

Digital Civic Sensemaking: Computer-Supported Participatory Sensemaking of Nuanced, Experience-Based Dialogue

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Abstract

Throughout the 21st century, we have seen a steady decline in trust in democracy, and a proliferation of methods of political participation such as town halls and polarizing social media discourse that can often invite performative, exclusive behavior in which the loudest voices dominate. However, methods of facilitated small group dialogue and community organizing have fostered trust, understanding, and civic empowerment for generations. Further, with advances in human-computer interaction, machine learning, and computer-supported cooperation in civic technology, the intersection between dialogue, community organizing, and technology for positive and inclusive civic participation is ripe for exploration. We present Real Talk, a hybrid civic technology program in which we aim to design, develop, and implement scalable technological infrastructure and equip communities with the processes and technology that allows them to connect, share experiences, collaborate, make meaning, address problems, suggest and advocate decisions in a thriving ecosystem. In this paper, we review a pilot of Real Talk in Boston, MA with over 300 participants across 60 conversations and discuss a key element of the system: computer-supported participatory sensemaking of nuanced dialogue data. We outline our system and discuss findings, implications, and shortcomings.

Keywords: Participatory Research, Methods for Mediated Conversation Analysis, Conversation Visualizations and Analytics

1. Introduction

For a healthy, fair, functioning democracy, equal voice and participation of the public in the civic world

is essential (Gordon and Mihailidis, 2016). In many democracies, participation is invited through voting, town halls, workshops, and various other public forums, and that participation along with systematic methods of data collection such as surveys support governing officials' understanding of public opinion. Historically, modes of political participation have proven difficult and inaccessible for many marginalized communities, with exclusion ranging from voter suppression to a few unrepresentative voices dominating town halls (Innes and Booher, 2004; Tracy and Durfy, 2007).

Consequently, the most marginalized are often underheard though they are also often closest to the problem. Informal practices are turned to as constructive and promising for those excluded in the more traditional modes of participation, and have historically proven effective in creating meaningful change (Ganz, 2009; Manuel et al., 2017a). Various methods for increased participation augment such practices to increase accessibility (Jasim et al., 2021). However, the vast majority focus on the formal political realm such as town halls rather than meeting the local community where it is currently practicing informal political participation such as community organizing (Asad and Le Dantec, 2015).

Formal methods of political participation and measures of public opinion are often the key means through which governing bodies hear the voice of the public. However, even when accessible, the design of these communication systems invite participants to share opinions over nuanced experiences, and the conditions create a conversation that is often hostile and polarizing (Tracy and Durfy, 2007). The mode of communication is not designed to foster connection or understanding, and it asks participants to abstract out from their personal experiences into opinion or

policy suggestions. We wonder, how might a piece of civic infrastructure increase accessibility of democratic participation by meeting community members where they are, but also change the way we hear and understand public voices within the context they take place?

In the following paper, we outline Real Talk, a digital civic infrastructure informed by Participatory Action Research (PAR) principles at the intersection of facilitation, civic technology, and design (Baum et al., 2006). With Real Talk, we aim to design, develop, and implement scalable technological infrastructure and equip communities with the processes and technology that allows them to connect, share experiences, collaborate, make meaning, address problems, and advocate for decisions in a thriving ecosystem.

Real Talk aims to design and create spaces in the public sphere to engage people across divides and across experiences in constructive conversations to achieve more profound and meaningful understanding and connection. In our system, the understanding and connection occurs on two levels: a micro level within a conversation among participants and a macro level when themes and patterns are discovered and surfaced via sensemaking and shared with the public and governing officials. Both within conversation and across conversation show new processes of mediated conversation (Zoom and audio listening) for developing shared understanding in civic systems.

