging is to promote a key liberty of online communication, the ability to

backchannel, but allowing that to have a spatial component as well. These chats hang by the orb they come from, glowing in red when they first arrive before fading to white, disappearing when you click and respond. This memory of the chat is short, but will be stored and displayed in the map and summary afterwards. For future iterations, it could have value to extend the chat so all can use it, not just the facilitator.



Figure 4.20, Messaging feature, demonstrated

Finally, I designed a constant open space for note taking as well within the platform. These notes are stored privately, visible to only the user who has taken them. The Summary and Map can reflect notes and messages as well, but will only reflect the notes and messages of the person who receives the Summary and Map unless some other permission is granted. Each new text within the note is stored for the time it was written, but remains on the screen unless a user clicks the save button to minimize the note window. The note box will light up slightly if someone is interrupting, prompting them to write down their idea and remember to bring it up later.

#### GUIDELINES and QUESTIONS

Always visible “guidelines”, a feature of most in-person conversations but rarely a feature of online conversations, creates a constant visible sign of the guidelines co-created in the space, relieving some weight from the facilitator who might worry about them being forgotten. The “question” feature plays a similar role. Both glow red when changed, and then hold white for the rest of the conversation until changed again.

#### IN DEFENSE of ABSTRACT SIGNALS

Finally, I would like to acknowledge the feedback I received around introducing iconic images rather than these abstractions. I received feedback and suggestions within user tests of undergraduate students, older adults, graduate students at the Media Lab and so forth to transition from such abstract signals into iconic, easily recognizable signals. For example, why not make the “nod” signal a thumbs up? Why not make the “flag” signal, a literal flag icon? Both so it feels like a “stronger” more legible signal, and because there are so many new, abstract signal images to learn, it feels as if the first few uses carry great friction both for learning a new tool, and also for learning new signals. Why not reduce that friction and include icons?

Yet, I chose to allow my signals to remain abstract for a few reasons. First, the space was intentionally designed to be *special*, that *sacredness* so many facilitated space strive for. This specialness is reached by introducing intentionality about the way one sits, the way one enters the space, the rituals and rules of the space, the practices

within the space, and so forth. It is special because it breaks a person out of their routine. In order to maintain that specialness, I do *not* want to reference outside images or ideas that have baggage from less intentional spaces. The thumbs up on Facebook's like button is iconic. Thumbs up buttons everywhere can feel like this button. To have that reference within Keeper feels like a sacrifice of the specialness I worked to craft by references to a space notorious for some toxic interactions. Further, it reduces the meaning of the signal to "liking," whereas the "nod" in in-person interaction can signal resonance, agreeing with, supporting, caring, or other feelings. Of course, one design principle is legibility, but these signals were designed to reference human interaction signals within discussion without the baggage of icons, and take only a few minutes at the beginning of the conversation to learn.

However, I do not wish to suggest use of icons should be forbidden in spaces like this. I would be interested in exploring how icons and other signals could aid remote conversations in future works. Perhaps abstract signals are essential to maintain the tone of the space, or perhaps not. Maybe the signals can be abstract, but the buttons can manifest more iconically. Perhaps the "raise hand" button can be an icon such as a hand and still maintain the sanctity and tone of the space, but does not the emoji hand smack onto the orb. Rather, images and signals range on a spectrum from iconic to abstract, and the signals within Keeper might best sit someone on that spectrum, rather than at the extreme ends. For future iterations, I hope to explore this idea further, as well as what other signals could be useful within the platform.

#### WITHOUT FACILITATORS

In almost all ASTs, there is a facilitator. However, in many conversations, there is no formal facilitator present. After participating and observing conversations without facilitators, I have noticed a few patterns. The first, sometimes a facilitator figure will naturally emerge. This figure may be the convener of the meeting and take a sort of default role as the facilitator, or someone else may slowly emerge in that role who has leadership experience, facilitation experience, or is naturally attuned to emotions and social queues. Often, when one thinks of conversations they have been a part of or even friend groups they have engaged in, one can identify who often steps up in this facilitation role. Generally, in that role the emergent facilitator might invite a participant to speak who has been rather silent, they might notice when someone else has expressed vulnerability and acknowledge and express gratitude for that vulnerability, or they might reframe a conversation if it veers off track.

The second, the role of facilitator may distribute among a few key people or throughout the room. Especially in smaller groups, each person might carry some of the social and emotional labor of the facilitator. Of course, the lines between two options, the emergent facilitator and the distributed facilitation, are blurred, for often conversations are facilitated by multiple facilitators. In this sense, multiple facilitators may emerge and carry the bulk of the facilitator work, or in instances of small groups, almost everyone can emerge as a facilitator manifesting more so as a distributed facilitation model. Either way, rarely will a conversation exist without some presence facilitation practices, even if they are not formal or explicit.

Lastly, the facilitator will often default to whoever congregated the conversation. Of course, facilitators may emerge that struggle to ease the conversation. Everyone has been in conversations with dead space that feels unintentional

and not-productive. However, bad facilitation is still facilitation, and though it may be bad, there is still an effort there to hold the space and enable that conversation.

With this in mind, Keeper is designed to enable the practice of ASTs with ease, meaning a facilitator will often be present. However, if Keeper were to be used without a facilitator, an emergent facilitator or whoever convenes the conversation could take the facilitator role. Or, finally, all the signals and scaffolding apart from messaging, question creation, and guideline creation will work without a named facilitator. For future work, it would be valuable to explore the no-facilitator model in greater detail.

## THE INTERFACE

With these signals and tools in mind, I present an annotated interface of Keeper. I present two versions here, for the facilitator has a slightly different interface than the users to accommodate their added liberties and controls. The first diagram is the user interface, the second is the facilitator interface.

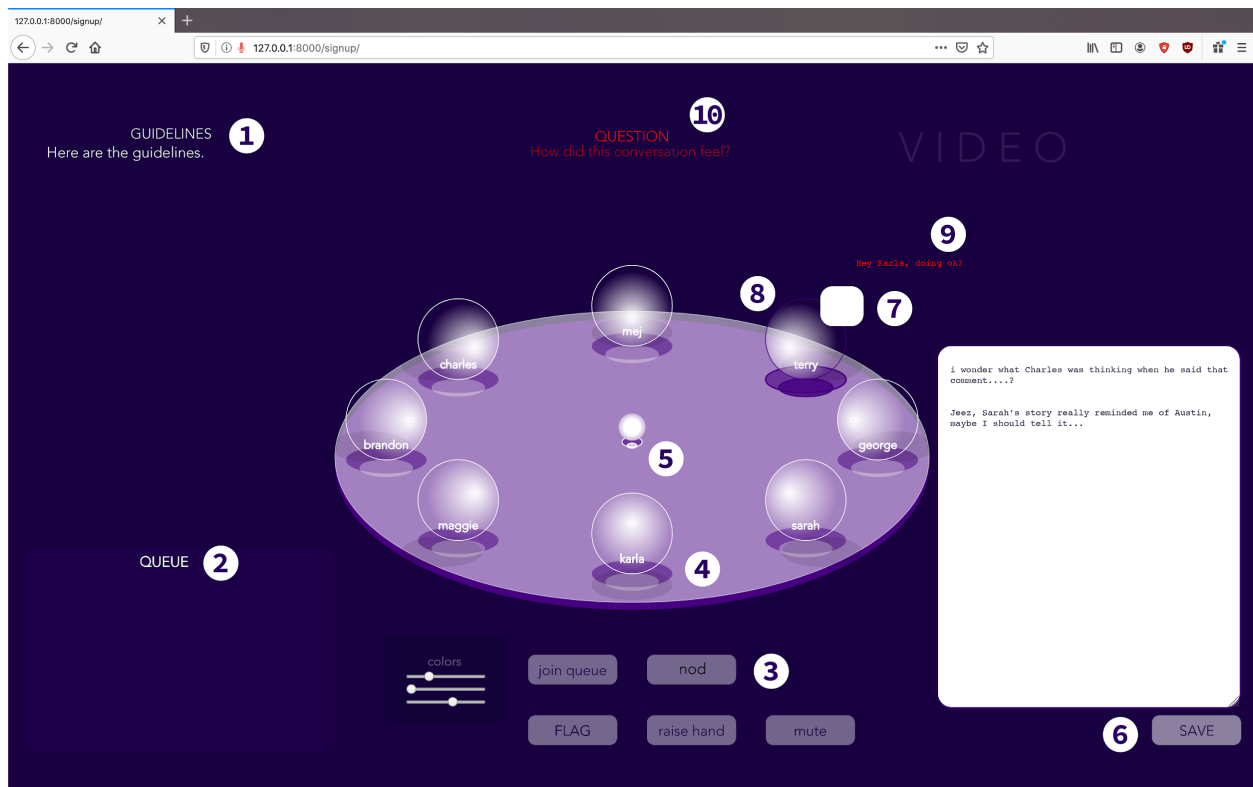


Figure 4.21: The user's interface. Each number in a white circle has a matching description of the feature below. This interface is of a normal participant.

1. This is where the guidelines will be displayed. Guidelines are edited and sent by the facilitator. If the guidelines are changed, they will turn red to alert you that there has been a change, then they will fade to white and remain there until the conversation ends or there is another guideline edit.

2. The queue displays here in order. The first in the queue, whoever has the talking stick, will be denoted by a "0.", the next will be denoted by "1." and so on. The order will automatically update as the talking stick makes the rounds.
3. This is the collection of active signal buttons all participants and facilitators can use. The collection includes "nod," "join queue," "flag," "raise hand," and emotion signals through "color."
4. This is you! All your personal metrics and signals will be displayed here. For each participant, their view centers their orb as well.
5. This is the talking stick. If it is in the middle, you can drag it to yourself or hit "join queue" to get it. If you want to pass it, you can drag and drop it to the middle, the person you want to pass to, or hit "end turn."
6. This is a space for private, personal notes to take during the conversation.
7. You can respond or send a private message to the facilitator by hitting this button.
8. This is the facilitator, their orb has a darker outline and dark seat.
9. The facilitator can send you private messages here.
10. The questions will display here. If they are new or edited, they will start red to alert you of the change before fading to white. The facilitator edits the questions.

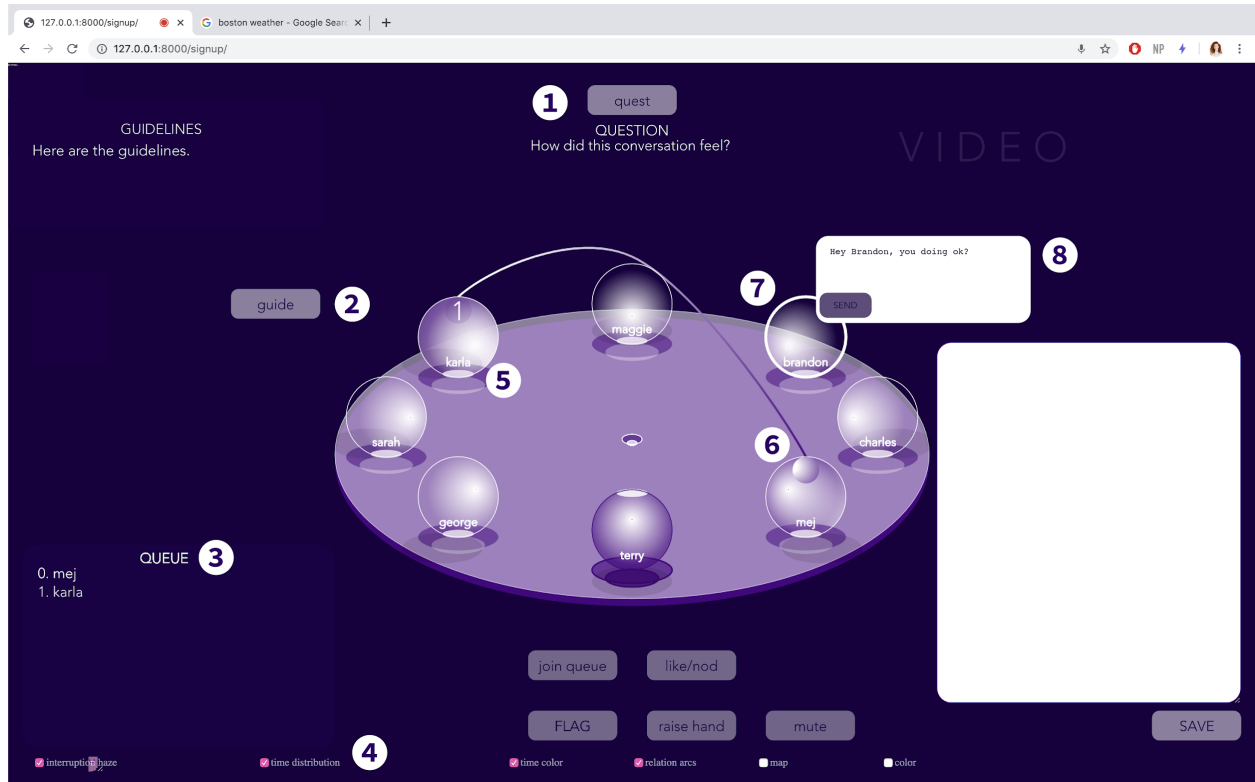


Figure 4.22: The facilitator's interface. Each number in a white circle has a matching description of the feature below. This interface is of a facilitator, and therefore has added features and buttons.

