

# Sensemaking: An Analysis of Participatory and Automated Methods

by

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## **Abstract**

Participatory research involves the iterative process of action and reflection, with the involvement of community members rather than solely researchers. Several projects under the Center for Constructive Communication (CCC), such as RealTalk@MIT, involve community members in facilitated conversations to gain more insight into their experiences and perspectives. However, these participants do not have continued involvement in the next step in the process, sensemaking, where themes and subthemes from the conversations are generated. In order to evaluate a newer format of sensemaking that would make it more accessible to and incorporate the involvement of participants, I invited participants from RealTalk@MIT to make sense of their own conversation and noted the differences (small or significant) between the themes produced by the researchers involved in the original sensemaking team and the workshop participants. From there, I evaluated the effectiveness of the new workshop structure in terms of allowing participants to interact with their own voices, the differences between codes produced by both groups, and how those codes compare to computer-generated codes.

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# Chapter 1

## Introduction

Cortico’s Local Voices Network (LVN) has partnered with many partner organizations to gain insight into the experiences of people whose voices are typically underheard (Cortico, 2022). The process of collecting these stories includes having community members participate in small facilitated conversations where their voices are recorded and subsequently analyzed to find underlying themes that emerge in the lived experiences that the participants discuss. Some terminology used for this process can be found in Table A.1. With the important task of effectively and accurately sharing these experiences to the public to foster more understanding and potential change, it is necessary that this process is transparent and thus reflects the insight which the participants wish to share. Researchers and community fellows have utilized their expertise and diverse backgrounds to undertake the difficult task of coding participants’ voices by iteratively “negotiating the nuances between themes and codes as well as [their] different understandings of what we are hearing in these conversations (Dimitrakopoulou et al., 2023).” This process would be initiated 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?*” (Dimitrakopoulou et al., 2023). However, given the process of sensemaking only involves a limited number of sensemakers and is built around free flowing dialogue about what these sensemakers believe is being shared in these conversations, this may cause room for discrepancies between codes produced

and what the participants wanted to get across or would have produced themselves. From a case study conducted in *Deconstructing Community-Based Collaborative Design: Towards More Equitable Participatory Design Engagements* (Harrington et al, 2019), researchers envisioned health among low-income African-American older adults by gathering thirteen older adults (ages 65-79) from three independent living facilities, at or below the poverty line with little technology proficiency, and having them engage in a design workshop. This workshop consisted of creating a collage with post its about health to document health in their local environments, then defined design challenges, then brainstormed and mocked up ideas using paper prototypes. This study revealed a complicated history between researchers in the local university hospital and Black community members involving the participants' skepticism surrounding survey instruments and intentions of data collection. The participants found many areas of contention on how the outcomes of previous research projects including how papers were worded and that they did not have access to the surveys. This study shows how transparency is essential to provide participants with more power in the research process. Participants should be involved throughout and should be able to access any outcomes of the project and materials used in the project so that they may reveal spaces where their experiences may not have been portrayed in the intended ways.

## 1.1 Data Feminism

In order to address this disparity in power and involvement, data feminism examines how power operates by asking "*who questions*" about data science such as: "Who does the work (and who is pushed out)? Who benefits (and who is neglected or harmed)? Whose priorities get turned into products (and whose are overlooked)?" (D'Ignazio et al., 2020). This process initiates the reflection on power imbalances in research in order to understand, challenge, and change them.

Another principle of data feminism is to *consider context* (D'Ignazio et al., 2020). Because data are viewed as raw input, people may be misled to think that data can

just be viewed and direct the audience to one particular interpretation and allow the audience to gain the same insights. However, data can be mined and combined to provide new insights across a multitude of areas. Therefore, data scientists should “first interrogate the context, limitations, and validity of the data under use (D’Ignazio et al., 2020).” By exploring the data in this manner, data scientists can then see what is missing in the data and provide that to the viewer. By noting the data already comes with some bias, the same data can actually be used to reveal the structural bias that is tied to it. Without this contextualization and acknowledgement of the complexity of data, it will be the researcher’s bias that will shine through as default. Another principle of data feminism is to *embrace pluralism* throughout the whole process of working with data (D’Ignazio et al., 2020). Embracing pluralism recognizes the fact the people perform decision-making based on their own backgrounds and perspectives. Therefore, we should acknowledge our individual bias and value the incorporation of multiple perspectives. We should involve both reflexivity and transparency to allow people involved in a research project to be revelatory. In an attempt for co-liberation, we should disseminate knowledge from researchers to communities that are being targeted and center the individuals from marginalized communities.

## 1.2 Main Goals

In order to take a step into pushing underrepresented groups’ voices to the forefront of research, my work would contribute to the existing trend of increasing transparency and accountability in civic processes by **1) increasing transparency in the sense-making process** and **2) doing participatory research and design to push back against dominating trends**.

In an effort to make this thematic tagging process more transparent and measure the benefit of embracing pluralism, I explore the following questions in this research:

**How do participants’ qualitative analysis of their own conversations relate/correlate to the sensemaking team’s analysis?**

1. If there is a wide gap between these analyses, what specific areas in the sense-

making process involve these discrepancies?

2. Why do these gaps exist?
3. How do each compare to various machine learning generated codes?

# Chapter 2

## Project Background

### 2.1 Real Talk for Change

RTFC Boston is a recent project that has utilized the functionality that LVN offers to share the voices of historically underheard Boston community members. With the current information that we have on how the codebook for RTFC Boston was formulated, there are many areas where it is unclear how a highlight was tagged with a certain theme or subtheme. Although it was an extensive process, on the part of sensemakers as well as a theme suggestor, going through transcripts and determining which words could match the detail and nuance that is being shown through people's experiences, that is not clear to the viewer of the codebook. The multiple versions that have been made can only be seen by viewing a visualization collaboration platform that is internal to sensemakers. Also, because this was used in the brainstorming process, what it articulates may be difficult to understand by the common viewer.