In this paper, we present a central element of the Real Talk program: computer-supported participatory sensemaking. Sensemaking is the systematic qualitative analysis of the recorded dialogues of the Real Talk system to unearth and communicate trends across conversations. This process allows us to translate hours of dialogue to claims about public thought and needs of the community. Computer-supported participatory sensemaking of nuanced dialogue data contributes to the world of mediated conversation analysis, knowledge generation through mediated conversation, and system sciences in the following ways:

1. A demonstration of the value of leveraging computer-mediated dialogue from underheard communities as a rich and complex data source and as a means for inclusive political participation through an in-the-field pilot in Boston, MA
2. A process to build and launch a diverse, interdisciplinary team consisting of researchers and members of the community to effectively analyze the complex, emotional content of these mediated conversations

3. An overview of development and deployment of a systematic and rigorous process to analyze these mediated conversations in a participatory and emergent way
4. The outcomes of design explorations of methods to communicate and visualize the emergent knowledge from that analysis
5. Documentation and scaffolding to support the replication of such a process in various contexts

Below, we outline the Real Talk system, review the sense-making processes, and share key learnings from a field pilot organized around Boston's 2021 mayoral election with over 300 unique participants, over 60 hours of dialogue, and a team of four analysts.

2. Relevant Work

Throughout the field of computer-supported cooperative work and human-computer interaction, we see an increase in innovation and critique in civic technology and digital civics in pursuit of more fair, equitable civic participation in our democracy (Asad et al., 2017; Corbett and Le Dantec, 2019; Jasim et al., 2021; Koeman et al., 2015). Interventions range from town halls to online social media public sphere construction. For example, tools like CommunityClick intervene within traditional town halls to invite more active participation and mapping of opinion from audience members through a hardware tool to promote other, non-verbal means of communication, such as signally agreement or voting yes through the hardware (Jasim et al., 2021). Other interventions explore public, civic participation in a fully remote environment. For example, Pol.is invites asynchronous engagement around issues through a voting-based web interface ("Pol.is", 2022). Other tools build upon the emerging public sphere on social media platforms for civic work (Semaan et al., 2015). However, the majority focus on improving traditional political participation, while a few key studies explore digital civics in the less-traditional participation venues like community organizing and storytelling. And those that do engage with less-formal participation methods like storytelling and community organizing frequently engage in participatory methods of research and design (Asad and Le Dantec, 2015; Manuel et al., 2017b; Sandercock, 2003).

While new in many formal political domains, storytelling as a political practice is not new. In urban planning, narrative is a fundamental form of civic participation that honors the nuance of the city, and different projects explore means of collaborative, shared

narrative development, and innovation of narrative creation in technology enable more and enhanced participation in such processes (Crivellaro et al., 2016; Goldstein et al., 2013; Manuel et al., 2017b; Sandercock, 2003).

With such complex narrative data, challenges of capturing, analyzing, and communicating the data in a legible way emerge. Analyzing large-scale nuanced data to understand community thought is challenging, and with that friction, can become exclusive and not include community (Mahyar et al., 2019). Further, leveraging technology in change making can reproduce problematic power dynamics based on accessibility of the technology, who has the knowledge to use it, and who controls what data (Ghoshal et al., 2020). However, within data activism, we see methods of analyzing and mapping large scale data, ranging from basic metrics to stories in tandem with quantitative visualization methods (Gutierrez, 2018).

From this overview, we see there is a growing momentum in HCI and system design around civic infrastructures, or the “the laws, processes, institutions, and associations that support regular opportunities for people to connect with each other, solve problems, make decisions, and celebrate community” (Nabatchi, 2014). Specifically, we engage with civic infrastructures that leverage digital technologies, or digital civic infrastructures, and we build upon the practice of participatory research and design in digital civics. However, none of the examples described above use dialogue as a data collection mechanism in their digital civic infrastructures, few engage with informal political practices, and capacity building and large scale data analysis continue to be an area ripe for exploration.

3. Sensemaking: Process and Tools

As we will overview in the following sections, audio was the central medium for listening and analysis. For this reason and the added richness that hearing one’s voice gives, we share a series of audio medleys, or strings of community members’ voices from the conversations, to demonstrate the kind of stories and contributions heard in these dialogues. We recommend listening to a few before continuing forward. Feel free to explore selected voices on the Twitter page (https://twitter.com/RTFC_Boston) or all voices on the public portal (<https://portal.realtalkforchange.org/>).

