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Human-Centered Design

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# **Field Research: Observing People**

**Overarching research Motivation**

What are people saying about difficulties they have expressing or interpreting emotions while they are sending or receiving messages through their phone?What difficulties or pain points do people have regarding expressing their feelings or understanding text senders’ feelings?

**Overarching Question:**

How can affective computing technologies be used for enhancing overall safety? For instance, if elements of affective computing technologies were used in conjunction with facial recognition software, could they prevent potential harm by correctly recognizing harmful intentions of individuals before harmful actions are carried out?

**Method**:

For my guerrilla usability testing/observation, I conducted an experiment that I believe will result in data that could be useful for our technology. I called a friend over Zoom video conference and set up the video call in a way where I could see my friend, but he could not see me. While watching my friend on video, we had a text conversation that spanned a period of 35 minutes. During the video call, I observed my friends’ expressions as he received my text messages. Sometimes, I deliberately sent confusing messages and messages with spelling errors to observe the different kinds of expressions from my friend. From this brief experiment, I came to the conclusion that our technology, if implementable, could have wide ranging benefits.

**Three Activities:**

One: <https://www.youtube.com/watch?v=LwLuF041TLk>

This video demonstrates the need for my group’s technology in an entertaining and humorous way. This animated video is based on an original clip from a show called *Key and Peele*. As shown in the video, when two people are communicating over text, a lot can get lost in translation. One person could mean well but their text could sound as if they don’t care. In the video, one person is really nonchalant in their interpretation while the other one is gradually getting upset after each text he receives. All the while, each person not knowing how the other is feeling or interpreting the texts. This is exactly why our technology would be helpful. Ideally, our technology would interpret the facial expressions of each person and convey their emotion so the other is aware. Personally, I have misinterpreted a text before and I’m sure many people can relate. Our technology could save many friendships and perhaps a life or two (see the ending of the video).

Two: <https://www.youtube.com/watch?v=07TinrpKG6o>

In this video, we see another example of why our technology can be useful. Text messages can be interpreted in unlimited ways, depending on the individual. This video shows us how the same response to a text can be written in different forms and how that can cause someone to interpret the text differently. In the first example, someone asks, “Can I bring Dave to dinner tonight”? The other person responds, “Sure!”. This text implies that Dave is gladly welcome. However, if the person’s response was, “Sure.”, suddenly Dave doesn’t seem so welcomed; or at the very least, the person is indifferent about Dave. There are many cases of passive aggressive texts like these. The most common text that rubs everyone the wrong way is “k”. “K” texts/responses make people feel the need to overanalyze. Our technology can put an emotion to these ambiguous/passive aggressive texts and let the texting parties have an understanding of what the other person is feeling.

Three: <https://www.youtube.com/watch?v=9wQkLthhHKA>

I observed a video demonstration of a usability test for a website. The researcher decided to observe how a child would interact with their website. It was clear that the experience/knowledge of the researcher was on full display during this video, based on the methods they used to conduct the usability test. Since the subject was a child, the researcher cleverly used a paper prototype with drawings of the website instead of putting the child in front of a computer. Instead of a computer mouse, the researcher gave the child a marker/highlighter. Also, throughout the video, the researcher included questions and comments as pointers to be used in our own usability research. It is important to ask questions to the subject while not influencing how they engage with your product. You don’t want your own bias to influence potential data that can help your overall product. All in all, this video was a well-done demonstration of a usability test.

Note:

I think the usability testing video in activity three would be a helpful resource for future classes. :)

**Opportunity for Research and Design:**

In activity two, a series of texts were collected and analyzed. My idea is, this activity can be expanded to include a larger sample of brief text message exchanges. We could have our users bring in screenshots of text messages that they received or sent and analyze them to conclude if they would be clearer with our technology. I would ask our users, questions like, “How can our technology be used to help clear up confusion for you when you text”? A larger sample size can help us gather useful data that can be implemented in our technology. It would also help us realize how tangible our technology is and whether we need to make changes in our technology.

