Improving Emotional Expressivity of Text-Based Communications on Touchscreen Mobile Phones

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Introduction

Promise: Address the gap in emotional communication tools by creating an intuitive, user-friendly system that supports diverse user needs in both formal and informal contexts.

Obstacle: Text communication often lacks rich emotional cues [1], leading to misunderstandings and misinterpretations [2]. Current tools, like emojis and punctuation, offer limited support for nuanced emotional expression.

Solution: *Emotomate* – an AI-powered assistant to enhance text-based emotional expressivity by:
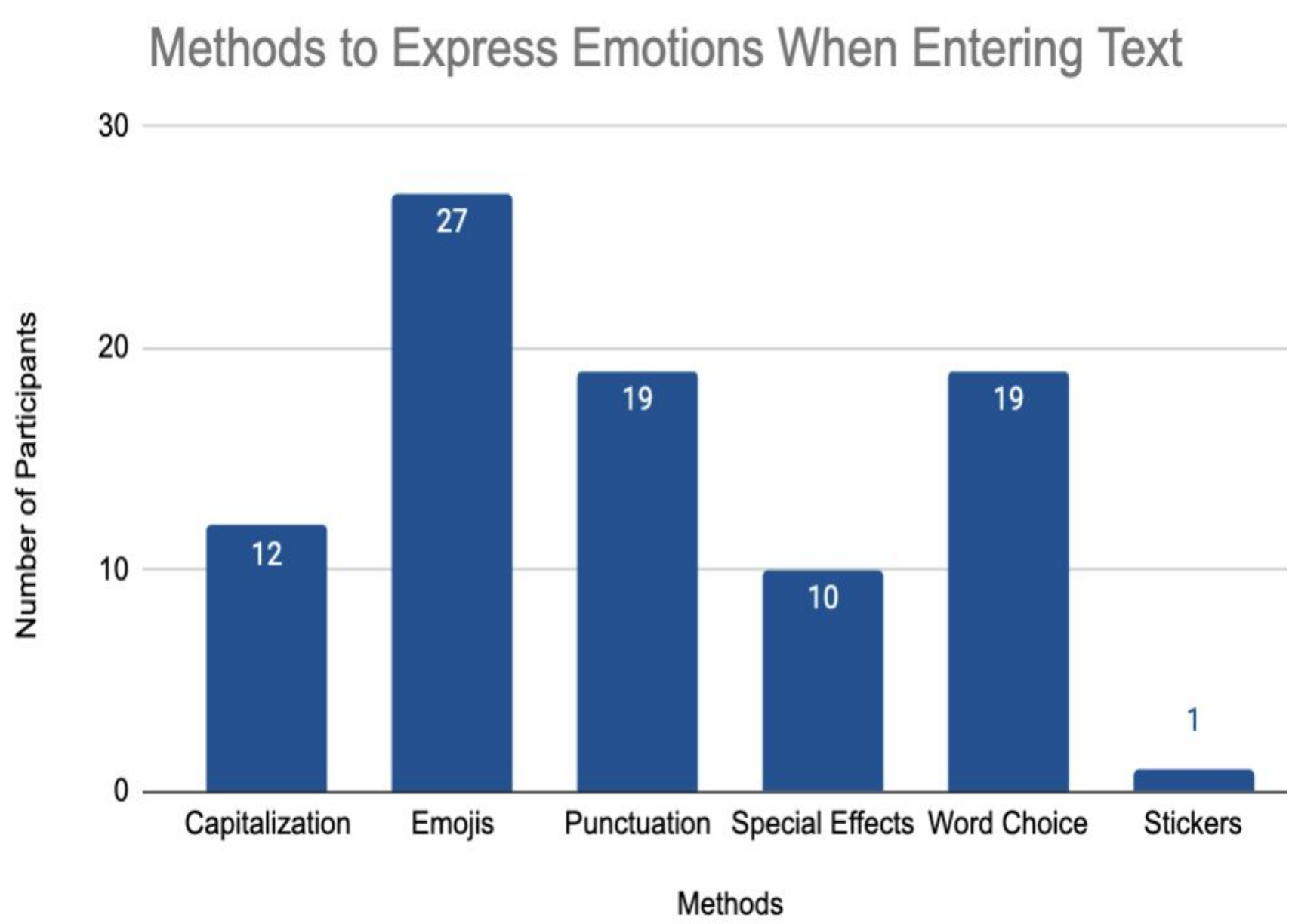• Interpreting the emotional tone of messages
• Suggesting context-aware emotional cues to improve communication clarity

Takeaways: Emotomate improves efficiency and of adding emotional cues when composing text messages. More work is needed to test Emotomate's envisioned feedback features.