1. This button allows the facilitator to type and edit questions. When clicked, a text box will come up. Once save is hit, the questions will update for all participants.
2. The same process applies for the guide button, here. When clicked, a text box will come up. Once save is hit, the questions will update for all participants.
3. This queue list is the same for facilitator and participant. This is simply what it looks like when the queue has participants in it.
4. The facilitator has the ability to adjust the parameters as necessary. For example, if the interruption haze is overwhelming and harming the conversation, the facilitator can turn it off. This allows for flexibility within the space. Currently, the map and "color" for emotion representation are off.
5. When someone is in the queue, their place in the queue will display within their orb.
6. The facilitator can take the orb at any time if needed to either give to themselves or pass to a participant.
7. When a facilitator mouses over another's orb, their outline will get white and thick. Then, a facilitator can add someone into the queue who is not in the queue by double clicking on their orb. They will be added to the last place of the queue. If the facilitator, for some reason, wants to make a participant first in the queue, the facilitator

can click and hold that participant's orb, and the talking stick will automatically go to that participant. The participant with the talking stick will be bumped to next in the queue, and the rest of the queue will be bumped back one spot.

8. A facilitator can privately message a participant at any time by hovering over their orb and clicking the white box. When a message is sent, it will disappear. The participant's response will show up back at their orb in red text. Messages are stored in the backend, but are temporary on the front screen.

## CONCLUSION

In summary, Keeper is designed to support conversations through conversation scaffolding (queue, hazes, raising hand), user signals ("nodding," "flagging," "emotional colors"), and communication tools (messaging, notes). I designed each of these signals guided by my design principles, driving questions, and goals of Keeper.

## MIRROR and METRICS

While some of the scaffolding and signals do reflect the dynamics of the group back to themselves in a helpful way, the scaffolding focuses more on signals hardcoded and enabled by the platform. However, with the design of Keeper, I wanted to explore, imagine, and take more full advantage of the possibilities designing for the web allowed, beyond just communication aids. How could we manipulate and design the tool to not only ease communication, but improve its quality towards my design principle of socially beneficial behavior? Could this platform be a vehicle for social and emotional learning and personal or group reflection as well? This led to the idea of reflecting metrics back to the participants and facilitator of a conversation.

The mirror of metrics has a few goals:

- 1) Reflect back to the group biases and dynamics they might not be aware of, both on the individual level, as well as at the collective group level.
- 2) Offer a layer of transparency for the group to legitimize or support actions and interventions of the facilitator or participants doing the social and emotional work that facilitators often perform if no facilitator is present.
- 3) Like the scaffolding distributes some labor from the facilitator, the metrics hope to distribute some social and emotional labor more equitably throughout the group.

The following section outlines these goals in more detail, how I designed to reach them, and the final metrics themselves.

## REVEAL BIAS

Participants might not be aware of social dynamics that exist within their group that can be greatly perpetuated in facilitated discussions. For example, consider a scenario with a male facilitator holding space for a multi-gender group. Unless he has done some internal work to identify his privilege of men, unless he has strong social and emotional intelligence, he might not notice that the guys of the conversation are having endless back and forths

without incorporating a woman's voice. In in-person discussions, the face of the women might signal frustration, boredom, and so forth signalling that there is a problem, but the group taking up space might not notice. Within Keeper, displaying a metric showing the portion of time spoken greatly favoring the men helps alert the facilitator and reflect back to the people taking up space explicitly that there is a disparity visually, and that they have been privileged those voices in this space.

Furthermore, though facilitator's often have great social and emotional intelligence and awareness, they can experience unconscious biases as well. Perhaps they favor the woman who reminds them of their mother, and they show disproportionate positive feedback to her or give her a lot of air time. These metrics can reflect that back to the facilitator, making them aware of their own biases and habits as well.

### TRANSPARENCY

If facilitators have to make interventions, having such biases and metrics reflected to the whole group can give that intervention more legitimacy. When asking someone to hold their idea until their turn or to take a step back, without visual metrics might cause a participant to feel singled out. However, because they too can see the data of how much time they have spoken or that they are interrupting, they might understand and validate the facilitator's intervention.

### DISTRIBUTE LABOR

Not only do these metrics aid the facilitator identify patterns, but these metrics also distribute the load of emotional social labor throughout a conversation. Metrics are visible to the entire group, so the signal that alerts the facilitator that there is a disparity will also alert the men and women of the discussion. With that information visible and transparent, participants will be reminded of the role they are playing and might, in turn, adapt their participation to try to soften that disparity. This reflection and work to address issues is distributed to all who see the metrics, therefore distributing some of that emotional and social work to normal participants. It might even socially benefit the group to learn this process of reflection and adjustment, teaching social and emotional skills to those who might not have them.

### THE METRICS

The first metric is time spoken. Time spoken, or the amount of space a participant has taken up, is represented by water filling their orb. Time spoken is measured as a proportion of the amount of time they spoke compared to the amount of time everyone else has spoken. If the orb is exactly halfway full, a participant has spoken for  $1/x$  of the time,  $x$  being the number of participants present. If their orb is full, the participants have spoken at least 3 times that amount. If their orb is empty, they have not spoken.

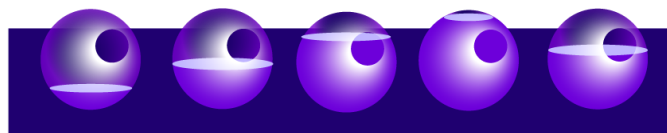


Figure 4.23, Changing waterlines depicting time spoken

The water within each orb by default is also colored. The color represents the portion of time each participant has spent speaking in turn and interrupting. If a person has only spoken in their turn, meaning they have the talking stick, raised their hand and were called on, or the talking stick is in the center of the circle, then their water will be the violet color of their orb. However, once a participant begins to speak out of turn, their water will add more red. If they have only spoken out of turn, their water will be completely red.

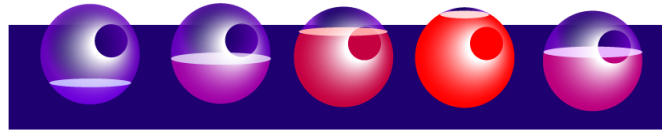


Figure 4.24, Color of water depicting time spoken in turn or in interruption

Finally, as the opacity of the orb changes to signify time passing since their last turn, mimicking the idea of “disappearing” from a conversation, their water will acquire that same opacity.

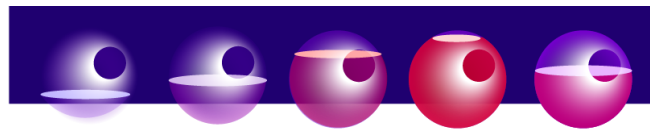


Figure 4.25, Opacity of water and orb depicting how recently a user has spoken

The changing color of the water can be turned off if a facilitator does not want to reflect the memory of interruption time back to the group. If this is the case, the default water will all be violet. Further, the facilitator can turn the water feature off if time spoken is not a metric they wish to bring attention to at all.

Next, relationships are measured throughout the conversation and manifest through relational arcs. These arcs form when some kind of interaction takes place between two participants. The arcs have direction, weight, and value associated with each.

The direction of the arc points from whoever has the talking stick towards whoever is sparking the interaction. For example, if I am speaking and Sarah clicks the nod button, an arc will form from me to her, suggesting that I or what I was saying influenced her or touched her enough that she would hit nod, signalling a relationship.

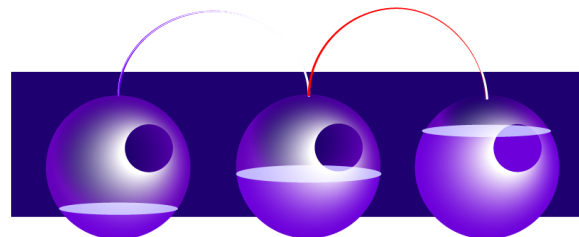


Figure 4.26, Arcs of influence, color showing kind of relationship

Then, each arc is labeled as neutral or alert. For the neutral arcs, the person who takes the action has a violet end towards them, a white end towards the person receiving the action. If the arc is an alert arc, the direction is the same but the color is red. Actions that stimulate a neutral arc include: snapping for the person with the talking stick or for

whoever is speaking, raising hand for the person with the talking stick or whoever is speaking, speaking right after someone has spoken, and joining the queue while someone has the talking stick or while someone is speaking. Alert arcs include interrupting someone with the talking stick and flagging while someone is talking or has the talking stick. Arcs will blend between the red and violet if people share multiple kinds of interactions. The color of the arcs can be turned off, and the default will again be violet. Arcs have weight as well. A thin arc represents a smaller relationship, while a thick arc represents a stronger relationship. Like time, the width of arcs is determined in relation to other relationships within that conversation.

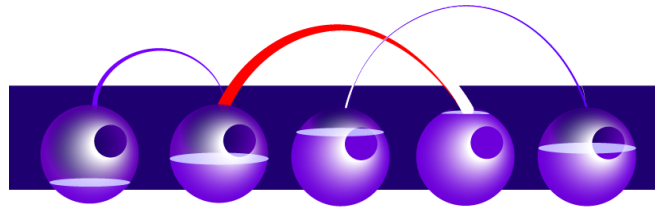


Figure 4.27, Arcs of influence, thickness showing size of relationship

Finally, arcs are drawn in a whimsical, human way that responds to the space and number of participants, offering a bit of life, playfulness, and fluidity to the network that starts to form, rather than restricting that network to direct, rigid lines. An example of this life is shown in Figure 4.28.

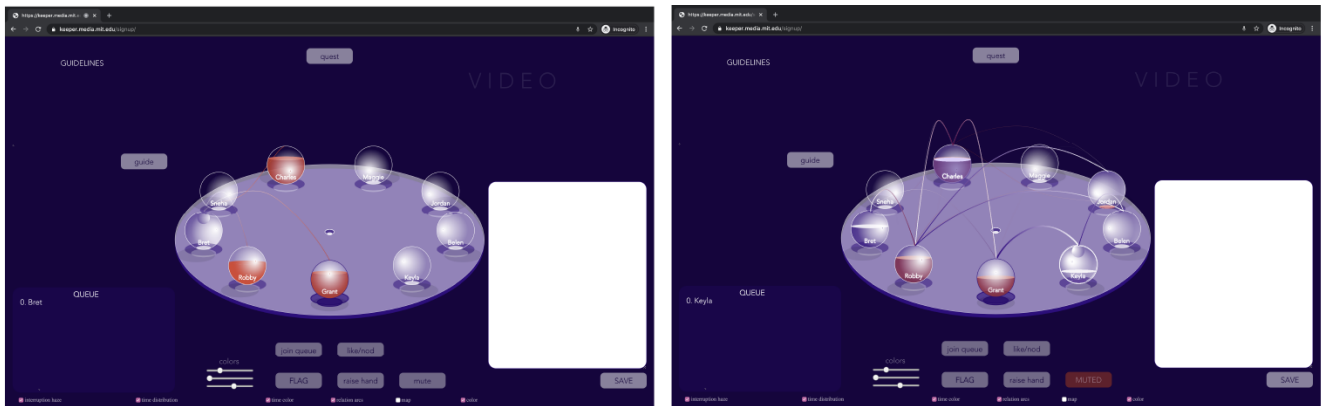


Figure 4.28, Example of whimsy of relational arcs at two points in a conversation. The first is quite early, the second after a few rounds. From this point, it looks like Sneha and Maggie have not participated or been included, some interruption arcs turned more purple, and though Belen hasn't spoken, she has given positive affirmation.

The relational arcs show a network form live as it develops and evolves as individuals within the group interact. The arcs are intended to make patterns that might form within the conversation visible, be they one person favoring another displayed by a strong visible arc between them of neutral interaction, or if a user is repeatedly interrupting another signalling and alerting a dominating pattern. Further, the arcs visualize participation and presence who might be displaying that presence by signalling nonverbally, but through the platform in other ways. For example, if a user repeatedly nods, lines will form from them to others signalling their presence and participation though they may not speak.

The network that forms within Keeper is fluid and whimsical to bring directionality, flow, and life to a diagram as opposed to a flat straight line. Further, the network visualizes dynamics that are often ignored in other network diagrams, such as speaking sequencing, or drawing relationships between those who speak right after another. Few platforms measure interaction and visualize it over time, and I have found none that show the network form, develop, and evolve over time. This reflects connection and flow back to the group, perhaps prompting more connection and flow, and makes visible those who are not being activated at all, those who are present even if they have not spoken, and those who might be exhibiting or receiving dominating behaviors. Finally, the arcs offer directionality and subjection to actions, as in, it reminds the user and the group that when someone interrupts or nods, they interrupt or nod towards someone, not simply the void. This hopes to remind users that their actions have an impact.

## FINAL NOTES

### METHOD PARAMETERS

One design principle was flexibility, which I hoped to embed in the platform by making all metrics and tools optional. The facilitator has the freedom to turn off the map, turn on the interruption haze, turn off the water lines, the relational arcs, and so forth. Further, the facilitator has the ability to break the queue, reorganize participants, send messages, and so forth.