3.1. Dialogue as Data

A key medium of participation in the Real Talk program is dialogue. The dialogue method we use in our system prioritizes story sharing within the conversation

structure to communicate participants’ ideas. Well designed dialogue can increase understanding and fosters community among those who participate, decreasing hostility and polarization across groups (Bohm, 2004). Stories, a key building block of dialogues, hold the richness that comes with complex experiences. Such experiences communicate the root value of a participant’s beliefs more effectively than opinion might alone (Bruner, 1987). Stories shared from personal experiences activate empathy and emotion in a way that enable connection between people rather than hostility, which is so often found in the formal political processes like those described above (Bohm, 2004; Kubin et al., 2021). Further, dialogue facilitated by community members within their community is flexible. Conversation can be held at various times and locations from community centers to homes, with small groups ranging from 4-8 people that are structured for openness and equal participation. Like focus groups, participants in a group dialogue build off of one another in an open-ended and organic way, being inspired by such rich exchanges. And finally, dialogue is often leveraged within community organizations already to connect with one another and further frame the understanding of the community itself. For these reasons, and building off a model of recorded, story based dialogue for analysis and sharing refined over the past few years in the Local Voices Network (LVN.org), we leverage dialogue as both a rich source of data, and to build relationships and capacity within and across communities.

Within the context of this pilot, these conversations were mediated through Zoom, demonstrating a unique method of mediated conversation for civic participation. Those that were in-person were audio recorded, and later listened to for understanding and analysis by the sensemaking team and general public, as well, enabling a sort of asynchronous deep listening of these conversations for civic understanding.

To give the conversations structure, we designed a conversation guide that supported the small groups to share their experiences and engage with each other in a meaningful way, a shortened version of which is visible at the following link: <https://tinyurl.com/realtalkguideshort>. The conversation guide is the core tool that facilitators use in order to structure and facilitate these conversations. Its goal is two-fold: first, it demonstrates the different building blocks of the conversation and outlines everything that takes place during the process; second, it includes all the prompts and questions that the facilitators ask participants to reflect and respond to. In what follows, we deconstruct the conversation guide to demonstrate what constitutes the building blocks of the guide and provide

additional details to demonstrate what happens during the conversation and why and offers a quick overview of the questions shared.

Our team of trained community facilitators used the conversation guide to host the 68 conversations with over 300 participants in this pilot, making sure that all questions were asked and that everyone in the conversation had the opportunity to share their experiences and feel connected and included. Participants were invited from underheard communities in Boston, mainly BIPOC and lower income communities. 67% identified as Black or Brown, participants came from 21 different neighborhoods, and the highest participation came from the historically Black neighborhoods of Roxbury and Dorchester.

This pilot was run by a lab at a local university. All raw data were stored in a server maintained by a close partner non-profit organization. The raw data could only be used or accessed from the partner non-profit with permission from our partner community organizations who hosted the conversations. When access to the raw data was given to the sensemaking team, they pulled out excerpts of the raw data systematically to analyze. Any of these excerpts that might be incriminating or cause any risk or vulnerability to the party who shared their voice was flagged and reviewed by a small team of community leaders who interpreted the risk. Only twice was this an issue, triggered by reference to former incarceration. Once coded, the excerpts, a combination of audio and text, were made publicly visible on the public portal. While the excerpts on the public portal were accessible by all, the raw data were only accessible by the sensemaking team outside of the partner non-profit and community organizations.

3.2. Participatory Capacity Building and Team Launch

Before engaging in the actual data collection, sensemaking, or codebook development, we had to launch and build the capacity of our team. Coming together as interdisciplinary researchers, community organizers, and community members, we were aware of our diversity and different experiences with research and community. In many cities and communities but within Boston in particular, community often distrusts researchers and academic institutions more broadly because of the history of harms academic institutions and researchers have caused, including entering communities to collect data without reporting findings back to the community.

In order to launch an effective team with members of the community and researchers from the institution,

we sought out to build trust within our team, develop a set of clear values and norms for our team and our work together in a consensus based model, identify and define roles based on our unique strengths and skills, and participate in trainings to use all the technologies and resources available to us. We did this using community and team launch techniques from community organizing methods over the course of four meetings and a technology training session. To develop these materials specifically, we pull from resources in the participatory action research space, codesign tools, and community organizing team launch practices.

