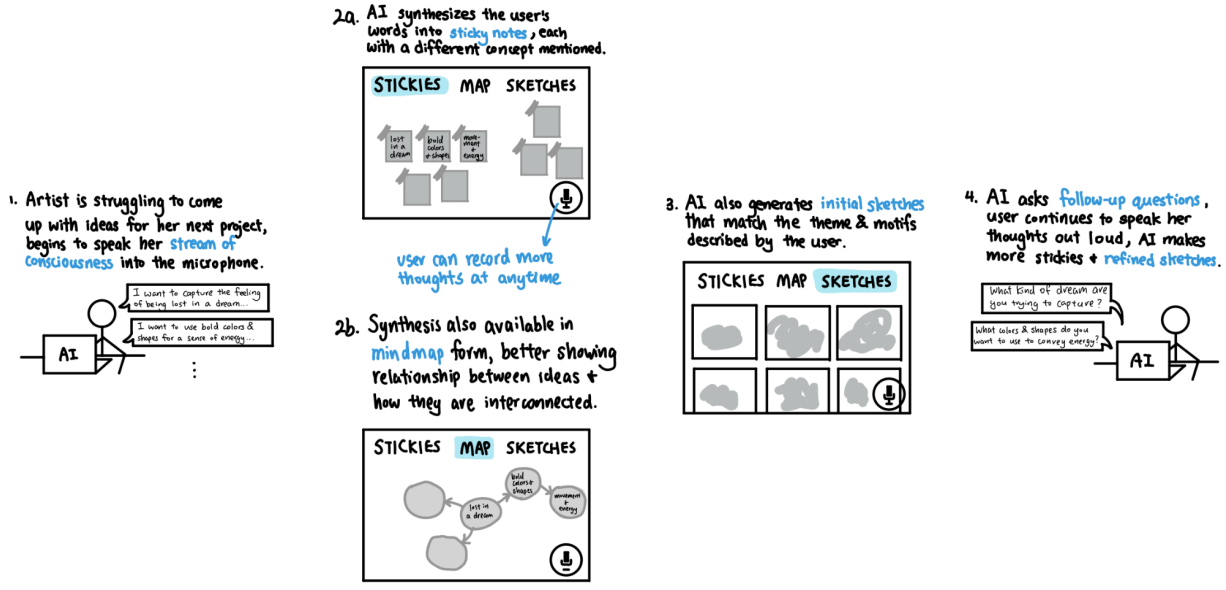
EXPERIMENT PLANNING WORKSHEET

BIG IDEA

BrainstormAI is an AI-powered tool designed to help artists overcome creative blocks by **transforming their stream of consciousness into tangible ideas**. By speaking into a microphone, the artist's words are synthesized into structured sticky notes and mind maps, providing a visual representation of their thoughts. Then, based on these words, the AI generates initial sketches that can serve as inspiration for the artist's next project; these sketches can take many forms, such as rough outlines, basic shapes, or artworks scraped from the internet. The artist can then adjust, group, or record additional thoughts, while the AI continues to generate more stickies, mind map elements, and refined sketches. Follow-up questions from the AI allow for a more in-depth exploration of the artist's ideas, leading to a more fruitful brainstorming session.



QUESTION

Can turning spoken words into AI-generated stickies and sketches help artists come over creative blocks and generate new ideas more effectively than traditional brainstorming methods?

HYPOTHESIS

- **Positive:** *BrainstormAI* will result in a greater number and variety of ideas generated compared to traditional brainstorming methods.
- **Positive:** Artists will find the stickies and sketches generated by *BrainstormAI* helpful in their creative process.
- **Negative:** Artists will find *BrainstormAI* intrusive and annoying and will not take the generated suggestions.
- **Negative:** Artists will feel more comfortable with their usual brainstorming methods and feel uncomfortable with the novelty of *BrainstormAI*.

EXPERIMENT OVERVIEW

This experiment will involve 2 artists using 2 methods to generate ideas for a new art project. The number and variety of ideas generated by each method will be compared.

- **Method 1**: Traditional brainstorming methods, such as freeform writing
- **Method 2**: AI-generated stickies, sketches, and prompts

DETAILED EXPERIMENT DESIGN

1. Participants (description of target participants, how many, recruiting strategy, subject compensation/value plan, link to screener)

- 2 Stanford student artists from diverse backgrounds who have experienced creative blocks in the past, recruited through our personal networks, with no compensation

2. Preparing for study & prototype creation (including any required software, supplies, additional helpers, prototypes, design work, links to any related documents, etc.)