Current Context of Use

Insights from Surveys:
• Emojis (most popular), punctuation, and word choice are common tools for emotional expression
• Underutilized features: "Special effects" and animations (lack of awareness of these features)

Methods to Express Emotions When Entering Text

Behavioral Patterns:
● *Informal contexts:* Open use of emojis, GIFs, and casual tone
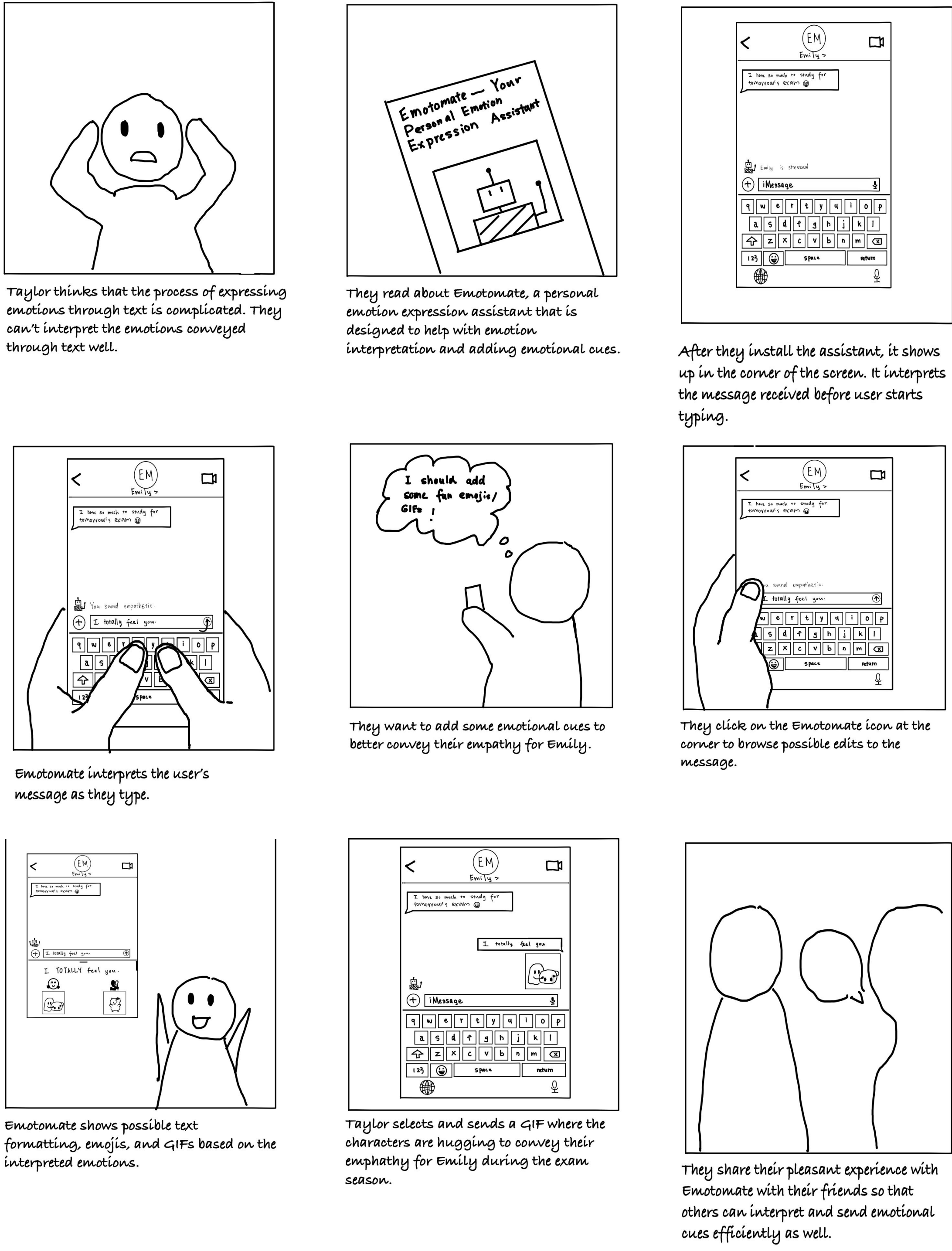● *Formal contexts:* Focused, professional tone with limited emotional cues