We continued to reference our values and norms throughout our work together, and repeated the roles meeting at each major project transition. This process was essential in explicitly outlining our values and purpose as a team. We continued to check in to ensure alignment and make sure we were continuing to stay true to our values and purpose, or to iterate when needed. Because of this process, a culture that invited constructive communication, including dissent and healthy critique, was created. Within that process, we were able to work as partners in a more authentic way and develop a foundation of trust to continue to grow and build upon over the course of the project.

3.3. Listening and Analysis Tools

All conversations were held on zoom or audio recorded face to face. Once recorded and held, they were uploaded into the Local Voices Network listening platform, *LVN* (Cortico, 2022). In *LVN*, we are able to review the transcripts along with a map of the full conversation, showing who spoke, when, and for how long. Automatically identified keywords are pulled out from the conversation and visualized to show general topics of the conversation. We can both read the conversation transcript and listen to the conversation in an interactive, easily accessible way. There, we systematically "highlighted," or annotated and pulled out for further analysis, the relevant components of the conversation. All "highlights" are imported into our analysis tool, *Insight*. In *Insight*, we can visualize our codebook with relevant hierarchies and color groupings. All imported highlights can be tagged with those codes, and then sorted by code, speaker, and conversation number. In *Insight*, we can listen to and read the words of each highlight as we reflect on the appropriate tag, enabling us to engage with the full richness of the medium. Once all the highlights are tagged, we download the full data set including links to the audio files attached to each highlight. With this data set, we can pursue various outputs which we outline later

in this paper. With *LVN* and *Insight*, we offer new tools to support mediated conversation analysis in a participatory way for civic listening and understanding (images of the tools are shared in the Appendix).

3.4. Codebook Development

To thematically analyze the conversations, we generated a codebook following a multi-step iterative process. The codebook served as a comprehensive map of themes expressed in the conversation transcripts and helped us navigate the complexity of the data. We started developing the codebook as a discrete analysis step that helped us to systematically organize the data into types, categories, and relationships of meaning. For reasons of conceptual clarity, we identified a set of concepts that guide our work and are shared in Table 1.

Although the codebook is a laborious process and requires several stages of iteration until it is solidified and agreed upon by all team members, it is an essential part of this analysis because it helps us deal with the intrinsic “messy” nature of the data. We start this process by asking: “What does this text mean to me?”, to then move to “What does this text mean to us collectively?” and ultimately to “What does this text mean in the context of the communities we engaged in these conversations?”

In this learning journey, our unique and diverse backgrounds as researchers and community leaders, our different skill-sets, and our shared values for this work helped us move confidently through this ambiguity. As we were developing the codebook, we often engaged in conversations negotiating the nuances between themes and codes as well as our different understandings of what we are hearing in these conversations. We kept discussing as a team, negotiating meaning and understanding, finding points of agreement, and reaching decisions that helped us move forward.

Data	The textual representation of a conversation
Theme	A unit of meaning that is identified in the data by the sensemaking team
Sub Theme	A unit of meaning more granular and specific than a theme that sits within the boundaries of a theme
Code	A textual description of boundaries of a theme or sub-theme
Codebook	structured collection of codes that includes a description of each code and how the codes are related to each other
Coding	The process by which specific codes are linked to specific conversation segments (highlights)

Table 1: Overview of core coding concepts

Through four iterations mediated through a digital whiteboard platform, we developed a codebook that we felt confident captured all the emergent stories and experiences the conversation participants shared in the conversations. The final list of codes was curated and clustered into broader themes, following a theme/sub-theme hierarchy and reflecting the most abstract (theme) to the least abstract (subtheme). After four iterations of our codebook, we ended up capturing ten themes and 56 subthemes.

This process of codebook development is critical for understanding how a code is defined and applied and how code definitions are used to operationalize the topics that emerge from the data, especially when multiple team members are working on the same dataset. However, building a robust codebook to systematically analyze these conversations requires a comprehensive overview of the data, periodic reviewing as the coding progresses, and several iterations until a final version is established. The sensemaking team kept evolving and conceptualizing the codebook into meaning-based patterns through the reviewing of the transcripts by clustering codes to broader themes or splitting initial codes into two or more different codes for more nuanced meaning. The coding was performed by reading the transcripts and often listening to the audio files to allow for a sensory immersion into the process of exploring and developing an understanding of patterned meanings across the collection of voices. These multiple cycles of coding resulted in the final codebook with hierarchical structures of the codes (themes/subthemes). Detailed and context-based definitions were developed which together with a selection of examples on sub-theme level allowed us to confidently thematically code the entire conversation collection. This process demonstrates the iterative methods used to analyze these conversations

in a participatory way through ambiguousness and complexity.