### 2.2 Sensemaking Process

The pilot that I centered my research on, RealTalk@MIT has a similar structure to RTFC Boston, in hopes of gaining insight to the experiences of the MIT community when evaluating and refining the MIT Values Statement. RealTalk@MIT which was initiated in 2022 and is continuing to make its way throughout MIT's diverse pop-

ulation creates a space for civic engagement where community members (including students, faculty, and staff) can have retrospective and insightful facilitated dialogues amongst one another to ensure that the Values Statement is accurately reflected of their needs, concerns, and aspirations. Given that these conversations are structured in accordance to the MIT Values Statement, this coherent set of values that are seemingly embraced by the MIT community was used as scaffolding for the conversations, which allows for more direction in analyzing the output of these conversations.

Previously sensemakers have been some researchers at the Center for Constructive Communication (CCC) who have been involved in the development of the Real Talk for Change corpus. This team of researchers involved community fellows, including three students in the Department of Urban Studies department. These students also facilitated some of the conversations with their peers. By having fellows that are involved at MIT through the lens of a student, they were able to utilize their experiences and interactions with their community to synthesize the recordings from the conversations into highlights and from there into overall themes that were revealed through the facilitated dialogue.

## 2.3 Automated Analysis Methods

One tool that is used to assist in the thematic tagging process is a theme suggestor embedded in the core sensemaking tool, LVN Insights, which allows for importing, visualizing, and tagging highlights from LVN. This theme suggestor takes in the content from the highlights that were imported and suggests themes that could be associated with those highlights. It is powered by GPT-3, Generative Pre-trained Transformer 3, a natural language processing model released by OpenAI that utilizes a transformer network that is pretrained with 2048-token-long context and 175 billion parameters. It can be fine-tuned for a wide range of natural language processing tasks, including language translation, text summarization, and question answering.

A more popular, current-day, Artificial Intelligence-based system that is used for dialogue is ChatGPT. ChatGPT is a language model that interacts in a conversational



way. It opens the scope of output that most language models provide by allowing for continuous discussion with the user, which can simulate dialogue, such as the dialogue between sensemakers when trying to make sense of rich and complex data. Because ChatGPT allows for follow up questions and challenging incorrect premises, it brings in a human aspect to a computer generated model, which has the potential to provide the ease that automation affords without losing sense of human emotions and values. I have brought all of these tools together in an attempt to analyze the similarities and differences between previous sensemakers' analysis of the RealTalk@MIT conversations, the analysis of previous participants, and the analysis that ChatGPT offers. Also, by hosting workshops to allow for previous participants to interact with and analyze their own voices to perform the further analysis of themes they have suggested, I can evaluate the structure of the workshops in terms of how much ease into and visibility of these sensemaking process to individuals who have not undergone this very involved process previously.



# Chapter 3

## Related Work

Participatory design does not just boil down to involvement but should be driven by an intentional iterative process to involve users as full partners in design. Therefore, one of the largest challenges of participatory design is to ensure that the projects are long enough to incorporate reflection and evaluation of the processes and outcomes (Robertson et al, 2012). It is also important to recognize that the success of the product is directly connected to the diverse voices that are utilized throughout the design process. Therefore, to evaluate the design process, it is necessary to incorporate a diverse pool of users, not just the sensemakers but also the community members who participated in facilitated conversations. Although community fellows acted as facilitators, participants, and sensemakers, it may also be useful to open these array of roles to other participants of the conversations as well.

There is also something to be said about how design practices have a history of being exclusive. Because postcolonialism has been adopted in design, there are definitely still trends in research towards industrial efforts. Given the border context of institutional exclusivity, the current and real-world users of most of user-centered technologies come from privileged backgrounds, a small fragment of the potential users of a certain product (Harrington et al, 2019). By recognizing this harsh reality, we can attempt to push against this trend by diversifying those involved in the sensemaking process, by starting with incorporating the participants in the evaluation of a recent project.

However, by adopting a reflexive thematic approach previously used by sensemakers, participatory sensemaking can further the theme development process to conceptualize patterns of shared meaning in RealTalk@MIT. By ensuring that the sensemaking process is a reflexive one, theme development has required thorough analytic and interpretive work on the part of the researcher (Braun et al, 2020). “Themes cannot exist separately from the researcher - they are generated by the researcher through data engagement mediated by all that they bring to this process (e.g. their research values, skills, experience, and training.” In a similar way that this incorporation of the user’s background and experiences were utilized in the original sensemaking process, allowing previous participants to reflect on and incorporate their own skills and experiences is an important endeavor, not only to provide them with autonomy of their own voices but to also make note of differences in how they interact with and analyze their voices.

Designers and engineers may have unconscious bias that leads them to default to imagined users who they share similar experiences with. Minority groups have faced the detrimental effects of unfairness in artificial intelligence (AI) such as racial bias in facial recognition technology and recidivism algorithms. For example, facial recognition is that is being used into core security and border control infrastructures have the lowest accuracy on darker-skinned females with classifications being 8.1% 20.6% worse on female than male subjects and 11.8% 19.2% worse on darker than lighter subjects and the intersectional error analysis concluding dark-skinned females having the highest error rates ranging from 20.8% 34.7% (Buolamwini and Gebru, 2018). Also, by evaluating the COMPAS (Correctional Offender Management Profiling for Alternative Sanctions), a statistically-based assessment and classification system used to determine the likelihood of recidivism, a study of about 2500 individuals showed that 47% of African Americans were wrongly predicted to reoffend, as compared with 24% of whites, and 28% of African Americans who reoffended were wrongly predicted as being lower risk, as compared with 48% of whites (Leavy et al, 2020). The implications of these findings lead to people of racial and gender minorities being wrongfully targeted. Given the unforeseen but still detrimental effects of oversight on the part

of researchers from more privileged backgrounds, participatory design is a step in the right direction towards expanding the scope of envisioned users.