- Create a Wizard-of-Oz prototype for *BrainstormAI*, without any AI implementation.
    1. Prepare a **script/guide** with prompts and follow-up questions that the "AI" would use during a session with the user.
        - "Let's brainstorm for your next project!"
        - "What would you like to create?"
        - "What do you want the subject of the work to be?"
        - "How would you want to create that?"
        - "What is the significance of ____?"
        - "What are you trying to tell your audience using ____?"
        - "How much time do you think you would spend on ____?"
        - "What medium do you want to use?"
        - "What barriers do you foresee?"
    2. In each session, our prototype will involve **3 people** and some existing *tools*:
        - The **Helper** will:
            - Ask questions and help the **Participant** brainstorm using the script/guide.

        - Speak not with their natural voice but with an AI voice through the *Google Translate* interface to simulate AI-ness.
    - The **Participant** will:
        - Speak into a microphone on their laptop, connected to Zoom.
        - Respond to the **Helper's** artificial voice.
        - Click tabs to navigate between "Stickies" and "Sketches" boards.
    - The **Wizard** will:
        - Manually create structured stickies and sketches and edit them as the **Participant** speaks.
        - The "Stickies" board will be a *Miro board*. The "Sketches" board will be a *Google Slide* with images generated using either this existing Text2Image conversion tool, or a *Google Images* search.

3. Running study (length of study, expected plan for management during study, backup plan)

- 40 minutes for each participant (25-minute study + 15-minute follow-up interview)
- Conducted on Tuesday/Wednesday somewhere in a quiet space (e.g., dorm room)
- Structure of the -minute study (in-person):
    1. (3 minutes) Briefing
        - Introduce the project
        - Ask for consent to record audio
    2. (10 minutes) Method 1
        - **Helper**: "Generate ideas for your next project using whatever methods you usually use to brainstorm. This can be free-form writing, sketching, etc. Please think out loud as you brainstorm."
        - [START 7-MIN TIMER]
        - We will prepare pen and paper, and will not interfere during this part.
    3. (10 minutes) Method 2
        - The **Wizard** sets up the following on their laptop:
            - "Stickies" board (Miro)
            - "Sketches" board (Google Slide)
        - The **Wizard** shares the "Stickies" and "Sketches" boards with the **Helper**, who opens them in 2 separate tabs on their laptop and sets it in front of the **Participant**.
        - **Helper**: "Now brainstorm using this tool. It will talk to you, and you can talk back directly. You can also click and navigate between these 2 tabs to see what it creates for you."
        - [START 7-MIN TIMER]
        - The **Helper** steps aside and becomes a "Zoom bot." By sharing sound in Zoom and using Google Translate's AI voice and the script/guide, they help the **Participant** brainstorm.
        - As the **Participant** speaks, the **Wizard** manually edits the "Stickies" and "Sketches" boards in real-time.
        - The **Participant** will be able to click the 2 tabs at any time to navigate between the "Stickies" and "Sketches" boards.
    4. (2 minutes) Wrap-up & transition

        - Thank them for participating, transition into the 15-minute follow-up interview (see next section)

4. Analysis plan (including link to an interview guide for the follow-up interview)

- We will compare the number and variety of ideas generated by each method.
- Structure of the 15-minute follow-up interview (in-person):
    1. Ask for consent to record audio
    2. (2 minutes) Intro
        - Name, year, where you're from, your artistic interests
    3. (10 minutes) Body
        - Can you describe your experience using the first method versus using *BrainstormAI*?
        - How did you think *BrainstormAI* works?
        - What kind of data do you think is powering *BrainstormAI*? How do you feel about sharing that data?
        - What components of the tool do you find helpful/unhelpful?
        - Can you describe some challenges you encountered using the first method and using *BrainstormAI*?
        - Which of the 2 methods do you prefer, and why?
        - In what situations would you consider using this tool?
        - How did you feel about the stickies/sketches generated by *BrainstormAI*?
        - Say we have an additional feature called "mind-map" for *BrainstormAI*. Instead of organizing your thoughts into fragmented stickies, it organizes them into a structured mind-map, which shows the relationship between your ideas and how they are interconnected. How do you feel about this?
    4. (3 minute) Wrap-up
        - Anything else you'd like to share?
            - I still don't know the purpose of the stickies
            - Prefer stream of consciousness in the form of writing.
        - Thank you for participating

5. Artifact collection plan (how will you document what happened? Audio? Video? Photos?)

- The study and follow-up interviews will be audio-recorded. Participants will be asked for their consent for recording the sessions.

OPEN ISSUES

1. Lack of diversity in the participant pool: due to time and resource constraints, the experiment targets only 2 Stanford student artists, which may limit the generalizability of the results.
2. Manual creation and editing of the stickies and sketches in real-time by the Wizard — this process can be time-consuming and prone to human error, which could affect the quality and quantity of the generated ideas.