3.5. Structural Coding

Question	What’s your question about the future of Boston and your place in that future? Forward, 2020
Experience	What experience in your life got you to this question?
Resonating Experience	Address that person and tell them why their question/experience resonated with you and share the story from your life that connects you with their experience
Connections	What are you hearing in people’s experiences?
Takeaways	What are your takeaways and closing thoughts?

Table 2: Conversation Guide Structure. Full guide available at <https://tinyurl.com/realtalkguide>

To begin our coding process, we coded for conversation structure to identify the different segments of the conversation. Based on the structured conversation guide that we developed, we segmented the transcripts based on the facilitator’s questions and prompts. Using the conversation guide as our starting point, we developed a set of structured codes for these questions. During this process, we looked for cues in the text to determine where the facilitator began eliciting a response to a question/prompt included in the conversation guide. Each transcript segment was attributed a single structural code, resulting in five identifiable segments. This process helped us kickstart our sensemaking process as it allowed us to easily identify steps of analyzing the text into smaller and more manageable chunks. We then identified starting and ending points for each of these segments while reading the transcripts.

3.6. Coding for Content

As our goal was to capture experiences shared by the conversation participants and demonstrate the complexity of those experiences, we segmented the transcripts on experience level per participant. Additionally, since our data entail conversational text, we used a flexible approach to text segmentation in which we coded segments thematically by capturing complete thoughts instead of short phrases that would lose their meaning as soon as we disassociated them from the larger context.

Identifying themes lies at the core of the coding for

the content process. The codebook was broken down into logically organized sections to facilitate coding efficiency and reduce the complexity of analyzing a large dataset. Codes were assigned while reading the transcripts. The sensemaking team was in charge of all iterations to the codebook, and documented critical decisions in the code development process. Regular coding review meetings were conducted to ensure that the codebook was used in a systematic and indented way. During the coding review meetings, any coding discrepancies were discussed, and decisions were made before engaging with the next batch of transcripts. As a result, the codebook was modified when new information or new insights were gained, and coding was redone when deemed necessary. Additional control processes were performed to ensure that all themes that emerged in the transcribed conversations were captured and assigned to the hierarchical structure of codes (theme/subtheme). An overview of all codes can be found at <https://tinyurl.com/realtalkcodebook>. Out of 617 total highlights, the content themes and their respective frequencies are: Institutions (284), Housing (233), Inequality (178), Public Health (147), Education (107), Economic Opportunity (105), Safety (71), Community Life (62), and Infrastructure (40).

3.7. Community Trends and Action Codes

Throughout discussions within the sensemaking team, we found that apart from the structural codes and content based themes, important and functionally different trends emerged. First to emerge was emotional experiences or sentiment. Early on it became clear the themes we heard in participants’ experiences were not being captured fully by the content or structural codes. We heard stories of hope and hopelessness, empowerment and disempowerment, belonging and feelings of being unheard. While we captured the context and topics in which the feelings emerged, the feeling and that emotional experience were absent from our codebook. Therefore, we began a second iterative process in which we identified codes that we called *community trends* or sentiments. However, the emotional experiences that emerged were more complex and grounded in the context of the community than traditional understandings of sentiment might be. For example, rather than joy, sadness, or anger, our codes were as follows: Hope, hopeless, empowered, disempowered, unjust, belonging, fear, frustrated, betrayed, unheard, manipulated. For these reasons, we chose to classify these codes as community trends.