Automated tools have become highly regarded, in their ability to assist in and accelerate the speed and efficiency of meaningful tasks. In this case, language models are being developed to take in human input and behaviors, form an understanding of them, and produce responses in the ways that humans would. However, it has become a challenge in the language processing world to expand the scope of capabilities of these tools to perform tasks such as reading comprehension, question answering, and textual entailment. Some limitations in the use of pre-trained language representations to tackle these challenges include: “(1) the need for a large dataset of labeled examples for every new task limits the applicability of language models, (2) the potential to exploit spurious correlations in training data fundamentally grows with the expressiveness of the model and the narrowness of the training distribution, and (3) humans do not require large supervised datasets to learn most language tasks” (Brown et al, 2020). ChatGPT, as a pre-trained language model, attempts to interact with its users in a conversational way by responding to different prompts, answering questions and follow-ups, as well as challenging the user while recognizing its limitations in the aforementioned areas.



# Chapter 4

## Methodology

In my research, I explored the use of participatory sensemaking to evaluate the themes and subthemes that emerged from facilitated conversations with individuals from the MIT community. This involved using scaffolding to design a new sensemaking system that makes the qualitative research process more accessible to the participants.

### 4.1 Participatory Sensemaking

To ultimately evaluate how much of the stories that participants have shared through facilitated conversations are seen in the final portals that are produced, we must first determine how well participants believe their voices are seen in resulting web platforms. One straightforward way to do this would have been to reach out to participants who have previously worked on CCC projects and ask them their opinions of how much they believe what they shared has been kept throughout the whole sensemaking process. However, these participants may be biased in their responses and it may not have been as thorough to just look at the end result versus the whole process. Therefore, to evaluate how much change is required for the sensemaking process, I invited previous participants to code their own voices and see how well they match up with the codes that the sensemakers have previously created. This would allow us to understand the differences between what participants would want to see and what was previously produced. This would also provide us with an exploration into how

to enable individuals to code their own values as well as looking into workshops as a design artifact about how to bring individual voices into coding.

## 4.2 Timeline for Participants

I reached out to the participants from RealTalk@MIT and asked them if they would be interested in this research. I spurred their interest by providing potential participants with a compensation of \$45/session. The emails sent to reach out to them contextualized this research project, emphasizing the focus of centering their voices.

Although it was initially intended to invite around four participants for a two hour sensemaking session, it was very different to get responses from students. The first round of students that we reached out to were students from the Undergraduate Association who participated in the pilot. However, it was difficult to gain responses after constantly sending emails, potentially due to their busy schedules as students in this institution, the fact that a good portion of the previous participants had graduated at the end of last semester, and the overall difficulty in revisiting a project that seemed to have closer ties to the previous academic year.

I ultimately pivoted my efforts to individuals who participated in the pilot under the Department of Urban Studies and Planning. This included graduate students as well as SPURS fellows, mid-career individuals who are a part of a one-year non-degree program to enhance and reflect on their professional practice in planning and international development. The original outreach email was sent to the three sense-makers who also facilitated and participated in the conversations with their peers. From there, they reach out to their colleagues who also participated in the conversations. I got five participants in total, due to this approach since having more personal outreach typically lends a higher response rate.



## 4.3 Workshop Structure

During the sensemaking session, we invited those individuals to participate in a coding exercise. Participants were split based on conversation that they were a part of so that codebook would be most accurate since they are a part of those communities. Each group had (temporary) access to the highlights from the conversation they were a part of. They performed the whole sensemaking process, from seeing the highlights to grouping the highlights into broad themes, then themes and subthemes, after being guided through how the process works. These workshops were facilitated by me, being that I am an individual who did not participate in RTFC, so that there cannot be any crossover between the previous and current sensemaking processes. I answered any questions that the participants had and spurred continuous dialogue for the paid participants to code the conversations. However, I used a script across sessions so there is consistency across workshops.

At the end of the conversation, I collected a master codebook that would compile the themes/subthemes that the participants believed emerged from each of their conversations and are relevant to the shared experience of the MIT community and views on the MIT Values Statement. This codebook shed light on the values that the participants believed aligned with their highlights from their conversations as well as values that they believed defined their collective experience at MIT.

## 4.4 Post Processing

Upon the completion of these workshops, I synthesized the codebooks from each, highlighting the themes/subthemes that the groups agreed upon, as well as scaled how their statement reflected the alignment with the values that they chose (from celebrated to needs to change) both quantitatively based on the numbers that they assigned to the values as well as qualitatively from their explanations as to why they chose those values.

In terms of feedback on workshop structure and accessibility to the sensemaking

process, I did a thorough review of the Zoom recordings of the sensemaking workshops. This involved making note of areas of confusion or constructive criticism as well as contextualizing this feedback with several factors such as references to the facilitated conversations that the participants were a part of, the wording of the MIT values that were used for scaffolding, and the transitions between different parts of the workshop structure.

Since the size of the participants who took part in these sensemaking sessions were on the smaller side, as well as the fact that sensemakers also have the ability to utilize GPT-3 generated codes to assist in making sense of highlights, I utilized the ChatGPT to simulate the conversation surrounding a sensemaking session. Utilizing a similar structure to the workshop sessions, I provided ChatGPT with highlights and prompted it to summarize and apply codes to conversations. I took note of the responses that this conversation tool provided as well as limitations in how I can ask follow-up questions and limitations in responses that it can provide being that it is not a human.

# Chapter 5

## Evaluation

### 5.1 Workshop Structure

My first point of evaluation is of the workshop structure, including the *length, prompts, accessibility in understanding, and space for human engagement*. By incorporating these notes in the future, and seeing if participatory sensemaking is a viable approach to iterating on the sensemaking process, we can build a more optimal way to include participants further in the pipeline of going from facilitated conversations to concrete outputs to their communities and beyond.