### PERSONALIZATION

Throughout the user testing process, I received feedback around personalization: “can I add my photo to this?” or, “personalization would add a lot for kids on this.” Within Circle practice, there is a value in identifying that we are all present together as one group sharing space, but also that we come bringing our own experience to that Circle. Keeper holds this tension, and throughout the design process I have struggled with how much to prioritize personalization or the group feeling of oneness that might come with a uniform visualization. I decided to not incorporate photographs or personalization this iteration, but included the emotional expression of colors as one possible personalization and expression mechanism. For future iterations, I would love to explore the idea of personalization as a way to incorporate more playfulness into the platform, as well as a mechanism to bring more meaning to the space, like Circle keepers can when they invite participants to bring objects from home for the centerpiece.

### SURVEILLANCE

It is important to note that Keeper, though designed to hold emergent space, could be used in harmful ways. Namely, as a mechanism for surveillance or tracking. Keeper could remember who was dominant, who was interrupting, who was not contributing, and who might not be present on the page. With this in mind, when used in a work setting that data could be used against workers to identify who does not speak as much during meetings or who interrupts in a way that might be harmful for the worker. Of course, an employer could do this without the aid of Keeper, but having data commemorated or written offers a sort of proof or memory that could be harmful.

## IN SUMMARY

Trying to design the principles of 1) legibility and 2) greater social behavior into the platform, the goal with each metric is to be intuitive and highly legible and understandable. The idea that a participant will become more transparent when they have not spoken for a long time was seen as deeply intuitive for most interviewed. I remember one person explaining “like you’re disappearing from the conversation.” Further, the idea of taking up space or taking up time is visualized as filling up the space of your orb, another spatial metaphor of “filling”. The arcs, also, seemed obvious, especially their directional component, of people influencing or having relationships with one another. The network is such a common visual now of influence and relationship, all participants saw this as intuitive.

However, as mentioned before, these metrics in themselves assume values that do not necessarily always promote the kind of conversation this platform strives for, especially across age, gender, and cultures. The platform itself by choosing to display such metrics prioritizes equal speaking time, respecting turn taking, and so forth. These have biases, and if consumed, should be consumed with these embedded values in mind, not with the assumption that they communicate an objective idea of what is a good conversation. I hope to explore how I can make this more explicit, clear, and obvious in future iterations.

## MAP and SUMMARY

As discussed in Reflection and Memory within the Immersion section, a clear pain point within the growth of the facilitator is memory and reflection. As emphasized, obvious presence is essential when holding a space. Facilitator’s express hesitancy to divert their attention mid conversation, and even simple tools to remember ideas or not let them slip away from the moment, such as the note feature, was contentious within some facilitation practices. It was no surprise, then, that rarely did facilitators take detailed notes during their process. Some record themselves, some simply reflect and use memory, but there was a clear struggle to record or synthesize sessions and reflect on past sessions

With this problem in mind, I wondered how might we make use of the unique tools and capacities offered by technology and the unique capacities offered by Keeper to try to ease facilitator and group reflections?

A visual aid made the most sense in this quest, for facilitators when reflecting and looking for patterns and relationships between people and content. I first explored diagrams of more detailed stills of the Keeper Live structure. To more clearly stretch out those diagrams so facilitators can observe across time, I played with the idea of how to visualize time in an object, or how the Keeper structure could leave trails and traces of the conversation behind it as it developed. Perhaps from a different angle, it made more sense to simply pick key points and make a

summary for the facilitator, like Scratch Memories<sup>104</sup> or Facebook Memories.<sup>105</sup> Exploring this, I made a “scrollytelling”<sup>106</sup> summary of an example conversation from the perspective of one person within that conversation, giving them a performance report in a small, consumable, legible package.

And though these explorations were interesting, most were hard to read, made exploration and pattern finding difficult, and so forth. So, I decided to make the visual reflection aid more like a conversation map. I drew inspiration from the Local Voices Network work, referenced in context. Keeper feels like a cousin to this work, which brought technology into facilitated dialogue, but through hardware. Facing similar challenges of how to go back and listen to a conversation to observe trends, the Local Voices Network engineers developed a tool, Leaven, a portion of which is displayed below.<sup>107</sup> This tool visualizes the conversation over time and allows participants and facilitator’s to explore their conversation.



Figure 4.29, Leaven, an exploration and mapping tool of the Local Voices Network

In this visualization, a list of users sits on the left, the visualization of the conversation across time then starts from left to right, and key words of topics of interest sit above the visualization. Each person has a block in their row signifying moments when they have spoken. With the reference of an old radio, a greed dial allows a user to surf through the conversation and listen to it as it progresses and play it live. As a first iteration, I found the organization of speech as blocks to be quite intuitive, and a sort of reference to who is holding the attention and filling space at that moment in time. However, my main emphasis was on the patterns of the conversation rather than the content, through

<sup>104</sup> Dhariwal, Shruti. “Scratch Memories.” Proceedings of the 17th ACM Conference on Interaction Design and Children, 2018. <https://doi.org/10.1145/3202185.3202770>.

<sup>105</sup> “Memories.” Facebook. Accessed May 17, 2020. [https://www.facebook.com/help/1056848067697293/?helpref=hc\\_fnav](https://www.facebook.com/help/1056848067697293/?helpref=hc_fnav).

<sup>106</sup> Amabili, Lorenzo. “From Storytelling to Scrollytelling: A Short Introduction and Beyond\*.” Medium. Nightingale, August 22, 2019. <https://medium.com/nightingale/from-storytelling-to-scrollytelling-a-short-introduction-and-beyond-fbda32066964>.

<sup>107</sup> Leaven. [app.lvn.org](http://app.lvn.org)

content is incredibly important. I ended with the following design of the map itself (with augmented, brightened colors for heightened visibility):

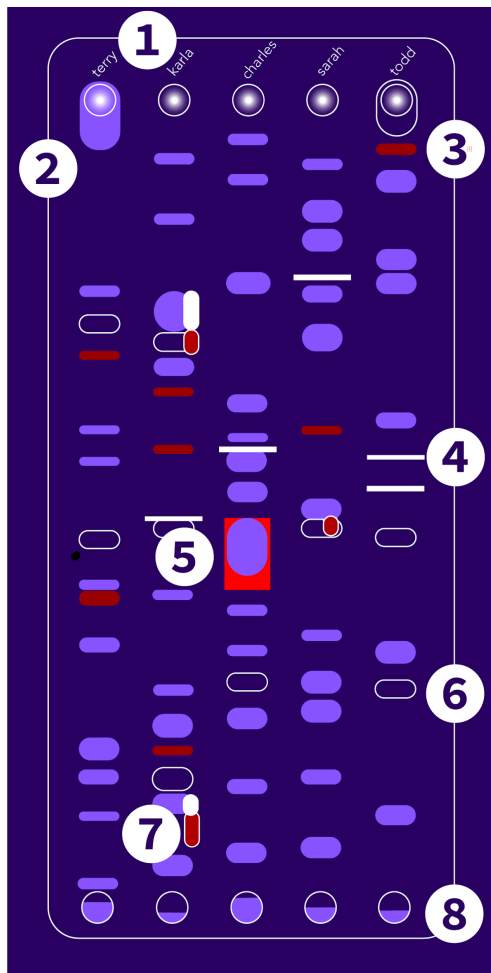


Figure 4.30: The user's map Each number in a white circle has a matching description of the feature below.

1. Each user is visualized with their name and orb. The orbs that represent each user at the top of the map represent the current moment, while the orbs at the bottom represent that past. As time goes on, the curved rectangles will fall from the top to the bottom, and the length of the map will adjust to the time of the conversation. The height of each curved rectangle suggests the amount of time that action was done. If there is no curved-rectangle, the user was not doing any action during that time in the conversation.

2. When the user does some action on the platform, such as speak, data will show on the map. The data manifests as curved cornered rectangles, or blocks, that animate to sort of "fall" from the top circles.

3. Red blocks signal when someone is interrupting, purple signal when someone is speaking in turn.

4. White lines on the map represent private messages between the user who views the map and the user who the white blocks fall under. For example, this map visualizes Terry's perspective, and the number four falls next to Terry's private messages with Todd.

5. Bright red right-angled blocks signal when "flagging" was occurring in the conversation.

6. "Nodding" manifests as white, empty, blocks like the visualization in the live structure manifests as white, empty orbs.

7. Thin, off-center red blocks with white outlines signal when a hand is being raised. When the hand turns white, the signal on the map turns white.

8. The bottom orbs show the portion of time each person has spoken during the conversation through water lines.

I experimented with the map being drawn live during a conversation for the facilitator to see, a sample shown here:

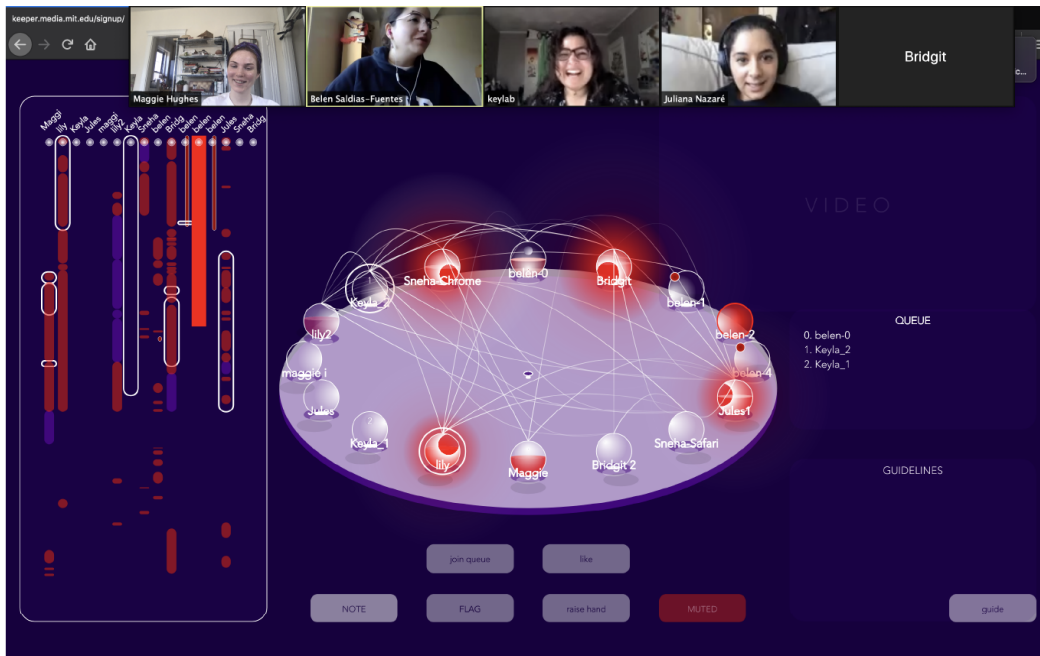


Figure 4.31, Example of the Map drawn live as a part of the live structure. A group of users stress-test the tool in an effort to test where it might break, giving context to the many relational arcs, red hazes, flagging, and constant snapping. This test was after the initial experiments, and I found video to be an interesting, rich element. So, we explored and experimented with video as a possible additional signal to include.

The intention behind the Map in the context of the Live Structure was to be able to use the Live Structure signals as a sort of key. Each piece of data in the Map directly references the visualization of that signal in the Live Structure. For example, in the Map, the manifestation of a user “nodding” over time is a white stroked block with nothing in the middle. Similarly, in the visualization, “nodding” is a circle, white stroked, with nothing in the middle.

As the goal was not initially to add another layer of input for the facilitator in the live structure, I prototyped what a summary of a conversation would look like, with the Map isolated from the Live Structure in Figure 4.32.

In this summary, audio of the conversation, the notes taken during that conversation, and transcribed audio could be synced to the map, allowing for more fluid and comprehensive exploration of the conversation. Further, a note taking mechanism for the summary and annotation space within the map itself could incorporate analysis and reflection into the Map and Summary itself for the users.