Finally, the last key code to emerge was action-based codes. After discussion and iteration, we identified three

relevant action codes: resident actions, lack of action, and call to action. Resident actions describes an action a participant is currently taking to solve an issue in their community. Lack of action describes a problem that exists, and points out that it has not been addressed. For example: "I feel like I hear, especially on NPR, that that data repeated so often, the wealth gap, the assets owned by a black family is eight dollars, compared to the white family of whatever it is, 200. I don't remember the number, astronomically larger. It's repeated all the time, but you don't hear, here's a package of things that we are trying to ... Here's some policies we're trying to advance to address that." Finally, call to action offers an explicit ask. For example: "And I hope that we can get these questions to the candidates and not have them answer them because they're running for office, but if they get into office, to have them address these issues on a real level."

3.8. Validating Codes

A question that we often engaged with was "How can we ensure that we are all aligned in our understanding and coding of the data?". We intentionally steered away from any efforts of quantifying our intercoder reliability. Rather than a consensus coding approach, which tries to build towards a singular, strictly linear, and "correct" analysis of the data, our study followed a reflexive thematic analysis approach (RTA)(Braun and Clarke, 2019). RTA is a flexible analytical method that highlights the sensemaking team's active role in knowledge production and is better suited for analyzing people's experiences, views, and perceptions (Braun and Clarke, 2019). Our focus on the uniqueness of each individual experience called for more in-depth engagement, framed as "commitment and rigor" by (Yardley, 2016), along with an experimental design and analytic process that utilized our subjectivity and reflexivity as a resource (Gough B, 2012).

In practice, each of us would take notes as we highlighted or tagged items that did not fit within our existing highlighting or coding frameworks. During weekly meetings we discussed these issues and collectively brainstormed a resolution. Usually, we first had to establish that there was a pattern with the issues we found. In other words, if an issue came up only once, we would usually ignore it unless it came up again. If an issue came up three or more times, we would consider adding a new code.

The scale of the changes that we made varied. Simply renaming a code was a minor change because it usually did not require any re-tagging. Creating new

codes required more of our attention. Here, we would usually divide up the re-tagging work, and then pair off to quality-check our newly tagged highlights.

3.9. Outputs

In partnership with an engineering and design team, the sensemakers collaborated to make a series of interactive data visualizations in a publicly accessible website we call the portal. The portal gives an overview of who participated, from where the participants were coming, and frequency of different voices in each of the mentioned themes. Further, anyone on this publicly accessible portal can search and explore the voices by neighborhood, topic, and type of content shared (story, question, etc). The portal is accessible at <https://portal.realtalkforchange.org/>. The portal enabled the public to explore the voices by theme and location.

For outputs that enhanced the portal, the sensemaking team developed short summaries of themes to help users organize and make sense of the high volume of information on the portal. Summaries lead and showcase the voices of people who lent their experiences to Real Talk; reflect the tone and flavor of conversations; and communicate the most prevalent experiences that emerge across conversations. The priority of thematic summaries is to bring stories to life, not to just report results. The summaries were written in layman's terms, took several rounds of iteration, and accompanied a diagrammatic visualization of themes identified in the codebook.

Summaries, like the codes but perhaps to a higher degree, benefited greatly from the voice of our community members on our team. Because summaries required some written overview of the stories shared, a greater level of interpretation and translation occurred, which revealed misalignment between team members' understanding of what was appropriate. After the first round of summaries were developed, it became clear they were too "research-y" in language, creating an "us vs. them" dynamic that dehumanized community members who took part in the program. From this observation, we developed principles to ensure summaries are grounded in community voice.

To summarize we pulled all relevant, thematically aligned highlights together in a document and clustered them by similarity. Key stories and insights were flagged to be directly cited and included in the summarizing process because they exemplified common trends, showed an uncommon but meaningful story, and the speaker contributed to the overall representation and diversity of the voices used in the summaries. Once the handful of highlights (2-3 per subtheme) were selected

to be directly quoted and voices directly attached to the summary, we linked the highlights with layman's terms, friendly text. In that text, we made no claim without directly citing a voice or pointing to the data behind that claim.