In the first workshop that was held, I had two participants who were SPURS fellows, one was also a facilitator and sensemaker. These two participants were a part of the same conversation. Here are some of the findings from the first workshop:

- Since the structure of the questions that were asked during the facilitated conversations were directly tied to the MIT values statement, it seems like unnecessary work to have the participants summarize then tag the highlights. The value that they would be discussing would usually be in their highlight. For example, a question that was asked was “*What needs to be celebrated?*,” with a subtask of “*I’d like you to choose one or more of these six values that feel important to you. Keeping these values in mind, I’d like to invite you to recall an experience from your life at MIT when you felt the value you selected was*

*lived and you felt it was a positive experience overall. Please name the value(s) you selected and then share your story.*” This question directly asks for a value, although another value could be tied to the statement implicitly.

- Because the summaries seemed more constricted to emotions, I emphasized that it did not have to be limited to the words on the page. It was actually a starting point for revisiting emotions, thoughts, and recollections from when the statements were said so that they could add those elements now.
- Having the scaling allowed participants to have more direction when determining what the final codebook would include; i.e., if they noticed that their clustering showed that one value was celebrated they would keep that whereas if they saw another value needed to change, they would not include that.
- Asking the question of *“How much do you think your perspective and experiences align with the current state of the MIT values statement?”* before starting the workshop allowed the participants to bring their current views of the statement with the ones that they had a few months ago when the conversations were held such that they felt more firm in their decisions of which codes should remain in the codebook.
- The participant who was previously a sensemaker noted that they saw this workshop as a way of reinforcing their interpretations and decisions during the conversations and the first sensemaking process. They also noted that the second portion of the workshop (maybe the clustering and tagging portion) was repetitive but it was overall a great exercise.
- On the other hand, the other participants found the second portion to be very useful and insightful. They also viewed this exercise as a reflection of MIT’s efforts to constantly revisit and iterate on the values statement to make it as robust as possible. However, they believe it would have been best to have a shorter workshop (one hour instead of an hour and a half).

In the second workshop that was held, I had three participants who were Master's in City Planning students, one was also a facilitator and sensemaker. These three participants were a part of the same conversation. (*NOTE: the participant who was previously a sensemaker on the project coded another participant's highlights since they did not have highlights. That participant was from the pilot with the Undergraduate Association*). Here are some of the findings from the second workshop:

- Some participants were also confused if they should interpret their voices to what was on the page or if they were allowed to extend beyond to say how they were feeling in that moment. Because I wanted this process to be reflexive, I encouraged them to not limit themselves to just the highlights that were provided.
- One participant needed to look at the question that prompted the response in the highlight to have more context around what was being discussed, since the conversations happened a few months prior to this workshop.
- Participants thought it was more natural to compare their summaries to the ones of their peers immediately after clustering their own highlights (before starting to think about which codes to apply). This was more of an organic approach in the first workshop as well.
- The participant that was a previous sensemaker noted that the values statement is prescriptive rather than descriptive in nature, meaning that it is a collection of ideals that MIT should strive towards, whereas the codebook generation process is towards noting what MIT's community currently believes resonates with their experiences and perspectives.
- The participant that was coding another participant's voice found that it was difficult to draw nuances in context, sentiments, and shifts in experiences and perspectives of someone else, which limited what they could contribute to the overall codebook. Because they were not a part of this conversation, it was difficult to have a sense of the atmosphere during the facilitated conversation,

which, in comparison to the other participants, provided them with less information.

- It proved to be more difficult to formulate a concrete codebook in this session because all of the values are addressed to a certain extent in MIT's current state, experiences have evolved and shifted over time so it is difficult choosing which instance of their development at MIT to choose from, and contradictions between the codes developed from each individual. Extending beyond that, a participant mentioned how this reflects that the task of finding a few words to encompass the values of such a diverse group of individuals is challenging so having this activity would reflect those challenges.
- One participant noted that it was truly powerful to be able to listen to what they had said months prior and see if there was a shift in their perspectives and to extend it further by wondering what they would have responded differently if they were asked currently.

By looking at these points of feedback and areas of difficulty and pulling away from the nuances of having a participatory sensemaking session for the MIT Values Statement to thinking about a more generalized sensemaking workshops for participants, I would make these changes to my workshop structure and this about these areas more deeply:

- Add the question to the highlight to the sticky note showing the participants' responses for more context.
- Add to the prompt for summarizing highlights that it can involve what is beyond the highlight, such as how they were feeling in that moment.
- Instead of asking to code their individual highlights, immediately ask them to code across their highlights, maybe even cluster among all of their highlights too. Interacting independently with their own voices by summarizing their highlights seemed to be sufficient in terms of independent work. This would also help in making the workshop shorter.

## 5.2 Code Comparison

My second point of evaluation is how the codebooks that the participants produced were different from the ones that the original sensemakers produced. Because researchers and participants have different backgrounds and experiences that influence their decisions, it is interesting to see where these two groups' thought processes diverge in the sensemaking process and what factors may play a role in these differences. Figure B-1 shows the differences that appear when comparing the codes from the original sensemaking session to those produced from the participatory sensemaking workshops. Each row between dashed lines represents one highlight.

Based on the codes produced by the workshop participants in comparison to the codes produced by the original sensemakers, we can see most of the codes were the same between the two groups, both structural codes, such as celebrated and needs to change, as well as codes that are the values in the MIT Values Statement, such as excellence and curiosity. However, when there were differences between the codes produced, it seemed to be with the pattern that there was one more value statement missing as a tag or that one sensemaker viewed the highlight to have slightly stronger language than another. However, there is not a strong difference between the overall codes. Also, the fact that one value was produced by one sensemaker versus another may stem from the wording of the MIT Values Statement, where two values are coupled together, such as "Belonging and Community" and "Excellence and Curiosity." This second workshop showed more differences between the original and participatory sensemaking than the first workshop. This can be seen in Figure B-2. Although the structural codes are the same (with the exclusion of the first highlight that was not assigned a code by the original sensemakers), there was no overlap between the values assigned by the original sensemakers and the workshop participants. Overlooking the highlights that did not have a non-structural code assigned to them by the original sensemakers, we see the disconnect stemming from seeing Openness instead of Community/Belonging.