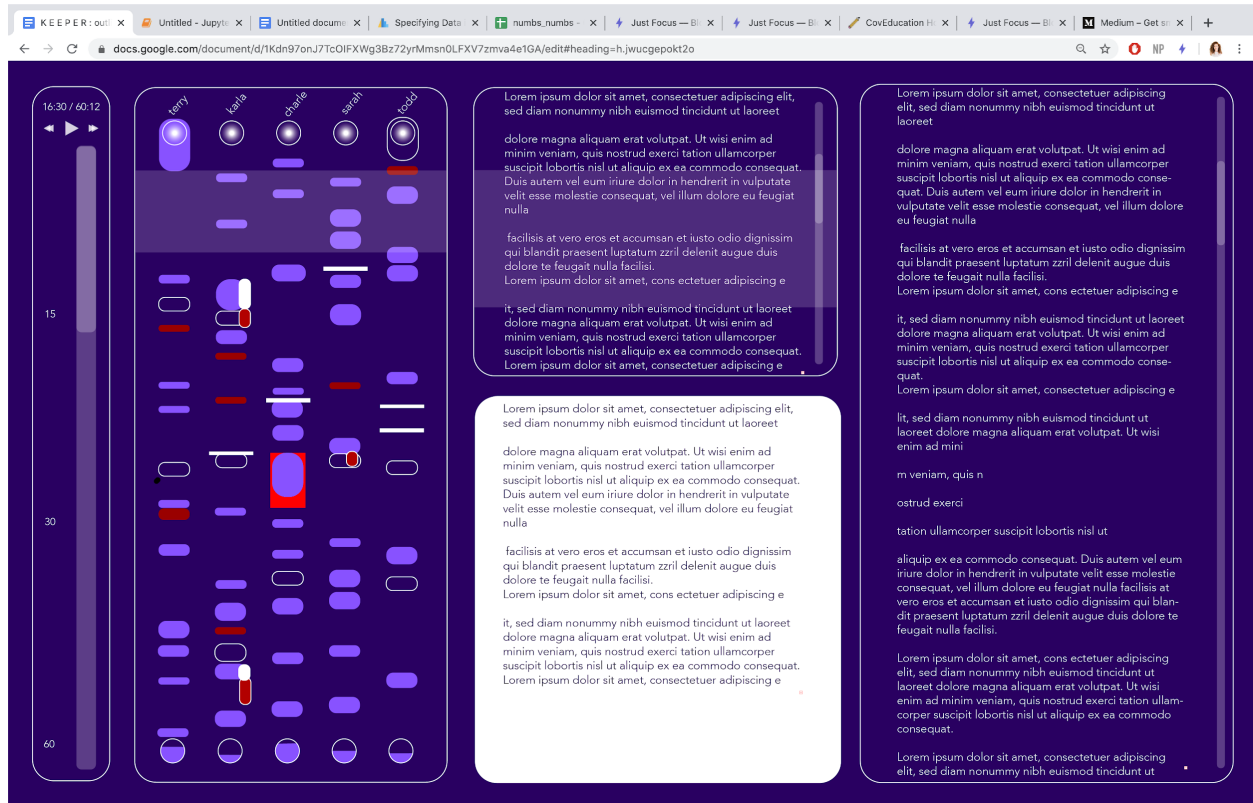


Figure 4.32: A prototype, and example of an interface of a more developed map and summary, including notes, audio, transcripts, and possibly deeper analysis of the conversation.

With an emphasis on the patterns within the conversation and the way the conversation unfolded, rather than the topics only, the summary could also include larger habits and patterns over time displayed in alternative data visualizations. Further, with the possible introduction of NLP and ML processes, data such as rate of speech, tone, and vocabulary similarity could be extrapolated and displayed for the use of the facilitator.

However, for this thesis, I explored the possibilities a visual Map might offer during the reflection process. Here, I outline what patterns might emerge when using a Map that might have been missed or sat just as suspicions without any data to back them up.

First, the Map can highlight when shifts in a conversation occur, be they based on tempo, who is taking up the most time in the conversation, or what kind of actions occur. For example, in Figure 4.33, the beginning of the conversation seemed to be predominantly the first two participants going back and forth at a rapid rate with many interruptions. There was even a moment when someone raised their hand but was ignored. But then, some intervention occurred by the middle participant. Everyone snapped, someone raised their hand to speak and was called on, and the conversation shifted greatly after that moment. Turns were longer, there was less if no interruption, the people who were silent got a chance to speak, and there were more positive affirmations. A facilitator might take note of that intervention. What happened there? Why was the conversation so quick before, and why did it slow after?

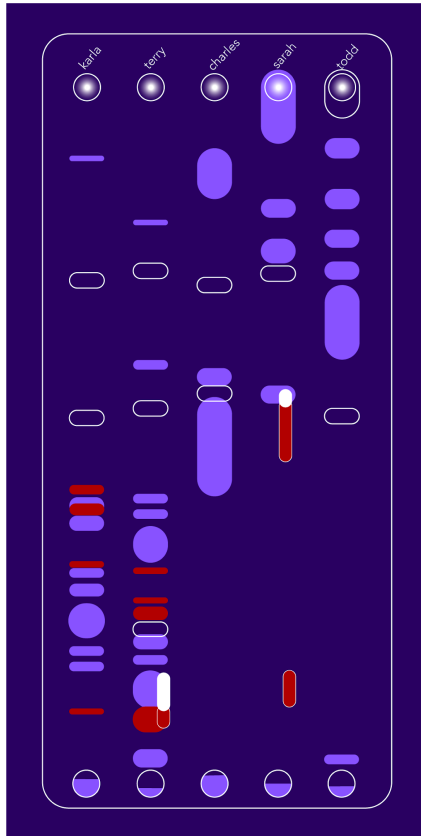


Figure 4.33: An example of a map. At the beginning of the conversation, Karla and Terry take up the most space and interrupt. In the middle, Charles intervenes and changes the tone of the conversation and who takes up time.

Another example shows an instance of less macro patterns, but smaller, more subtle patterns in Figure 4.34. For example, It seems there are few interruptions, but when they happen, they often occur to the first user in the map, Karl. This would be visible as well in the live structure, for red arcs would only form between participants and Karl, showing that dominating pattern. The facilitator might notice it here and wonder, what is the nature of these interruptions? Are they helpful and moving the conversation along? Or are they more dominating, shutting him down? It seems in one, he was interrupted but then the turn switched to that person, and he clicked the “nod” button during his turn, suggesting he valued that interruption. But the others are unclear. Perhaps a check-in with Karl could be useful, or perhaps keeping this in mind for the next conversation will help identify what is going on.

Further, in the same example, there seems to be a relationship between Karl and Terry, the two first users. Almost everytime Karl speaks, Terry speaks after. Is this meaningless, just a simple instance of minds thinking alike? Or is there some relationship there that makes Terry comfortable to speak when she might not feel comfortable to speak after anyone else?

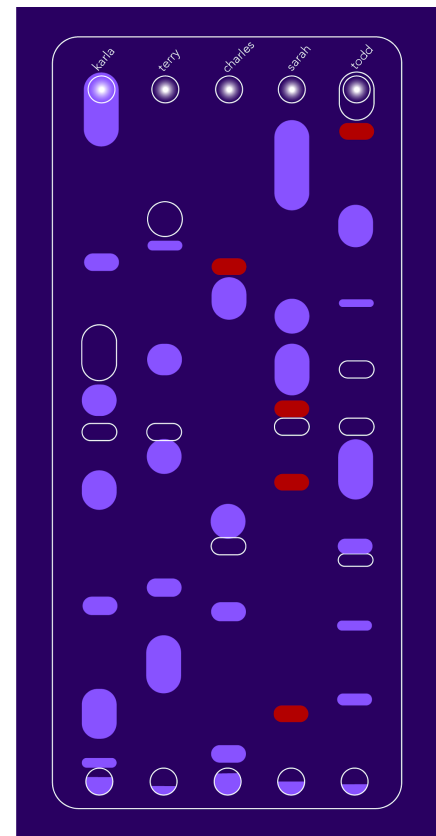


Figure 4.34: An example of a map. More subtle patterns exist in this map. For example, each person who interrupts, interrupts Karla. Further, Terry always speaks right after Karla.

I hope to explore possible iterations of the Map in future work, but within the current iteration a few key pieces worked and I believe offered value. First, the live drawing of the map is unique and interesting, and allows for a more nuanced memory and understanding of the discussion as it shifts live. Further, to see how the conversation manifests over time live seems legible and intuitive, though overwhelming if too much information and animation is occurring in the Live structure at once.

Second, the direct reference to what is going on on the board is also interesting in this context, with each visualization directly referencing the Live Structure, using signals and metrics as a sort of key. Finally, patterns do become clear that may have been forgotten, unseen, or subtle in the conversation.

My map was a quite literal, direct translation of what was happening in Keeper. However, there is great wealth and richness in the space of visualizing social data across space and time. This two dimensional, linear visualization scratches the surface of possibilities of what a map of a conversation could be. Upon entering the space of the "map," especially the many dimensional, dynamic, and fluid map of a conversation, I began to understand the monumental undertaking of creating a meaningful, innovative map of a conversation could be. The map was able to go through only one iteration. However, I hope to explore how it could develop and manifest in the future to more intentionally display a conversation and dynamics that may have existed there. Some areas I hope to explore further:

#### LINEARITY

Does the Map need to display the happenings of the conversation over time in a linear way? As shown by graphic scribing, graphic facilitation, and so forth, conversations can be visualized in a meaningful and comprehensive way in a flowing, dynamic, organic shape and flow. In fact, that organic flow can often be more accurate and effective in describing the multidimensionality of a conversation in a way linear components cannot.

#### DIMENSIONS

Further, could the Map engage in more artistic ways? Can it also display tones of conversations, emotions, energy? How many inputs can we put into a map before it starts to become illegible? Could we move into a third dimension with the Map? What about making it an animation that can evolve over time, almost moving back and forth through time to show how the conversation changes on a slider? A sort of 4th dimension of time?

#### NETWORKS

The networks of the conversation are implied within the current Map, but I wonder if they could be more explicit. Should a network graph be included in the summary? Should that change and display over time? Could we get into the more complex aspects of relationships within the map with NLP or ML processes?

### IN SUMMARY

Visualizing a conversation as a summary for reflection and learning could be a thesis in itself, which I completed one iteration of here. I am excited by the topic and possibilities, and hope to explore it in the future.

## CONCLUSION

In this chapter, I described the design process of Keeper, including the Live Structure and the Map and Summary. Within the Live Structure, I explained the thought behind the architecture and metaphor of spaciousness, the use of tone setting devices, the scaffolds and signals incorporated into the tool, and logic behind the Map and Summary, and a few final notes on design decisions. All of this work was in the pursuit of designing a platform informed by the values and goals set forth within ASTs, and principles of interface design set by innovative and exploratory interface designers.

In the following chapter, I will describe my evaluation of Keeper. In that evaluation, I hope to see if Keeper can successfully meet the goals of those ASTs while engaging with innovation in interface design.

## EVALUATION

This chapter describes my evaluation phase. As a refresher, the driving questions of Keeper are:

Methodological Questions:

Can we create a platform that has the methods of ASTs (rounds, guidelines, respect and invitation of voice, and tone setting) embedded into it? How might we design the platform in a way that promotes use of these practices?

Experiential Questions:

Can we create a platform that helps prompt reflection and naming, without shaming and silencing? That allows people to feel more connected and a part of that oneness? That whole? Can we design a platform that mirrors the act of all coming together, feeling the energy you all share? And can we create a platform that promotes that Spinozan definition of Joy, of challenging growth and change, of vulnerability and emergent transformation (though it will not fill this goal, could it support people as they try to fill this goal)?

Reflection Questions:

How might we synthesize and summarize conversations? How might we collect meaningful data to analyze the conversations? How might we make the conversation dynamics and content visible and legible to the facilitator to use as a reflection tool?

To implement and evaluate, I chose to first test with “normal” users, or users with no experience in the facilitation space, in order to identify if the design of the physical space itself had impact on the quality of and methods used in conversation, and the experience of the individual *without* the added intervention of a facilitator present. Then, I had a series of 10 interviews with experts within the space of facilitation from a wide variety of backgrounds and practices to see if, from the facilitator’s eyes, the tool could ease their conversations methodologically, and support their experiential goals. With them, I also addressed how the Map might aid their reflection. Finally, I held two group playtest-interviews with facilitators to ask these same questions in a group setting.

## EXPERIMENTS

When designing the initial user tests and experiments, some common questions I received were: “Should you offer a puzzle or simple challenge? Should we measure success by the equality of speaking time within the conversation?” In response, I reference the goals of the platform and one of my design principles: *Prioritize Experience over Performance*. The goal of the platform is not to increase efficiency or the speed with which a team can solve a problem, though it may help enable that. Rather, the platform is intended to enable a deeper, more meaningful experience, emergent space, online with a group. Therefore, I do not measure the speed of solving a problem, or how long everyone in the group spoke. Rather, I measure if they felt more heard, connected with the other

participants, able to be more vulnerable, invited to speak, or invited to give space for others to speak than they do on other platforms, key features of emergent spaces.

In order to measure conversation outcomes without the added intervention of a facilitator improving that quality and depth, I pseudo-facilitated conversations. This pseudo-facilitation did not include tone setting, warm welcomes, introductions, guideline and values creation, or really any kind of ritual. Rather, I stripped facilitation to almost nothing. I thanked all participants for being present, and walked through the tool, the metrics, and the features. I explained simply that “the goal of the experiment was to explore alternative ways to have conversations online.”

My choice in what metrics to display, what features to have, and so forth inherently sets the tone and scaffolds for a certain kind of conversation by embedding the platform with certain values. With this in mind, I hoped to see with almost no facilitation, how Keeper could support or alter their conversation. Therefore, I framed the talking piece, the queue, and all other features as, “it is there if you want it, you don’t have to use it.”

Finally, I incorporated rounds as discussion prompts to get the conversation moving, and a closing period of reflections to collect data. Those discussion prompts were not created with empathy as they might be in Circle, did not ask for personal experience as a Coach would, did not invite complexity as one would in Dialogue Across Difference, and were not designed to enable deep, physical reflection like Theory U can. I did not ask participants to listen deeply, assume good intentions, or speak with kindness like facilitators might.