4. Discussion

4.1. Dialogue as data for understanding public thought

A core finding of this pilot was the value of leveraging open-ended dialogue as a means for civic participation. And while collecting hours of dialogue requires more time, facilitation power, and processing power for sensemaking, the collection of stories and ideas has been incredibly rich, enabling the complexity and depth gained from deep, one-on-one interviews and other intimate interactions, but at the scale of a community network. Such processes can offer deep insights into the communities that institutions want to hear from and who they aspire to serve, help them understand what kind of actionable and relatable information would efficiently address people's concerns, and ultimately help remedy the lack of trust with which our societies are struggling. Our long term vision is for this feedback to be translated into actionable and relatable information that can be targeted back to the communities, thus enhancing the efficiency of policies and guidelines and inspiring more trusted relationships.

As each story carried complexity, the analysis reflected that complexity. We coded each snippet with as many themes as were present, and began to ask questions of co-occurrence. Emergent from that process were innovative analysis methods, such as visualizing the connections between each theme and the relationships between the different voices through force directed network graphs showing proximity of themes in a larger system. Further, voice as an aspect of the data enriches each contribution as we share it to wider audiences and as we analyze it ourselves. We were able to preserve some emotion and the additional layer of communication that is held in a conversation and lost in a transcript. The tie between audio and text of each data point further honored and preserved the depth of each contribution and enabled us to interpret a voice with more accuracy.

We found dialogue as a data source incredibly rich, and the connection to voice to add great value to the sensemaking and output process. Further, the complexity of the data and the care with which the sensemaking team engaged with it allowed us to explore innovative methods of analysis revealing patterns and trends that might otherwise have remained hidden.

Finally, participants trusted the project team and those who gathered them together to honor their voices and the intention behind those voices, and the audio data and complexity of the analysis process enabled us to honor that trust.

4.2. Dialogue in Participatory Action Research

In this project, dialogue was both a data collection mechanism and a capacity building practice in existing community organizations. As we plug into larger social change efforts, the method of data collection in of itself builds capacity within the social change effort through fortifying and forging new, meaningful relationships built upon the intimate act of sharing lived experiences with your peers. While dialogue is not necessarily an action, holding dialogue contributed to the larger change-making efforts already in place in the community.

A key challenge throughout the participatory process was the closeness of community members and community fellows participating in the project with the participants. Because the neighborhoods discussed in the conversations and the experiences shared were from neighbors of those analyzing the data, the emotional impact of the stories was larger than that on the researchers who were more distant from the community. This closeness added great depth because these team members offered additional context to the contributions shared and could bring a community lens to the codebook. For example, interventions ranged as small as changing "Drug Addiction" to "Drug Use and Drug Use Disorder," or as large as how to engage with the code of inequality: to have it be a series of subthemes under existing themes, or to give inequality a theme for itself.

We find the emotional connection to the stories and the care of the researchers to be important to the analysis. Because of this, we could better treat these stories and dialogues with the care and honor they deserved. However, it is essential that the impact be recognized and systems be in place to support researchers and community members in this listening process. For the future, we recommend support systems and trauma-informed counseling readily available to not just those facilitating and participating in the dialogue, but also those analyzing it.

4.3. Necessity of Complex Codes

Throughout the data analysis process, the team was increasingly aware of the importance of expanding our codebook to include "complex" codes that could

capture the perhaps less-easily-identifiable but powerful undercurrents of the dialogues around sentiment and action. Meaningfulness of “complex” codes like sentiment or community trends, call to action, lack of action were the last codes to be added to the codebook, but were perhaps some of the most impactful. With the addition of these themes, it became possible to explore the dataset by feelings of hope or hopelessness, so we could better understand not just what participants were talking about most often, but what different topics participants felt hopeful about, what stories discussed empowerment versus disempowerment.

5. Conclusion and Future Work

5.1. Future Work

While our process was participatory in that our sensemaking team consisted of community members and researchers in partnership, we wonder how we might make the process even more participatory through engaging conversation participants in the sensemaking process, as well. Who better to have a say in how their words are interpreted than the participants themselves? The public portal, summaries, medleys, and so forth were all examples of meaningful outputs created as part of the sensemaking process. We wonder how we might develop outputs in further collaboration with the community.

Further, as outlined, part of the mission of this project is to increase accessibility of political participation by focusing on less-often-heard communities to drive the conversations and analysis process. However, what about those *most* underheard or marginalized? For future work, we wonder how we might access people like youth, incarcerated or formerly incarcerated people, those who struggle or have struggled with drug abuse disorder, those experiencing houselessness, and others who were not reached in our initial process.