Before asking the participants to perform the sensemaking process, I asked them to

revisit the MIT Values Statement because the wording would perform as a guidebook for how they would code their own voices. When discussing openness and respect, the values statement uses the phrasing:

*“We champion the open sharing of information and ideas. Because learning is nourished by a diversity of views, we cherish free expression, debate, and dialogue in pursuit of truth – and we commit to using these tools with respect for each other and our community. We strive to be transparent and worthy of each other’s trust – and we challenge ourselves to face difficult facts, speak plainly about failings in our systems, and work to overcome them. We take special care not to overlook bad behavior or disrespect on the grounds of great accomplishment, talent, or power.”*

Whereas, when discussing belonging and community, the statement uses the phrasing:

*“We strive to make our community a humane and welcoming place where people from a diverse range of backgrounds can grow and thrive – and where we all feel that we belong. We know that attending to our own and each other’s wellbeing in mind, body, and spirit is essential. We believe that decency, kindness, respect, and compassion for each other as human beings are signs of strength. Valuing potential over pedigree, we know that talent and good ideas can come from anywhere – and we value one another’s contributions in every role. Together we possess uncommon strengths, and we shoulder the responsibility to use them with wisdom and care for humanity and the natural world.”*

Because these sets of values use similar wording when describing embracing a diversity of views and backgrounds, it is understandable that openness vs. belonging and openness vs. community could be used by sensemakers. Therefore, there is also not a strong difference between the codes that were produced by these two groups.

### 5.3 Theme Suggestion Comparison

My third point of evaluation is the difference between how and the extent to which the GPT-3 theme suggestor embedded in the LVN Insights tool vs ChatGPT can serve in the sensemaking process.



The theme suggestor is currently able to play a role in the sensemaking process by providing the sensemakers with main ideas that it finds in the highlights that have been imported. These main ideas could be used to discern or could potentially become the codes associated with each highlight. Looking at one participant's set of highlights from the first workshop, we get the following set of words suggested by the tool:

- time management, course design, professional development for the highlight coded with community, belonging, and friction
- engagement with the MIT community and quality and affordable education for the highlight coded with excellence, curiosity, openness, and celebrated
- leadership, classroom dynamics, and transformation for the highlight coded with excellence and celebrated
- community, engagement, and collaboration for the highlight coded with community, belonging, and needs to change

As we can see, the theme suggestor does not necessarily aid in suggesting structural codes, associated with the participant's sentiment towards how the underlying values discussed in their highlights reflects their experiences. Also, some of the main ideas suggested such as time management and course design may not be helpful in leading the sensemaker to finding codes with this particular scaffolding around the MIT Values Statement. This is understandable since the theme suggestor was fine tuned towards the task of text summarization.

ChatGPT, however, is a version of the GPT-3 model that was trained on conversational text and provides context-based responses to optimize its ability to interact in a chatbox. I contextualized the sensemaking process with ChatGPT by providing it with the MIT Values Statement, similar to the participants in the workshop, as shown in Figures B-3, B-4, and B-5. From there I would prompt it to summarize each highlight from the set of the same participant in the first workshop, then share which values it thought were reflected in the highlight and what structural code would fit.

Because Chat-GPT is able to utilize the prompts from the conversation to contextualize its responses, this tool was able to produce responses that were more aligned with the codes produced by both sets of sensemakers than the theme suggestor. Also, since Chat-GPT performs the text summarization internally when answering the following prompts, this part of the sensemaking process did not seem necessary with this tool.

# Chapter 6

## Results

In terms of allowing participants to have more interaction with their own voices and being a part of the iterative process of sensemaking, the participatory sensemaking workshop structure seemed to be useful. By being able to revisit RT@MIT as a researcher, participants feel more included in how their voices are being interpreted and viewed and are able to illuminate some areas that may have been missed in the facilitated conversations.

By looking at these points of feedback and areas of difficulty and pulling away from the nuances of having a participatory sensemaking session for the MIT Values Statement to thinking about a more generalized sensemaking workshops for participants, I would make these changes to my workshop structure and this about these areas more deeply:

- Add the question to the highlight to the sticky note showing the participants' responses for more context.
- Add to the prompt for summarizing highlights that it can involve what is beyond the highlight, such as how they were feeling in that moment.
- Instead of asking to code their individual highlights, immediately ask them to code across their highlights, maybe even cluster among all of their highlights too. Interacting independently with their own voices by summarizing their highlights seemed to be sufficient in terms of independent work. This would also help in making the workshop shorter.

By incorporating these changes, there could be more dialogue across the participatory sensemakers which may allow for a more coherent codebook to be produced.

Upon comparing the codes produced by the original sensemakers and the ones from the workshop, there was not a notable difference between the two. Therefore, the thorough, engaging process where researchers and community fellows utilize their backgrounds and skillsets to decide on the codebook that would be appropriate to represent the facilitated conversations seems to suffice.

However, if there is room to supplement sensemaking with an automated tool, Chat-GPT may be a good place to look. Because Chat-GPT is able to utilize the prompts from the conversation to contextualize its response and perform text summarization internally, it is an easy tool to interact with and provides quick results. Therefore, if there are times when a group of sensemakers seem stuck in how to code or would like another opinion, Chat-GPT could provide a helping hand.

# Chapter 7

## Conclusion

Working with the participants of RT@MIT to evaluate the themes and subthemes that emerged through the facilitated conversations by using a participatory design framework has brought more autonomy to the participants, allowing them to have the tools to perform sensemaking on their own to ultimately continue the iterative process of sharing these participants' voices. However, in comparison to the codes produced by individuals on the original sensemaking team, it does not seem as if there are large discrepancies in the codes produced by participants. In terms of automated tools to help in the sensemaking process, ChatGPT seems as if it will be a great addition since it allows for continued contextualization and has a conversational design, allowing it to mimic a sensemaker.