When choosing the questions, I wondered how we could create a basic conversation, with enough conflict and debate that it promotes turn taking and discussion, that invites participants to speak and makes them curious, but does not offend or create conflict that would cause them to leave the study. With this in mind, the questions were designed to be ambiguous, offer false dichotomies, without having the emotional baggage of politically polarized topics. In this quest, I pulled a series of questions from creative and persuasive writing contest prompts, as well as workshop prompts intended to highlight ambiguity and debate. For example, some questions included:

“Will technology save or destroy us? Why?”

“Is social media making us more narcissistic?”

“Is it the artist’s responsibility to disrupt or unite us?”

“Should children be taught and evaluated on social and emotional skills like “grit” in school?”

Participants were recruited through MIT’s Behavioral Research Lab (BRL). The participants for this study were recruited from an existing pool of participants held by the BRL. From this pool I recruited 150 participants, of which 72 participated. Each conversation was 40 minutes long with at least four people and at most eight.

There were three treatments of the conversation. One, all cameras were off, everyone could see everyone else’s metrics including their own. Two, all cameras were off, everyone could see only their own metrics, no one else’s. Three, all cameras were on, everyone could see everyone’s metrics. When cameras were off, I asked all participants

to have Keeper full screen and to stay on the page the whole time. When cameras were on, I asked the participants to format Keeper so it took up half of their desktop's screen, and have the video call take the other half. All audio and visuals were recorded through a screen recording of each call.

## PRE and POST SURVEYS

I anticipated that for some, this tool could offer a breath of fresh air in that it creates space, supports making room for the more quiet or awkward soul. However, I similarly anticipated that it would feel as if it silenced some, especially those who are prone to take up more space or dominate. With this in mind, I created a pre-survey to identify personality traits of the participants.

I designed the pre-surveys as augmentations of Big Five Personality Trait surveys,<sup>108</sup> focusing predominantly on introverted/extroverted questions. Further, I incorporated personality questions with self-reports of interaction styles within social spaces. I engaged with their collaboration experience and facilitated dialogue experience as well, hoping to draw an initial sketch of how they might feel and how they might take up space during a conversation. In an effort to understand their ability to read social and emotional cues from others and themselves, I asked a few questions about their perceptivity.

The data revealed very few extroverted, dominant people, and that most participants self reported to be socially and emotionally intelligent, more introverted, collaborative listeners as a whole, making them perhaps better suited to find value in the tool than the general population. I do wonder how a more cognitively diverse group of participants might fare with the platform.

## KEY THEMES

From these conversations, reflection discussions, and post surveys, a few key themes emerged. In the following section, I quote the participants and summarize the themes. Bar charts signify the distribution of answers in the survey. The title of the chart was the survey question, the answers were associated with the numbers of the histogram (1 - Strongly Disagree, 2 - Disagree, 3 -

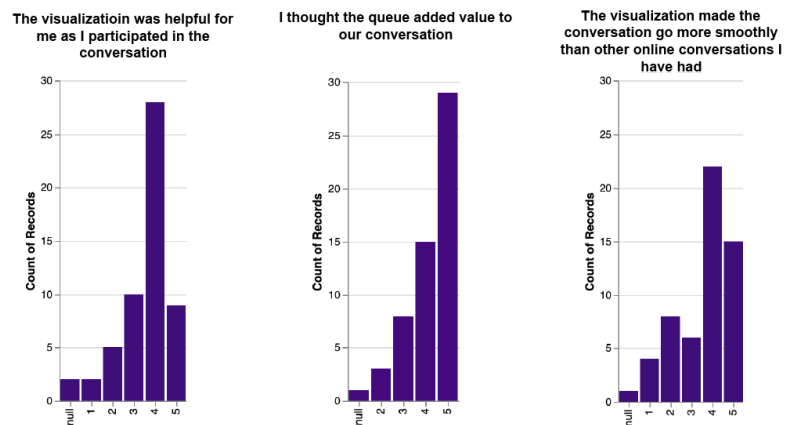


Table 5.1, Group of Histograms, the majority of participants through the queue added a great deal of value to the conversation, and that the visualization and environment overall made the conversation smoother.

<sup>108</sup> Rothmann S, Coetzer EP (24 October 2003). "The big five personality dimensions and job performance". SA Journal of Industrial Psychology. 29. doi:10.4102/sajip.v29i1.88

Neither Agree nor Disagree, 4 - Agree, 5 - Strongly Agree).

#### VISUALIZATION FEEDBACK

In the survey, I clarified that the visualization was the design of the space and the tools, and the metrics were purely the mirrored metrics. When I asked about the visualization as a whole in relation to the conversation, a strong majority of participants skewed toward finding it helpful and easing the conversation along, as seen in Table 5.1.

#### QUEUE and TALKING STICK

There was an overwhelmingly positive response to the talking stick and queue as seen in Table 5.1. Every group chose to use the talking stick and the queue. The design of the tool prompts and enables this, though I framed it explicitly as totally optional. Participants would not speak unless they had the talking stick, and even when there was a short delay between the person currently with the stick finishing talking and passing the stick, the person next in line would not speak until the talking stick registered in their orb. This deep respect for the talking stick and the queue was surprising for me. During Circle, there is great ritual around the talking piece, suggesting this is an important object with meaning, and should be respected. I was surprised to see a group abide by it so strictly without such a ritual attached and with only a short reference to it at the beginning. Some participants' feedback from the conversation and surveys:

"Once I joined the queue, I didn't feel like I had to wait for social cues or until the other person was finished speaking to interject. The social anxiety from waiting to speak / awkward silences was nearly completely eliminated."

"The tool let me listen more actively while not worrying about interrupting someone/having to fight to get my views in"

"In this way, I think that it allows people who are shy of cutting people off in conversations the chance to speak too. Also, the ball helps me see when a person is done talking, so I don't interrupt what that person has to say."

"I think the conversation was probably much better organized with the tool than it would've been without it. It was refreshing to keep trains of thought going without interruption."

#### SHAME and PRIDE

There were a few participants who were chomping at the bit to speak during the entire conversation, who often reported to be more dominant in the pre-survey. At the end of each conversation, I created space for the group to collectively reflect and give their first impressions and feedback on the tool before leaving. In this time, those participants reported feeling stifled and frustrated by the talking piece, for they could not jump in when they wanted to. Of course, I understand their frustration and identify it as good feedback. However, I also take this frustration as a sign of success. In-the-wild conversations are constantly unequal, revealing dominating patterns of men speaking

more than women at remarkable rates.<sup>109</sup> With this in mind, to try to push back against this inequality means giving more time to the group that has less (women, people of color, introverts, etc.) and asking those who might be prone to take up more space to be patient, which might foster frustration. Of course, we hope to give more time to those who have less without *silencing* those who have more.

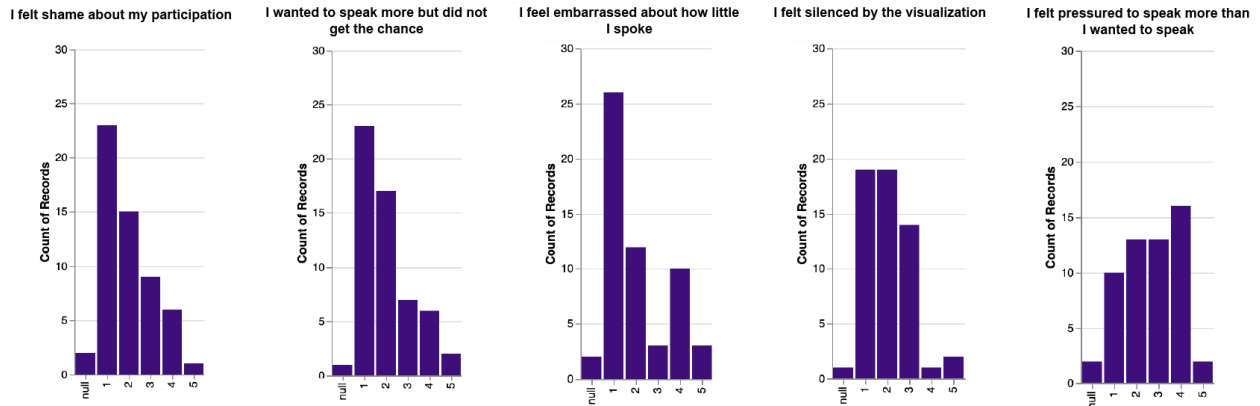


Table 5.2, Group of Histograms, the majority of participants did not feel shamed, embarrassed, or silenced, though some felt pressure to speak more than they would like to normally speak.

I actively hoped to create a space that promotes positive social interactions without shaming, embarrassing, silencing, or harming those who participated in anyway. I asked about the participant’s feelings towards their participation in the post survey, with their distribution of answers displayed in Table 5.2. On average participants did not feel silenced, shamed, or embarrassed by the tool. However, the trend showed that some did feel pressure to speak when they did not necessarily want to, perhaps a symptom of the experiment conditions or the tool itself.

However, though the trends suggest that a majority did not feel negatively about their participation, some strongly felt shame and embarrassment. I am left wondering, did the tool make them feel this? Would they have felt this in any conversation? If so, did the presence of the tool ease or exacerbate these feelings? And if the tool caused them to feel shame or embarrassment, is it alright if a couple percent of participants feel negatively? Or absolutely

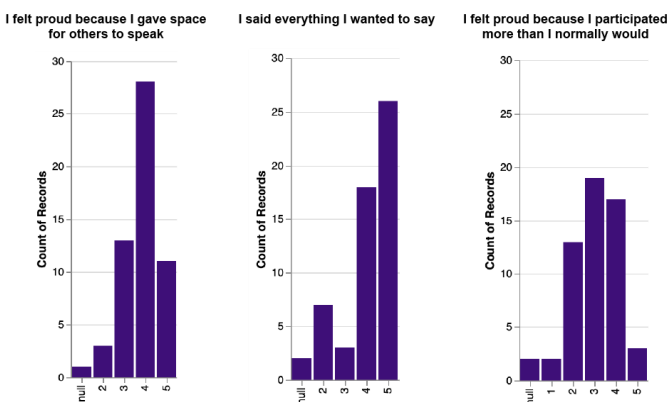


Table 5.3, Group of Histograms, the majority of participants felt proud that they gave others space to speak, and some felt proud about their increased participation.

problematic? For future research, I hope to explore how we make it known that individuals are dominating or interrupting without shaming them.

Finally, asking questions from the opposite angle, I explored if participants felt pride around stepping back for others to speak, if they had space to say all they had wanted, and if they felt pride for participating more than they might normally. On average, trends suggested

<sup>109</sup> Wodak, Ruth. Gender and Discourse. London: Sage, 1997.

participants felt pride and satisfied with their participation after the conversation, as shown in Table 5.3.

ISOLATED and COMMUNAL METRICS

How strange it feels to see others being tracked or measured in front of you. It almost feels like being naked, or vulnerable in some way having that memory of your interactions. And with that vulnerability, I, again, deeply worry about the feeling of shame. With this in mind, I tested the tool in two states, isolated metrics and communal metrics, meaning I tested when users could only see their own information, and when they could see that of others respectively. Within the post surveys, there was a slight majority that reported having seen other’s metrics as influential in their participation as seen in Table 5.6. Diving into what that influence looks like, and specifically if it made the users uncomfortable or confident, it became clear that very few participants reported feeling uncomfortable at seeing other’s metrics, and rather felt more secure in the ways they participated *because* of those metrics. Of course, the most common response for these questions was “neither agree nor disagree,” suggesting a strong trend of indifference within participants, as well.

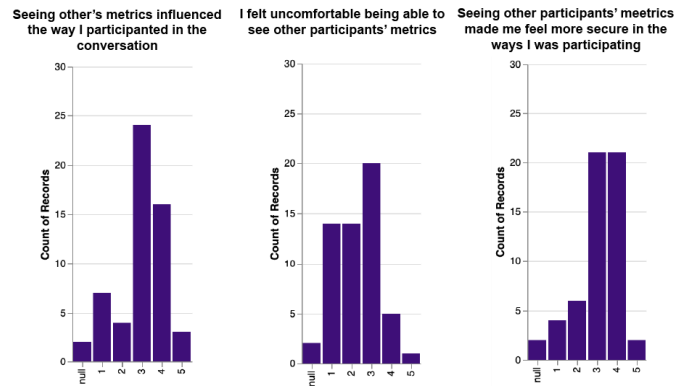


Table 5.6, Group of Histograms, the majority of participants reported that seeing other’s metrics influenced their participation by making them more comfortable and secure in their own practices. Few reported feeling uncomfortable seeing other participant’s metrics in post surveys.

Then I asked a question about feelings of shame, comfort, confidence, and self-awareness when having their own metrics reflected back to the group and back to themselves. Upon investigation, it became clear most participants felt influenced by seeing their own metrics. That influence leads a slight majority to have more confidence to speak, as seen in the second histogram of Table 5.7. Further, that reflection made some participants more self-conscious and pushed others to second guess themselves. However, the self reported self-consciousness might not have the negative connotation society often gives it, for in the end, the participants skewed towards enjoying and finding value in seeing their own metrics, as shown in the final histogram of Table 5.7.