Pain Points:
● Time-consuming navigation to emotional elements
● Misaligned intent & recipient perception
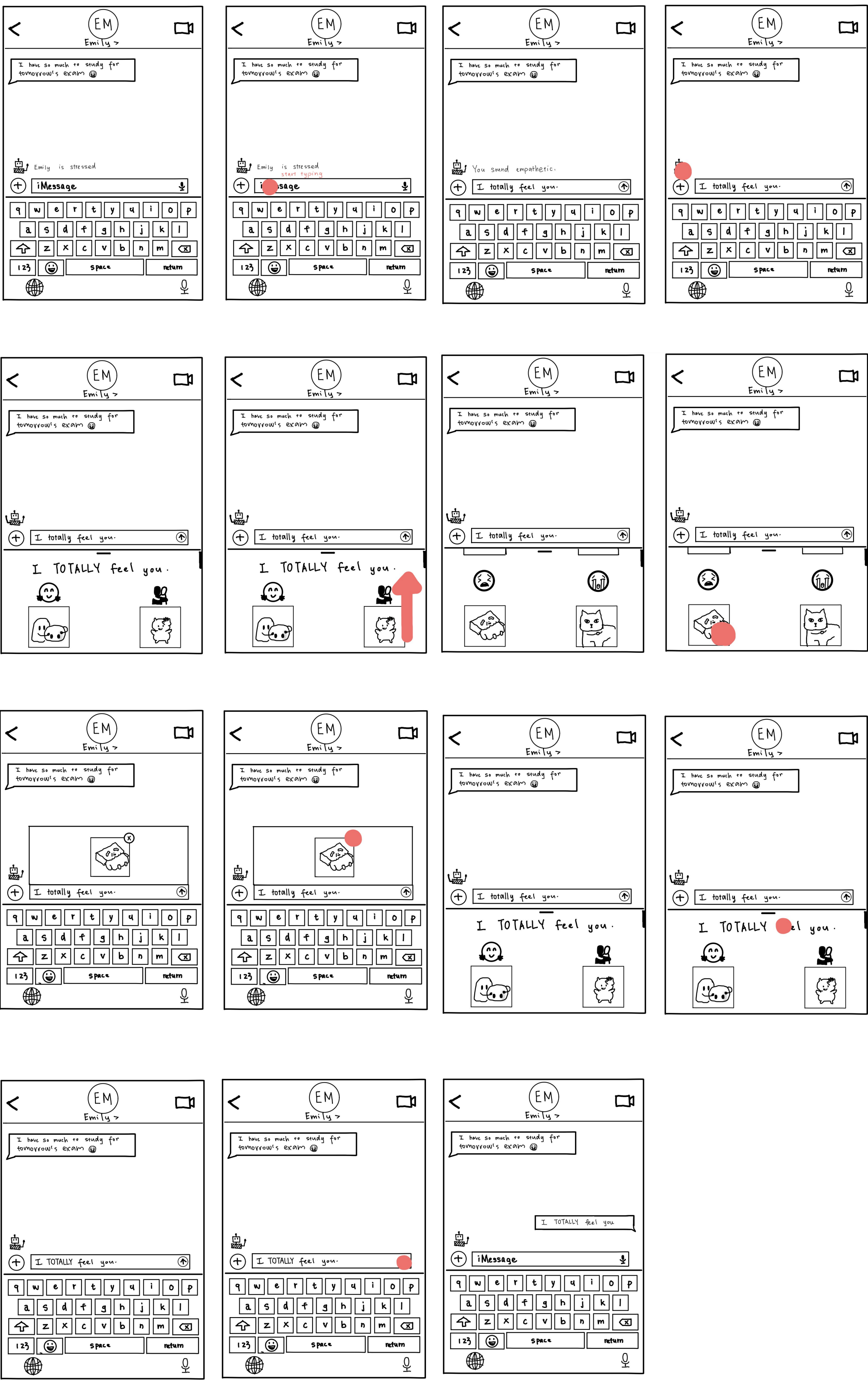● Lack of clear feedback on how emotions might be interpreted

User Requirements

1. **Helpful Emotional Interpretations:** Users rate Emotomate's emotional interpretations more helpful than unhelpful in understanding emotions conveyed in message (Likert rating >3/5).

2. **Efficient Emotional Cue Addition:** Users must be able to add emotional cues efficiently without significantly increasing overall message composition time compared to traditional interfaces.

3. **Emotional Cue Accuracy:** Users must be able to add all desired emotional cues 80% of the time.