Finally, we have developed a series of scaffoldings, training, and guides to support the replication of this process in various contexts. These scaffolds are being used across a variety of projects, including those focused on education and gun violence in the community. From this, we observe the replicability of our sensemaking process across contexts.

5.2. In Conclusion

Before concluding, it is worth noting a few points regarding the limitations of this study. First, we acknowledge that the process of gathering data based on recollection of memories and self-perceptions involves

a high level of subjectivity from the participants. While self-reporting is often considered a limitation in quantitative studies, in our case, this was an intentional design choice. To this end, we specifically aimed to capture the results of self-reflection and perception in our data collection process and report on those findings. Second, our participants were recruited through a voluntary sign-up process and were not chosen through an explicit sampling procedure. Therefore, we note that they should not be considered a representative sample of the US population, which, in turn, should temper any extension of specific results to the broader population.

Through this case study, we have found that dialogue as a mechanism for political participation and data collection is a method ripe for exploration. The richness of such data enables a deep and complex understanding of public thought. Further, decentralized dialogues that plug into existing community organizing methods invite diverse participation, especially from those marginalized and often underheard, and build capacity and relationships of those participating. When analyzing such data, participatory methods prove deeply valuable, allowing a more comprehensive understanding enabled by the essential context of community members in partnership with researchers. Using a method that is responsive to the voices in the data enabled innovative analysis and pattern finding, including expanding our codebook to include community trends and action codes, and the emphasis on connection between themes rather than frequency yielding network graphs for pattern finding. We offer a new mediated conversation system for digital civic infrastructure, and specifically, overview a mediated participatory method of analyzing and presenting these conversations.

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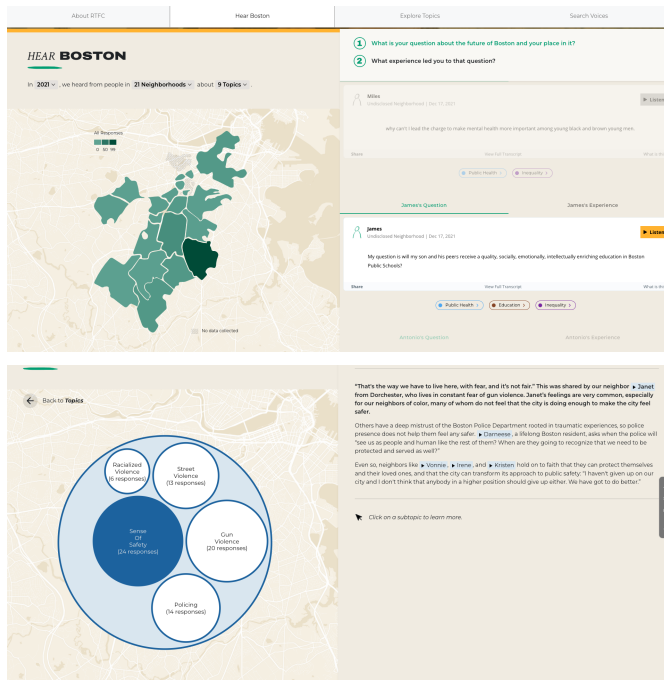
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6. Appendix

Code	Parent	Definition
Sense of Safety	Safety	Refers to feeling unsafe within daily life routines at home, in one's neighborhood, and throughout the city.
Street Violence	Safety	Refers to situations like street fighting, assaults on the street, unintentional harm of bystanders, etc.
Gun Violence	Safety	Loss of family members due to a shooting, witnessing a shooting AND not limited to gang violence
Policing	Safety	Refers to being targeted by police (profiled) in certain areas and the lack of policing happening due to neighborhood location, race and/or ethnicity
Racialized Violence	Safety	Refers to verbal, emotional and physical assaults based on color of skin, race, ethnicity, language

Table: Snapshot of one parent theme: Safety. Further themes can be explored on the portal at or in the codebook here: <https://tinyurl.com/realtalkcodebook>



Images of public portal. Open for public exploration at <https://portal.realtalkforchange.org/>