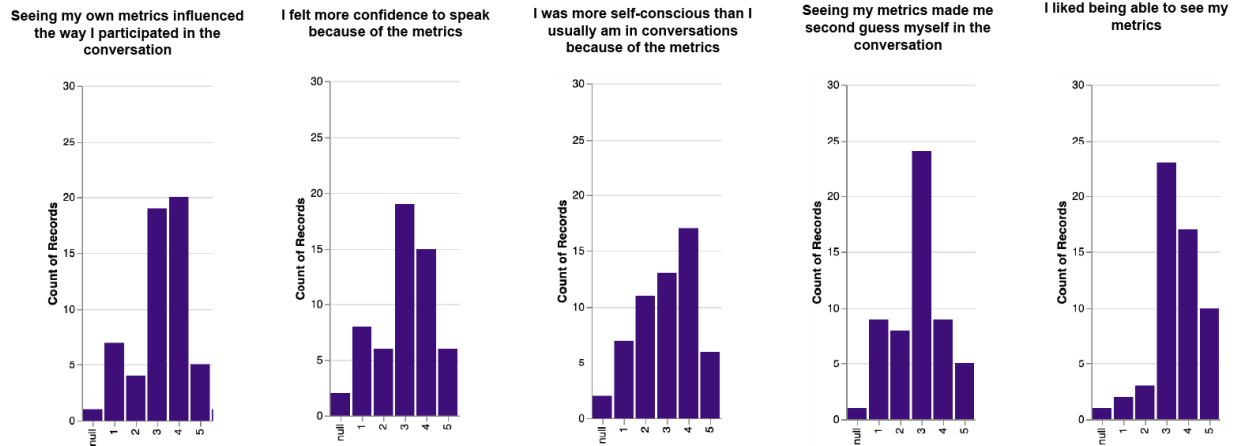


Table 5.7, Group of Histograms, Participants reported seeing their own metrics influenced their participation. They reported feeling more confidence to speak, while also feeling more self-conscious. There was no clear pattern around second guessing one's own participation. With this in mind, participants reported liking being able to see their metrics.

When using in their own words, some participants explained the great value of showing metrics, where other's explained their worry. Some feedback:

"When you're in a face to face conversation and someone is dominating, you see it but you chock it up to, oh this is fine... but I think if it's displayed here, it might carry more weight and have an actual effect and influence that behavior."

"If you let people see each other's metrics, I think that would be a big negative because it would create artificial bias in the conversation. For example, if you could see someone else's orb was red you might get annoyed at them for interrupting or if you saw that someone was speaking less than someone else you might think that person wasn't contributing fairly when in reality you wouldn't necessarily notice those things without a hard and fast metric."

I chose these two quotes for in my mind, they speak to one another. For many, interruptions and domination go unnoticed. However, a driving force of the design of these metrics is to make them noticed in cases where they are not ideal. The second quote brings up an interesting point around fostering frustration. In a survey question shown in Table 5.4, participants reported that the visualization helped them feel positively towards other participants. Further, participants reported not feeling shame or embarrassment shown in Table 5.1. But this point still arises, and I am left wondering, is there space for a small minority to feel nervous about participants being frustrated or annoyed? If there are some people still feeling shame or embarrassment, even if it's a few, that loss might be too large. Should success be defined only by an absolute absence of negative, harmful feelings? A question I hope to explore in future work.

COMFORT

On average, participants felt both invited to speak with the introduction of the visualization, and more comfortable to speak. This task often falls only on the facilitator, so the idea that the tool itself can make individuals feel invited and welcomed to speak, as well as feeling

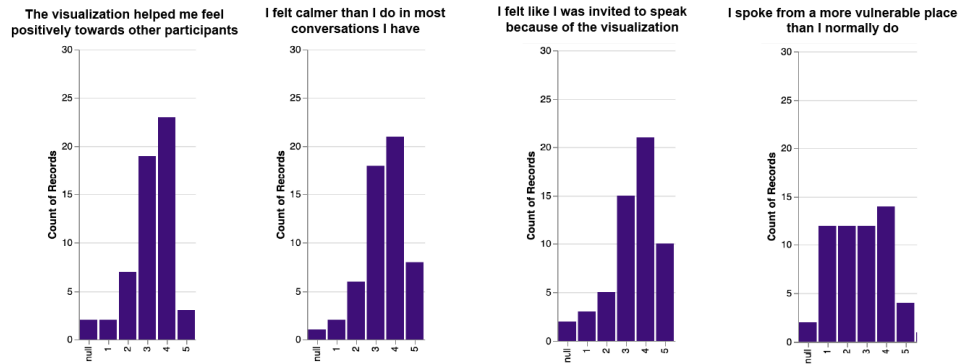


Table 5.4, Group of Histograms, the majority of participants reported the environment made them feel positively towards others, calm, welcomed and invited to speak. Participants on average reported speaking from a place of more vulnerability slightly less than they normally do.

more comfortable to speak in conversations, was a mark of success. As shown in Table 5.4, participants felt calmer than they do in most conversations, felt positively towards other participants, and felt as if they were invited to speak. However, no pattern emerged suggesting participants felt more comfortable to speak vulnerably, suggesting that the tool alone will not aid that goal.

Further, participants reported both feeling heard by other participants, and that the tool aided them to feel more heard as seen in Table 5.5, a key value within facilitated discussions and dialogue.

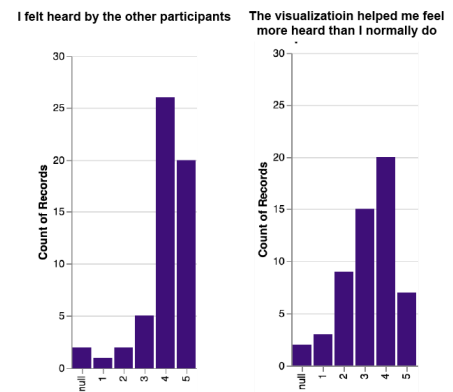


Table 5.5, Group of Histograms, Participants reported feeling heard by others in the conversation, and reported that the visualization contributed to that feeling.

SIGNALS

For some, there was an ease of hitting the nod button that allowed them to use it a lot more. I remember one stark moment in particular, in the treatment when we had cameras on. A young woman, college aged, had a blank face for most of the conversation, only every once and a while flashing a smile and nod before a quick return to her stoned face. However, she then started to click “nod” and not change her expression, not show any physical signs of agreement, but still click the button. I believe this suggests that offering some communication signals would allow people to communicate in even more ways than if they were just in person. Further, there might be even less friction in clicking buttons than physically or verbally showing your agreement. One participant noted that she valued the relationship arcs showing not only speech engagement, but also “nod” engagement and so forth, “I liked how the connecting lines showed that participation doesn't have to be by speaking; just nodding/positive affirmation establishes a connection between the speaker and the listener.”

RELATIONSHIP ARCS

Users seemed captivated by the relationship arcs and deeply excited by this idea. I framed it as “influence,” though I specified that influence might be misleading, for the few inputs I use to determine influence are time spent

nodding, speaking, raising hand, or flagging during someone's turn, and then if you speak directly after a person, that influence will grow.

The groups were universally fascinated by the relationship arcs. I speculate that the idea of being able to see a network form *live* in front of you is interesting and special. Some groups reported it felt like it showed a social network forming and changing dynamically over time. Further, to have some visual of who is having influence, who is getting snaps from who, who is interrupting and dominating who, was exciting.

"I really like how you can see the lines to see patterns forming, back in school when you're having a socratic discussion you want everyone participating, and if you see one person talking too much and others who haven't talked at all. And in school, it's easy to get into a discussion and get carried away between two people without them realizing, and then you get to the end of the discussion and you realize these people haven't spoken the whole time, it was just a back and forth between this little group."

#### RAISING HANDS

To raise one's hand, or select that button, seemed to have the most unclear use for participants. Perhaps this was due to my poor explanation, perhaps the time never arose in such a short period for raised hands. In post-surveys, participants suggested it might be interesting and that they could see a potential use for it, while others found it redundant while the queue exists. It was only used successfully (outside of playing around at the beginning to see what the buttons did) twice during these first experiments.

#### VIDEO

After introducing the video into one conversation, I instantly noticed a warmer, more expressive, welcoming tone. Being able to see the participants smile at one another, nod their heads, and so forth, in my eyes, improved the comfort of the person speaking and acted as an invitation to continue in that line of thought or for another to jump in. Further, if it was a risky or taboo topic that was received with smiles, more would continue to allow themselves to be a bit more vulnerable. However with another conversation, it increased tension, awkwardness, and discomfort in some ways. From observation, the value that comes with the introduction of video depends on the personality of the group. When asking participants who had video if they valued it, these were some responses:

"I think the video was important. I think being able to look at someone, to read their expressions and body language, is very important and adds a lot to a conversation. So I feel like integrating the tool itself with video, i.e. having everyone's video inside their orbs, could be the best way to have an online conversation."

"Even though there was the "nod" button, I still gained a lot from facial cues like smiling and head nodding. That felt a lot more personal than the positive feedback from the orb."

"yes- i liked to give affirmative smiles and nods"

This seemed like a common experience, though some participants found that no video added a layer of empathy and understanding that might not have happened with cameras on:

“Honestly easier to talk about certain topics. If it was really hot topics that are going right now, it definitely wouldn’t have been as easy as if we were looking at each other in person.”

Another person expressed that the space, even without video, made her feel closer to other participants than she expected. For future work, I would love to explore the benefits of video or audio, and possible ways to selectively include components of video into Keeper or future platforms.

#### tone and ARCHITECTURE

Participants found the design and the tone of the space to signal specialness and promote deeper connection in a surprising way. At the end of one conversation as the group reflected collectively, one participant explained:

“From a design perspective the space... In other forms you’d either have an image of the person or not and that should make you feel closer, but just from the setting you created it makes you feel closer. Which I didn’t expect it to work that way but it does.”

The space also read as intuitively calm for the participants:

“I liked the aesthetic and calming feel of the interface.”

“I think it felt like a fairly organic way to organize conversation and allow everyone to be heard”

And in terms of metaphor, many participants noted how it referenced real life scenarios:

“It is great. It simulates a round table conference kind of feel that is awesome.”

#### EDUCATION

Though the tool was not framed in an educational sense or with references to children or school, some participants observed its potential value in the classroom setting or with children learning social and emotional skills. Some insightful quotes from the private surveys:

“It is definitely something I haven't seen yet but think we need in today's classrooms.”

“I think it could perhaps best be put to use in groups of younger participants, even children, who may have the hardest time with interrupting each other.”

“Normally I don't like class conversations because I never know when it is my turn to speak or interject. I don't like speaking up when I don't know when people are done talking usually but I here it's nice to have a queue”

Participants saw the potential use within classrooms and online spaces as unique and needed. Namely, children who are learning social and emotional skills can struggle by speaking over one another, displaying impatience and frustration, and so forth. I found this suggested relationship between Keeper and young people to be exciting and interesting, showing potential future applications of the tool

## CONCLUSION

In conclusion, without intervention from a facilitator, the space invited participants to speak, made participants feel heard and feel pride, did not actively silence or shame, and set a calm, sacred tone. Most saw metrics like relationship arcs and distribution of time were seen to promote a more equitable conversation, while a minority offered valuable concerns of metrics leading to shaming or gamification. The queue and talking stick were seen as deeply beneficial, and those who reported to be more dominant or extraverted found the tool more restrictive than those who were less dominant, arguably the group this tool serves.

## EXPERT DISCUSSION

After collecting data around how users experience the tool and how Keeper influences a participant's experience and a conversation's quality or depth, I set out to understand a trained and experienced facilitator's perspective, critique, and understanding of the tool.

For my second period of data collection, I conducted a series of interviews with expert facilitators, focusing on those who have experience holding spaces online and in person. I conducted 10 interviews with experts or practitioners in each of the technologies I studied, with a wide range of backgrounds, ranging from high school teachers of lower income areas in Boston, Restorative Justice practitioners, teachers and practitioners of Theory U, teachers and practitioners of Dialogue Across Difference, and teachers and practitioners of Coaching. Finally, I convened two groups of 7+ facilitators to use the tool during our group interview.

Within these interviews and discussions, the following key themes emerged. Structural themes were in response to the tool itself, foundational themes critiqued the foundations of the tool.

## STRUCTURAL THEMES

### TONE and ARCHITECTURE

"It's so... *human*." I remember upon own of my earliest interviews, being shocked by the facilitator's first words after opening the Keeper. On paper, it felt as if this tool was distant from our typical definitions of human. No faces were visible, no personalization, no photographs. This sentiment was repeated throughout most of my interviews, that there were elements about the space that made it feel more human in some ways than being together on a Zoom call and seeing one another's faces. One key aspect that promoted this humanness, interviewees explained, was the architecture.

First, everyone remaining in one spot throughout the conversation, not shifting and bouncing around if they turned the camera off like in Zoom or fall off the call, added a depth of memory and understanding. One's memory of someone telling a deep story would be attached both to the person and the place they are located, and facilitators explained that on Zoom calls, even such simple things as shifting video can confuse their memory of who said what or how much someone participated. By locking these people down in a physical, visual way, that problem is softened. Further, Circle practitioners in particular noted the importance that each person as a part of the circle and sitting next to one another, there is no hierarchy, the circle cycle can be continuous and not broken, and so forth.