# Appendix A

## Tables

Table A.1: Overview of Core Coding Concepts (Dimitrakopoulou et al., 2023)

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)



# Appendix B

## Figures

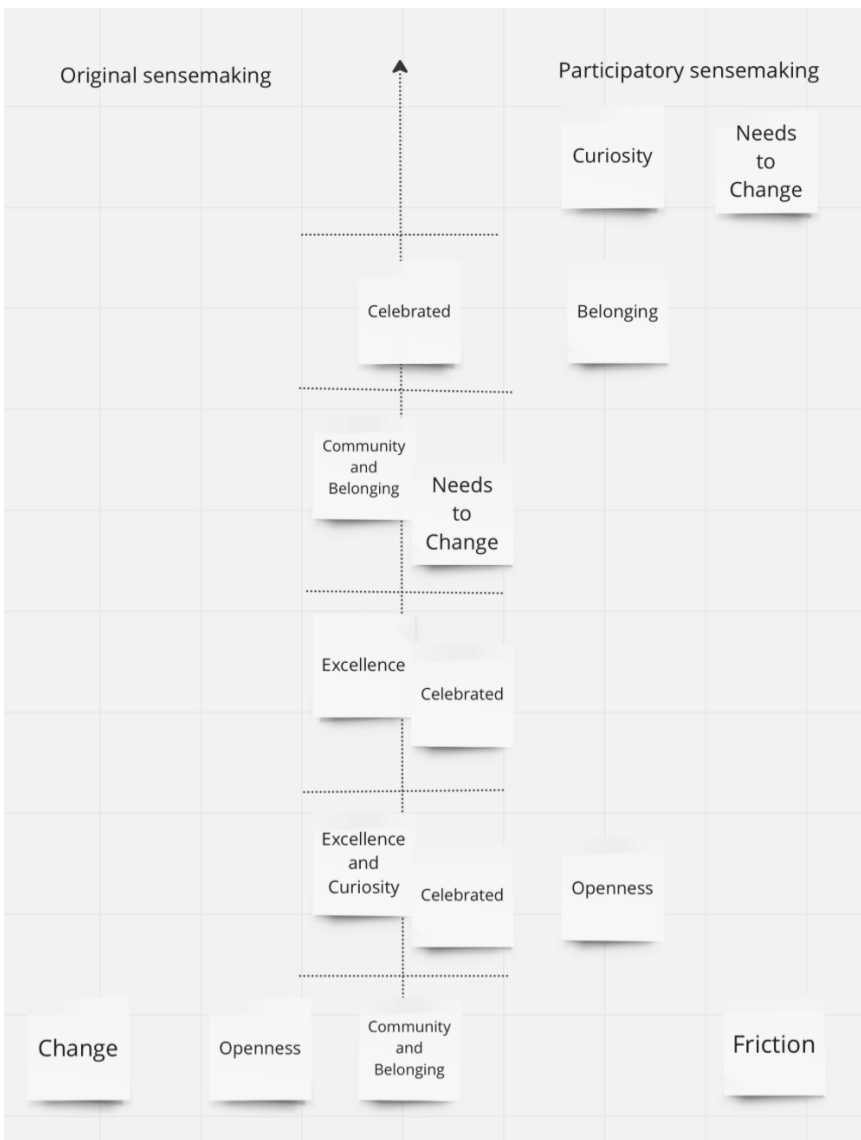


Figure B-1: Comparison between codes produced by the original sensemakers and the first workshop’s participants; each line represents a different highlight

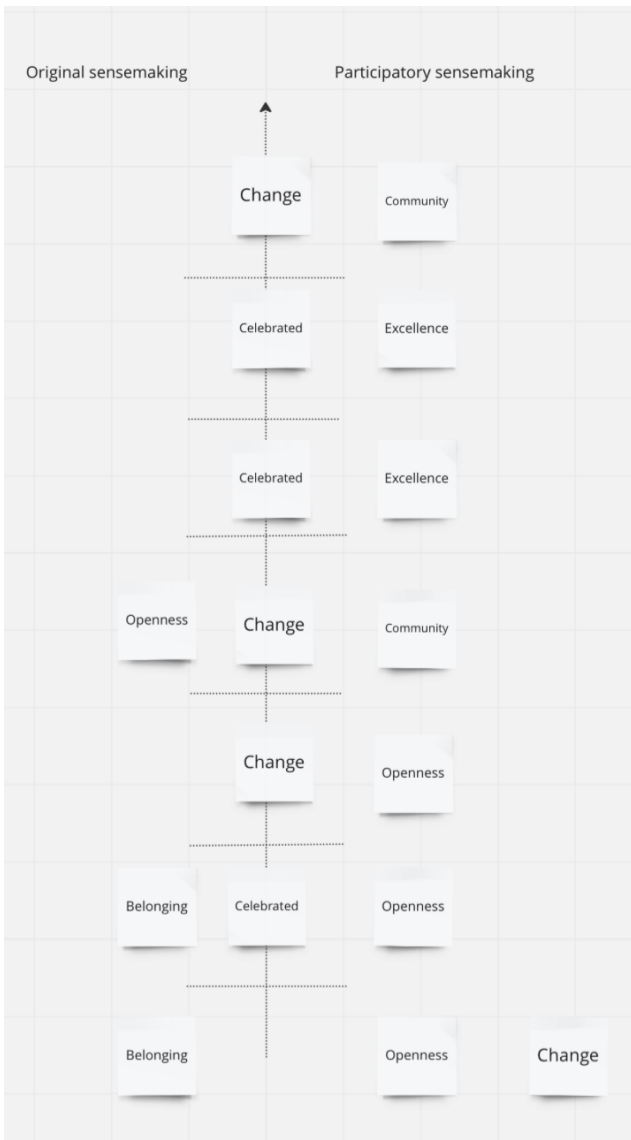


Figure B-2: Comparison between codes produced by the original sensemakers and the second workshop’s participants; each line represents a different highlight