**Appendix**

A picture containing diagram

Description automatically generated

**Sources:**

[**https://usabilitygeek.com/guerrilla-usability-testing-how-to/**](https://usabilitygeek.com/guerrilla-usability-testing-how-to/)

[**https://www.bbvaopenmind.com/en/technology/digital-world/what-is-affective-computing/**](https://www.bbvaopenmind.com/en/technology/digital-world/what-is-affective-computing/)

**Target audience:**

Our target audience is everyone who uses text messaging. Our users may want to use our technology in order to reduce misinterpretations which are common in texting. Oftentimes, misunderstanding can occur between two parties. We believe our technology will eliminate these issues and lead to effective communication. Our users can be characterized for research purposes in three categories; age, gender and cultural background.

**Main goals:**

To help achieve our the main goals of our technology, we can generate a series of questions and scenarios.In short, the main goal of our technology are:

1. Increase acceptability and improve the usability of our technology
2. Improve efficiency of communication by incorporating a decoded facial expression of the message sender/receiver
3. Analyze our own words to reflect the tone of the recipient

Some of the questions intended to generate these goals are:

1. What are people saying about difficulties they have expressing or interpreting emotions? **→** What difficulties or pain points do people have regarding expressing their emotions?
2. How do texting systems try to support emotions today? → in what ways do texting services help users to express their emotions? How successful are these efforts?
3. How would people naturally express emotions in face-to-face conversations and how could that translate into texting?
4. How are facial reactions/expressions interpreted in in-person communication?
5. Are the current methods of expressing emotions in technology effective? How can they be improved?

A series of three [studies](https://onlinelibrary.wiley.com/doi/abs/10.1111/hcre.12093?systemMessage=Wiley+Online+Library+will+be+unavailable+on+Saturday+3rd+September+2016+at+08.30+BST%2F+03%3A30+EDT%2F+15%3A30+SGT+for+5+hours+and+Sunday+4th+September+at+10%3A00+BST%2F+05%3A00+EST%2F+17%3A00+SGT+for+1+hour++for+essential+maintenance.+Apologies+for+the+inconvenience&) showed that even if the message is from a friend, “you have as much of a chance of understanding their emotion as a complete stranger”(Human Communication). Our technology is connected to affective computing in that we reduce, if not eliminate confusion between two parties communicating over text messaging.

Types of **affective computing** technologies that our product supports:

1. User can decode their text message to interpret tone of conversation
2. Conveying feeling and/or emotion through a virtual format
3. Interpreting conversation
4. Analyzing emotions through emojis/language/punctuation used
5. Analyzing keyboard pressure when texting
6. Keystroke analysis to decipher mood of the texter

The majority of users who depend on text messaging for communication will benefit from our technology, but the intention of this technology to be used widely across all platforms in order to benefit all users. This technology is going to reduce negative assumptions based on users’ initial feelings when reading a text message. By reducing the ambiguity of text messages for users, we will reduce problems that occur over text messaging to some degree. For example, when a user receives a text message that says “thanks...”, it is hard to interpret. Our technology will help our users answer the natural questions that would arise from receiving this sort of message such as (What does it mean? What’s their problem?).

The main function of our technology will be to interpret the emotions of our users on both ends by collecting facial expressions using a webcam. Other strategies will be used in conjunction, such as keyboard pressure, keystroke analysis, and punctuation to interpret conversation. We are attempting to detect, interpret and accurately portray the feelings of the people participating in the conversation. Our goal is to let our users know what the sender of a message is feeling and what their message tone implies so they don’t have to make inaccurate assumptions.

Our technology is exceptional in making communication more effective which allows for people to have an easier experience with sending their text messages. Our technology does not harm any potential user; However, in the later stages, we will need to work on inclusive design for people who are differently abled. For example, we will need to improve on inclusive design for people with autism, as the current model might have difficulties in interpreting their emotion. Decoding/Interpreting facial expressions of autistic persons is a challenge which we are up for, and will address in the later stages of development.

There are currently a few products that have similarities with our technology; namely the iPhone smart emojis for text messaging, and grammarly tone tracker. The technology will turn out to be the key that unlocks deep, gesture-based, emotionally responsive user experiences across both mobile devices and laptop users. Assuming, of course, that such a user experience makes enough real-world sense.