The light and glow of the orbs was received with delight as many emphasized it feeling "soul-like" or adding layers of humanness, but also this great energetic connection the group shares by being together since all glows come from the center:

"Love the colors and the visual of the space, it is powerful to come in and see the orbs and the light in the orbs and the way they're moving there is something about it that communicates quite powerfully that this is a conscious space, this is an intentional space. That really takes advantage of or taps into the senses that are beyond the auditory. Tone is communicated that way."

## METRICS

Reflecting back data to participants, such as time spoken, was described as interesting, exciting, and valuable. To help participants learn to self regulate, reflect in the moment, and become more socially and emotionally aware of themselves felt exciting. Further, one facilitator explained that students and practitioners in group dynamics get the task of drawing sociograms and visuals of the dynamics of the group, and data and tools like this would be "extraordinary."

Others found this exciting as a mechanism to promote equity in conversations. A practitioner explained that so often we have these feelings that this person is taking up too much space, or this person keeps getting interrupted, or there might be a negative dynamic between two people, or there might be great support shown for a participant. However, these are often just inclings. To get validation through a visualization would be powerful for the group to have some self awareness and reflection.

Though facilitators often have deep self awareness and their social and emotional intelligence is incredibly high, it can still be difficult to identify biases. For example, if Shannon were to facilitate a discussion across divides and one member of the group reminded her of her mother, she might unconsciously favor that woman, show her subtle hints of prioritization, extra kindness, or make space for her to interrupt or take up too much time. Though subtle, the rest of the group might pick up on such dynamics and feel uncomfortable or unwelcome. Metrics therefore allow for some feedback that is closer to an objective picture of what might be happening in a discussion, allowing the facilitator to identify their own favoritism or other subtle biases.

### QUEUE and TALKING STICK

Regardless of facilitation style, the talking stick and queue prompted excitement in the facilitators. The Circle keepers, in particular, cared deeply about the talking piece. At first, the queue had to be totally abided by, and unless someone actively joined the queue, they could not receive the talking piece. However, the Circle practitioners emphasized the “passing” action of the talking stick. Therefore, I altered the parameters of the talking stick to enable *passing* from one's orb to the orb next to them. This way, the person with the stick has the opportunity to choose which way it goes, has the ability to physically give it to that person, offering the freedom an in-person talking stick offers, without the added friction of making and managing a queue through a Zoom chat.

Outside of Circle, less structured practices highlighted the queue as one of the most necessary and highly useful components of Keeper's scaffolding as well. In particular, facilitators highlighted that it invites participants to speak more easily than they would if they had to jump into a conversation online on their own without the physical cues that aid them while in person. One facilitator explained, “So many people and ideas get lost because people don't feel like... they can't speak up, or it's awkward or embarrassing.”

Further, added freedoms given to the facilitator, such as taking the talking piece when necessary, sort of “cold-calling” someone and being able to push them directly to the front of the queue, stemmed from these discussions. Facilitators explained the queue is highly valuable and essential, but being able to break the queue is a necessary freedom. Facilitators must be given extra powers and freedoms to hold and manipulate the space for the sake of the discussion..

### FILLING a NEED

A few Circle practitioners and facilitators expressed immediately that this filled needs that they had explicitly been thinking about, especially during the quarantine of Covid-19. Features such as the circle organization, the talking stick, the visible guidelines, the questions, the messages, all met a clear need.

### OVERLOAD

When I showed the facilitators Keeper with the live map feature turned on, these experts quickly expressed doubts about the overwhelming amount of information displayed all at once. So much movement happens simultaneously, some bright colors, it can be overwhelming upon first use to try to both interpret the signals and metrics being thrown to you. Such barriers conflicted with my principle of legibility.

The facilitators had rich feedback about ways to ease this information overload, such as being able to “dim” the map if they still want it present but do not want it to be so prevalent. Further, having a key or guide for what signals mean for the first few minutes of the discussion as a sort of extended onboarding so the signals can become more legible over time could prove useful.

One facilitator explained that he did “not know enough about the human brain” to know if these signals would eventually make sense to him with ease, or if they would remain overwhelming or overstimulating. With this

feedback in mind, the Map was never designed to be a part of the Live structure, and when in it, was quite overwhelming for most trained facilitators. However, perhaps the human brain might adjust and be able to read the tool after a few uses, or perhaps no Map is the best parameter for live discussions.

#### FLAGS and INTERRUPTIONS

Flagging brought forth hesitancy with this group. The consistent sentiment, “something like flagging... that... it’s hard to manage.” Flagging was the solution to the problem of how to allow the group to feel agency to suggest that a guideline has been violated or that something has personally harmed them with what they have said. Generally, normal users found this feature valuable and interesting. Facilitators, on the other hand, saw this as an invitation for hostility.

Upon commenting, the facilitators who mentioned it were pulled back into memories of when someone “flagged” something in their in-person conversations. A key problematic outcome could occur: the conversation could be completely derailed by the person who flagged, and this derail could signal a sort of dominance or “I’m going to take all of us to this negative space though no one consents to it by flagging what *you*, bad person, just said.”

However, I remember in my first Circle training, a practitioner augmented a traditional guideline offered by another trainee. The trainee offered “assume good intentions,” and the trainer added to it, “assume good intentions, *acknowledge impact*.” This addition intended to communicate that though we should always assume that someone says something with good intentions, something said with good intentions can still cause harm. And when someone expresses harm, to respond with “oh, well, she meant well and has good intentions” can feel like an invalidation of harm caused. Further, the burden of making others comfortable and sacrificing your own emotions for the sake of not hurting someone’s feelings often falls on those who experience the most subjection (disabled people, people of color, black people, women, trans people, etc.), which is inherently out of line with the values of our ASTs and this platform’s design principle of reaching for beneficial social interaction. This augmentation to that value, “acknowledge impact,” introducing “flagging,” is an effort to push back against that pattern.

I wonder, though, is this a remnant of call-out-culture?<sup>110</sup> Is this shaming? I say no, for the visuals of the flag are not directional, but merely try to visualize *internal* pain. This visual does not say, “you, overthere, have caused me pain! This is your fault! Ignorant!” but rather, “I am hurt.”

Yet, the “flag” language suggests foul play, such as in a football game. Therefore, some facilitators suggested the language could perhaps be changed to something with a sentiment closer to, “ouch, can we hold on a second and address that?” Further, a great explanation should be paid in order to prevent that button from being used as a mechanism to take over the conversation and use it as a soapbox. And finally, some system should be in place to ensure something like that button is not abused or misused.

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<sup>110</sup> Matej, Adrienne. “Call-out Culture: How to Get It Right (and Wrong).” *The Guardian*. Guardian News and Media, November 1, 2019. <https://www.theguardian.com/lifeandstyle/2019/nov/01/call-out-culture-obama-social-media>.

Due to the design of the platform, interruptions seem like the most important, prominent feature for many facilitators. The minute someone begins interrupting, to be bombarded by a red haze invites all users' attention to go to that person and that haze. This is a moment where the facilitators noted the embedded values of the platform disincentivize and even *punish* interruption. Facilitators wondered, would bringing attention to it distract from the most important parts of the conversation, like the relationships and content? Does this shame people or help promote a more orderly discussion? Is it necessary?

Though the red is used as an alerting color, its social connotations carry the weight of anger or fear, and should perhaps be softened or changed. However, red is also an alerting color, drawing attention to an action or relationship which can promote reflection and awareness. Further, as touched on in Ideation, this is *not* the most important measure of a conversation, just as the others are not necessarily. But it is one that 1) is intuitive, easily understandable, and legible to a user, 2) is proven to have impact in conversations, 3) does not require the recording of speech, live transcription, and live analysis of NLP, and 4) tries to push the conversation and group dynamics toward that which exists in ASTs that have proven benefits.

## SYNTHESIS

Universally, the data collected, the synthesis of the conversation, the ability to aid reflection and learning seemed to be what struck the facilitators as having the most potential to prompt a shift in their own practices. Instantly upon seeing the map, their language changed and they approached the tool as one of teaching, aiding participants as they became more self aware, aiding new facilitators as they learn to keep track of relationships and time taken, and aiding groups to see their dynamics in a visual way. Though there was critique about the amount of information displayed in the live structure, the question of how to “synthesize a dialogue” had been a clear pain point for all of the practitioners I interviewed. One facilitator explained:

“It would be interesting to take teams and dynamics and look back at [the map] together, anything about team leadership and your role as a leader, you’re dependent on your memories. To have this kind of information is amazing, so helpful for group dynamics.”

Themes emerged around synthesis and remembering the dialogue or conversation for documentation and disseminating that information back to participants. Many, who had closely tied interests of group dynamics informing their practice, also saw huge implications for what data like this and what maps like this might offer for the field of group dynamics, offering new data collection and visualization mechanisms. Further, as a mechanism to teach new facilitators and help experienced facilitators grow, facilitator’s suggested the visual (and that data visualized in other ways as well) would be incredibly helpful. Though the map is only on version one and is not in the ideal, most useful form, the idea it represents proved powerful and exciting for the facilitators.

## LARGER THEMES and FUTURE EXPLORATIONS

### FREQUENCIES and EMOTIONAL CURRENT

The facilitators gave credit to the metrics displayed within Keeper (such as time spoken, relationships, interruptions, et cetera) suggesting there was value in knowing these frequencies. All facilitators explained they keep track of these frequencies mentally while facilitating, and to have them visually displayed did relieve burden.

However, they added two points. First, these frequencies cannot be simply reduced to numbers. For example, one practitioner offered her experience of watching some in a group remain silent, and another person take up a lot of space. Keeper would show this in its objective time-centric form of water lines rising in the speakers orb, and lowering in those who are silent. However, there were some subtle frequencies, signals, or cues that she picks up that suggest that the person who is speaking, who is taking up so much space, speaks for others in this group. And those who are silent might remain silent, seeing this person as their representative. With that in mind, the water lines within the orbs suggest it is an objective truth of how much time a person is taking up, though there might be nuances and complexities it ignores. This point references the idea of values embedded in the design of the platform not being objective, universal, or ideal, and the importance of reflecting on that point for future designs.

And second, the point that minimizing the importance of visually seeing people might blind them further, rather than aiding them. When I asked the facilitators what the dream would be, what aids would they wish to see in a visualization like this, this idea of multiple frequencies<sup>111</sup> came up often, though in different languages: Impulses, Emotional Current, content, engagement, comfort. They noted that importantly, these frequencies are read through looking at the group and feeling the group. Online, the facilitator already feels almost blind, as referenced in the Immersion section on online facilitation interviews. They can no longer feel the group's energy, and feel cut off from this core input in their facilitation process. But, facilitators can still see the group, and reading the group's faces offers some guiding light. Keeper lowers the priority of seeing the group in favor of the metrics, scaffolding, and tone. And in that prioritization, some facilitators wonder, does the platform blind them even further?

In summary, the metrics within Keeper are limited. They are not dynamic beyond being able to be turned on and off. They do not respond to the tone of the conversation, and have no machine learning or natural language processing informing them. These metrics might be helpful in the live discussion for those who are new facilitators, but for expert facilitators, some would not sacrifice the ability to see the faces of participants for the sake of tone setting and metric visuals, though the scaffolding (circle structure, guidelines, talking hazes) and signalling (nodding, queue, raise hand) was quite useful.

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<sup>111</sup> Frequencies, as a reminder, refers to the idea of facilitators being tapped into different things going on in the room, like emotions, impulses, and so forth.

For future work, I hope to explore this question further: Should video be integrated into Keeper? Can we filter video to make it more of an ideal CMC for emergent spaces? How can we make the tool optionally integrated with video? Or, perhaps, how can we make the metrics reflect multiple frequencies, such as emotional current, impulses, and engagement? Is it possible to incorporate those technologies and metrics in a way that does not violate privacy? What cues, signals, and metrics should remain self reported and input by the user, and what should come from observation and analysis (video measuring distance from the computer, tone of voice analysis, sentiment analysis, and so forth)? Should anything be through observation and analysis of not self reported data?

#### FACILITATION: ART, PROCESS, TECHNOLOGY

I would like to mention another key feature among the facilitator's feedback, the naming of facilitation as both a science, and an art. Of course, the physical design of Keeper references the art of facilitation with the creative liberties I have taken to create a space that is calm, welcoming, and feels as if it has life. However, the metrics inherently lean towards the *science* component of facilitation, and do not respond or interact with the art of it.

For example, if the metrics indicate that Susan has not spoken this entire conversation, that is signaled to the facilitator. How the facilitator chooses to act upon that data is up to them. This is inline with the *emphasize humanness* principle, however, does that mean that in order to emphasize humanness, we can only scaffold and support by reflecting data and numbers, not by aiding with the *art* component of facilitation? Perhaps, but perhaps there is space and need for scaffolding to be built to aid facilitators as they have interventions. For example, could a scaffold remind a facilitator to acknowledge emotions, thank participants for being vulnerable, and move forward with grace in instances of emotional expression within a conversation? Is that violating the *emphasized humanness* principle? The language of scaffolding, like training wheels, suggests that it will slowly be loosened and removed over time. Perhaps for the earliest facilitators, they need the most scaffolding offering the most complex, nuanced, artful nudges, without those nudges violating or replacing their inherently human skill of facilitation, or their ability to hold space and relationships. The tool would not do that work for them, but perhaps offer guidance with the values and principles in mind that are embedded within facilitation spaces.