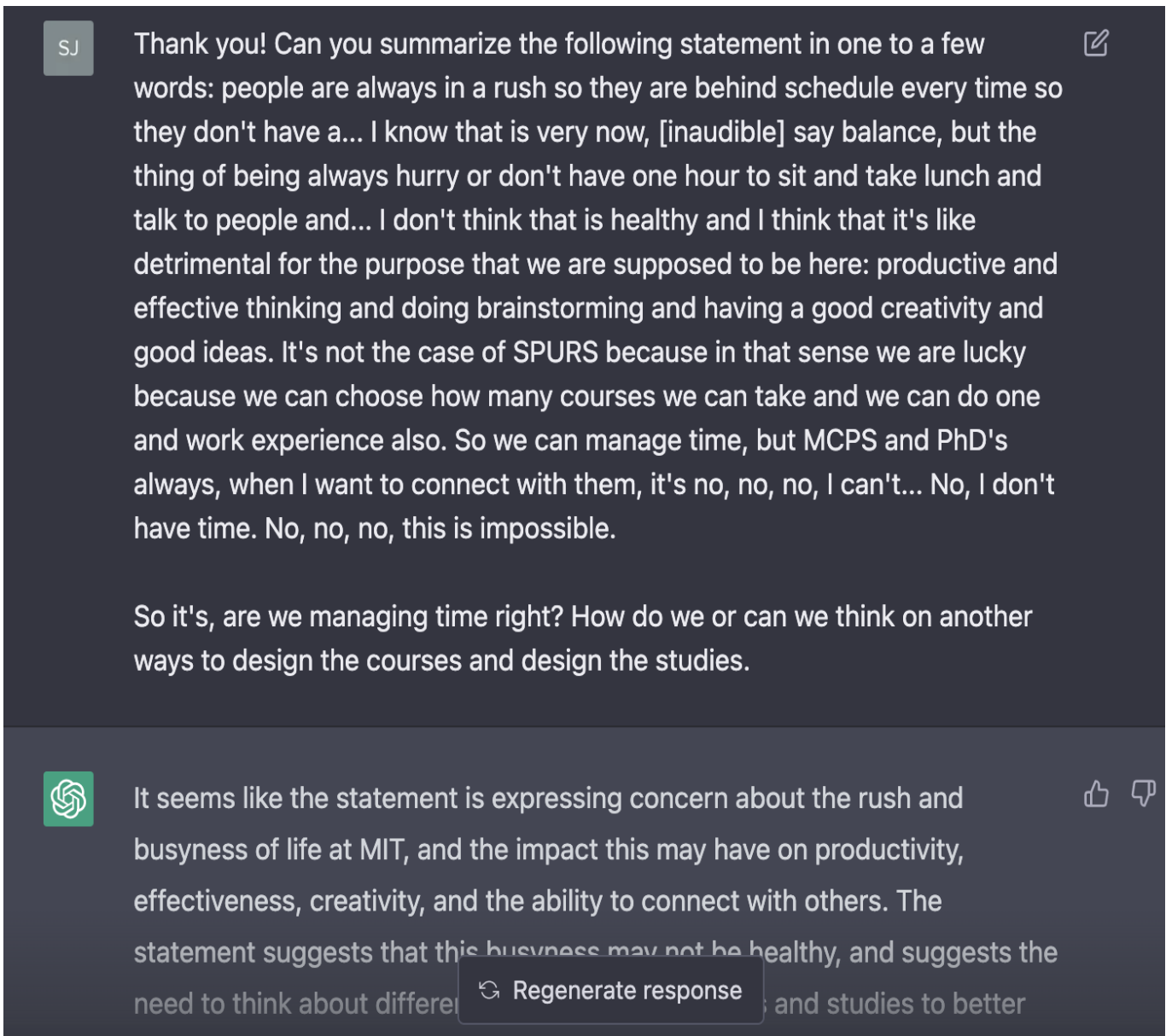


Figure B-3: Prompting Chat-GPT to summarize a highlight

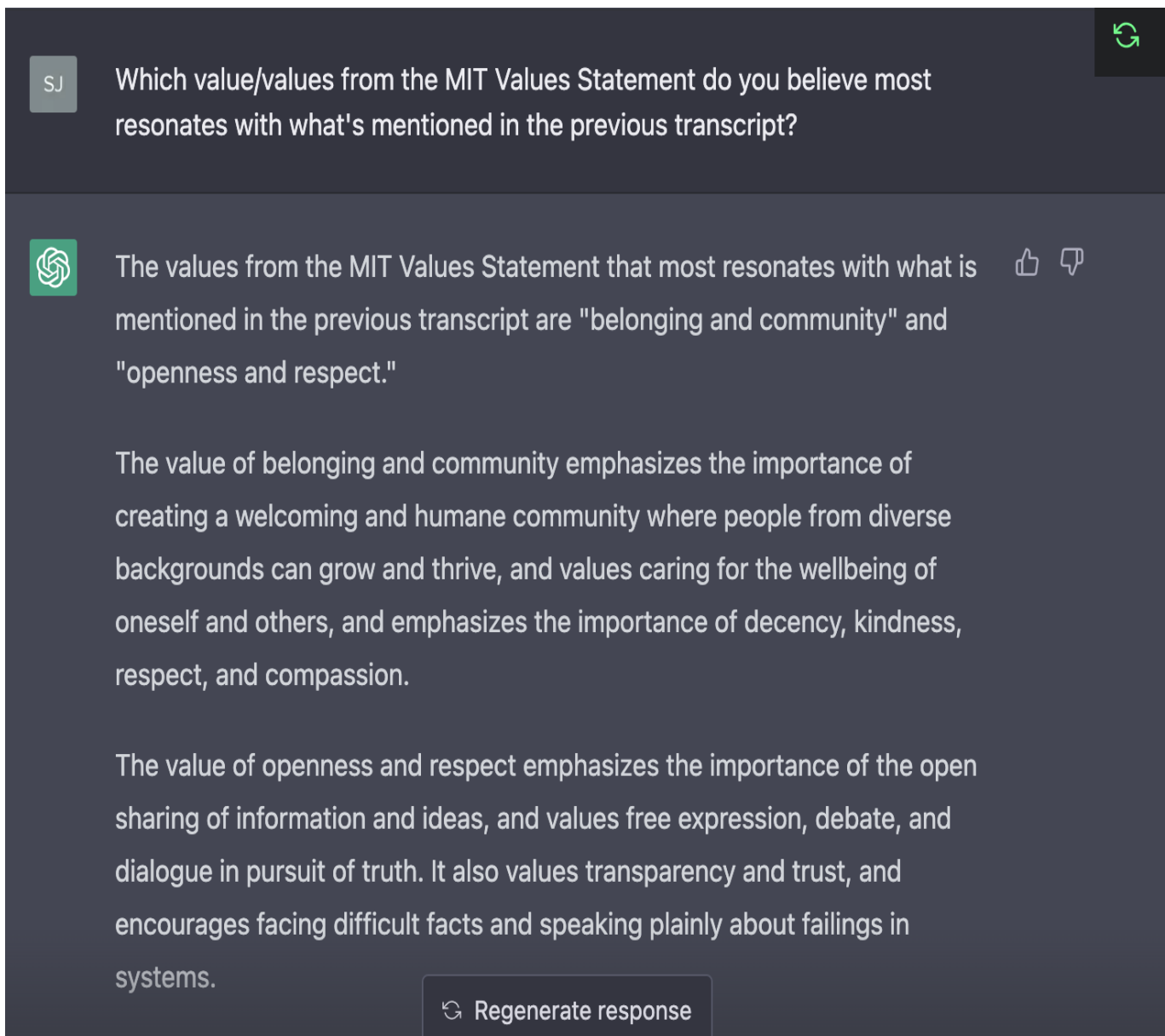


Figure B-4: Prompting Chat-GPT to select which values