4. **Readable and Helpful Feedback:** Users should receive feedback on perceived emotions that is easy to read (Flesch Reading Ease score ≥70) and rated helpful (Likert rating >3/5).
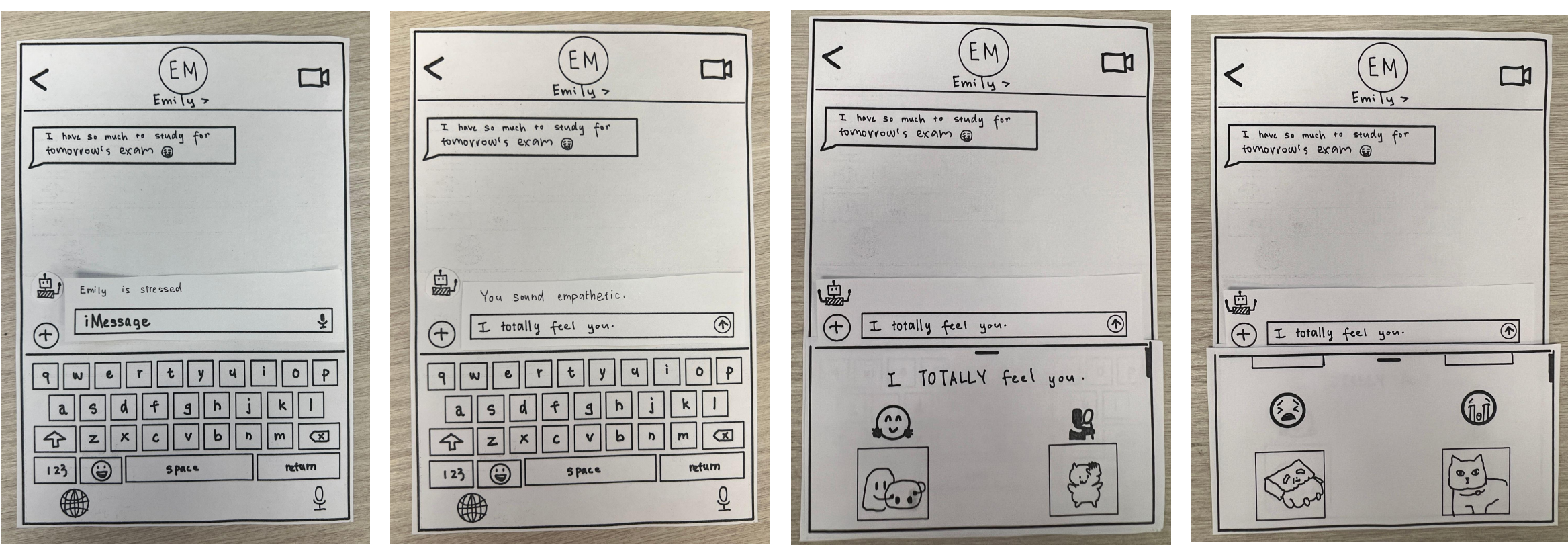
Design and Prototypes

Storyboard of envisioned Emotomate functionality

Emotomate sketches for early-stage prototype

Emotomate paper prototype

Emotomate Figma prototype

User Evaluation

● 2 rounds of user testing
  ○ Low-fidelity paper prototype evaluation
  ○ High-fidelity Figma prototype evaluation
● **Key finding from paper prototype evaluation:** Users need clearer signifiers of how to interact with Emotomate
● Quantitative evaluation of high-fidelity Figma prototype:
  ○ **Participants:** 10
  ○ **Design:** Within-subjects
  ○ **Conditions:**
    ■ Baseline
    ■ Emotomate
  ○ **Task:** Compose message including 3 emotional cues (GIF, emoji, special text formatting)
  ○ **Dependent variables:**
    ■ Message composition time
    ■ Task success

Results

Mean message composition time:
● Baseline: 42.0 s
● Emotomate: 30.3 s
● n = 6, **p = 0.022** < 0.05
● Excludes participants who didn't complete task

Mean success rate (# of correct cues added):
● Baseline: 80.1%
● Emotomate: 93.4%
● n = 10, p = 0.105 > 0.05

User feedback: "I definitely prefer the second one (Emotomate). It's so much faster and I can imagine it being kinda fun with infinite shuffles."

Takeaways & Future Work

Takeaways:
● **Insufficient Evidence to Conclude Increased Success Rate:** Emotomate achieved a higher success rate compared to the baseline, but this difference was not statistically significant.
● **Faster Task Completion:** Users completed tasks faster with Emotomate, highlighting its efficiency in streamlining emotional cue selection.
● **Feature Discoverability Challenges:** Participants faced issues with some features, e.g., text formatting and horizontal scrolling, indicating need for clearer signifiers.

Future Work:
● **Enhanced Signifiers:** Introduce clearer visual cues to improve discoverability of features (text formatting, scrolling) within emotional cue panel.
● **Expanded Scenarios:** Test Emotomate in different communication contexts (e.g., professional settings) to ensure adaptability across user needs.
● **Feedback:** Test Emotomate feedback feature.

References

[1] J. T. Hancock, C. Landrigan, and C. Silver. 2007. Expressing emotion in text-based communication. *CHI.*

[2] D. Derks, A. H. Fischer, and A. E.R. Bos.. 2008. The role of emotion in computer-mediated communication: A review. *Computers in Human Behavior.*