For future work, I hope to explore this question further: how can we scaffold and support the *art* within facilitation as well? How do we identify moments of great tension, and show support for the facilitator in that moment? How can we help the facilitator respond to emotion or turmoil gracefully? How can we help the facilitator invite someone to speak? What if there is no facilitator present? Can this work be distributed in a "smart" way? How do we support training or scaffolding facilitators while enabling presence, an essential component of ASTs? How do we offer scaffolding without introducing problematic habits or interruptions for facilitators?

## COVID - 19

Towards the end of this research process, just before beginning writing, the coronavirus outbreak led to social distancing and quarantining. With this restriction, a few interviewees expressed interest in using the platform for

themselves and their organization. To try to enable this, I created an instructional video and guide, and I ran two training sessions. Two facilitators attempted to use the tool with little success.

From this, I took a few key learnings. The first, friction in times of great anxiety is unacceptable. The login process for the platform is fragile and requires great precision. Further, the login process was not designed for an easy or clean user experience. After training, as facilitators went to use the tool on their own, this proved too much of a hurdle to overcome, especially in such stressful, uncertain times.

Secondly, these facilitators were incredibly creative and resourceful. They made their sessions happen via Zoom, and some with great success. While practicing, some tried to overcome not being in a shared space by inviting individuals to sit somewhere special in their home or use a creative background. Facilitators invited their participants to share meaningful objects from their home they might not have been able to see otherwise. Groups met family members, pets, plants, and got to experience intimacy in ways they have not before. With young participants, some teachers and facilitators even found that participants who would feel less comfortable in person were able to share and contribute more openly and comfortably while remote. This moment is yielding incredible knowledge, creativity, and data that I hope to explore and learn from further for future iterations of this work.

And finally, this crisis has all questioning what will happen after. Will we go back to normal? Or will our society make a great shift towards remote interaction and online spaces? If the latter, it suggests that explorations like this one are essential as we must design and develop ways to translate some of our greatest human practices into online spaces. And while Keeper proved not to be ideal in the time of great crisis, I look forward to being able to explore the platform's value and use as the novelty of constant remote communication weigens, anxieties and urgencies calm, and there becomes more space to explore and experiment with computer mediated communication.

## REFLECTIONS

In conclusion, Keeper was a web application designed and developed to promote emergent moments online informed by ASTs. It was designed with the principles of emphasizing humanness, designing for emergence, flexibility, and experience over performance. Further, added principles of innovation, legibility, and positive social behavior guided the research and design. To pursue this, I immersed myself in ASTs, ideated and iterated through a design process, and implemented and evaluated the tool with experts and non-experts. My driving questions were as follows:

### Methodological Questions:

Can we create a platform that has the methods of ASTs (rounds, guidelines, respect and invitation of voice, and tone setting) embedded into it? How might we design the platform in a way that promotes use of these practices?

### Experiential Questions:

Can we create a platform that helps prompt reflection and naming, without shaming and silencing? That allows people to feel more connected and a part of that oneness? That whole? Can we design a platform that mirrors the act of all coming together, feeling the energy you all share? And can we create a platform that promotes that Spinozan definition of Joy, of challenging growth and change, of vulnerability and emergent transformation?

### Reflection Questions:

How might we synthesize and summarize conversations? How might we collect meaningful data to analyze the conversations? How might we make the conversation dynamics and content visible and legible to the facilitator to use as a reflection tool?

The result of this design research was Keeper, a platform intended to ease the work of ASTs as they move online. Some features were found successful and useful, such as the tone setting, the metaphor and architecture of the space, and the talking stick and queue. Other features, such as metrics, flagging, and the emphasis on interruption, proved more controversial. And the Map, a later research and design addition, proved to be one of the most exciting components for expert facilitators.

Overall, Keeper invited participants to speak, was successful in setting a tone of an emergent space, prompted vulnerability, and made social dynamics explicit and transparent to promote reflection. It supports the facilitator to do their work, and enables the participants to take both a larger role in holding space and practicing ASTs, and to understand their own habits better. With Keeper, I explore how to enable signalling and expression in online environments with intentionality, and challenge the flat, traditional, video-focused structure of computer mediated communication.

Upon reflection, there were so many directions I could have gone with this project. And in reality, in many moments I followed my gut, and in many moments I did *not*. I feel great excitement for designing and augmenting spaces to help people activate these emergent, startling moments, these moments of great synchronicity, shared energy, collectivity. And in this moment, I find it hard to summarize or express my love for the experience of learning and crafting, and crave to learn and craft in this tremendous space again soon. Each process within this thesis deserves more space, time, and attention, for they were all given so much love and life by myself, those who trained me and worked with me, those who gave their wisdom and insight, those who supported my work, and those who have spent generations crafting ASTs and interface design before me. And with that, I am eager to start the journey of diving deeper into this space and chasing that dream of marrying AST and online spaces in a way that takes full advantage and pays great respect to both groundbreaking fields.

## APPENDIX

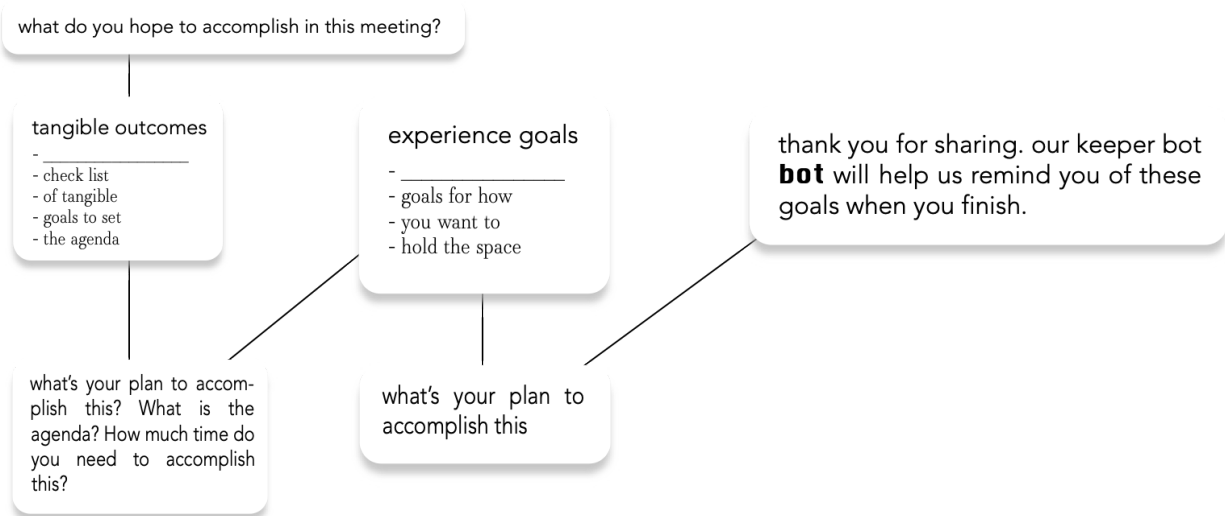
This appendix addresses the lack of preparation guidance within Keeper. It offers a brief sketch of a flow for how a facilitator might prepare for a computer mediated ancient social technology session aided by virtual prompts.

### Preparation Guide, Version 1

First, the facilitator is guided to prepare privately. In that preparation, they are prompted to reflect on their goals, both as tangible outcomes such as completing tasks and less measurable goals such as bringing curiosity and accountability into the space. Then, the environment will guide the facilitator to brainstorm ways they hope to reach these goals, and how they know they will have been reached.

### facilitator preparation time

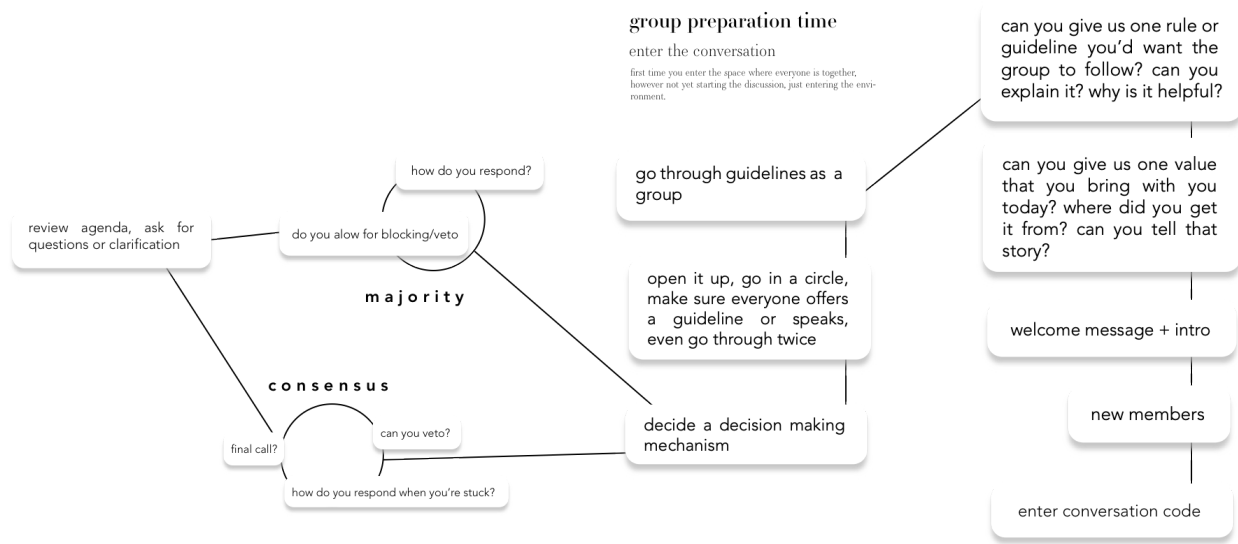
before each meeting, we recommend that the chosen facilitators spend at least 10 minutes preparing in the environment.



Next, along with the facilitator, the group will enter the application and prepare for the conversation. If the group is new and meeting for the first time, the group must go through guidelines and value creation. First privately, each individual will offer a value and guideline to share with the group, as well as a story to accompany it if they feel comfortable.

Next, the group will come together collectively, passing into the camel space, and go through the guidelines and values as a group. Each person will be invited to share their guidelines and values, and if everyone agrees, they will be set as the values and guidelines of the group. After, the group should decide on a decision making mechanism, be it reaching consensus or majority, and identify solutions to other possible issues such as vetoing or filibustering. If

there is a single new member, the facilitator should go through a similar onboarding process with that member. The group can then decide if they meet regularly, what the threshold should be for the group to be a “new” group or just go through on-boarding processes.

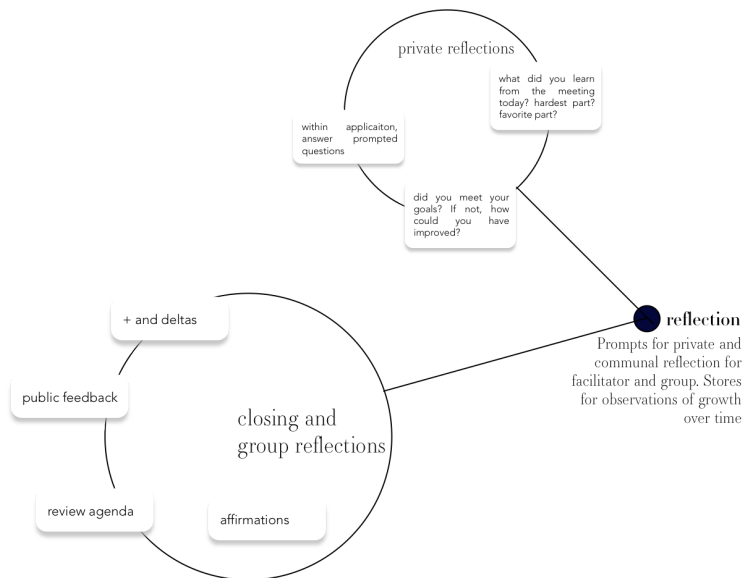


**individual preparation time**  
First time a user enters the application, starts with private preparation. Invites individuals within the group to prepare and reflect on how they want to be and what they want to accomplish in this conversation

Then, the group will collectively enter the discussion phase. Within this phase is the most freedom on the part of the facilitator and group, but also the most experimentation for my thesis. The goal of this portion is to actively support the facilitator to become more perceptive, hold the space in a place that can accomplish their goals (be it calm, energetic, curious, etc.), and lead the conversation where it needs to go with time keeping and reminders (whether it be coaching someone through their story, or reaching tangible goals).

After, the environment will guide the participants to choose the next facilitator (if they rotate every meeting, every other meeting, etc.), close, and reflect on the discussion as a group. What went well? What would they change or alter? Review the agenda, did the group make it through all the points? Does someone have a point to offer for next week? And other reflection questions.

Finally, the environment will guide the participants to reflect privately. Did they accomplish what they hoped to in the meeting? How did they feel it went personally? How are they feeling as they leave this meeting? What might they want to change for next time about their participation? And so on. I hope to eventually



incorporate memory to help a user track their progress and patterns over time.