are touched upon in the highlight

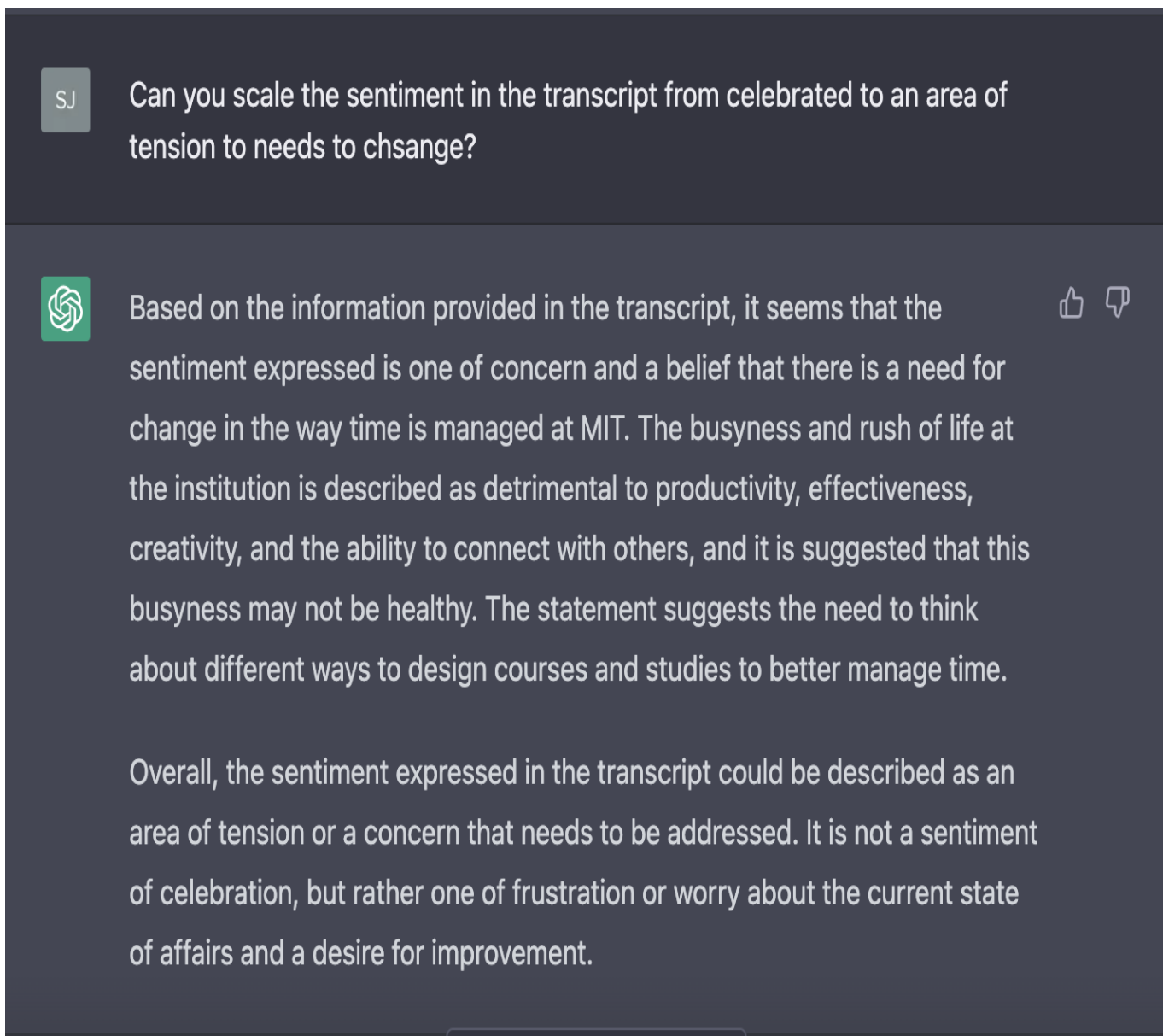


Figure B-5: Prompting Chat-GPT to select the structural code

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