Critical Design for Stranger Interactions in the Dining Space

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Abstract
The problem that we address in this paper is counteractive to what much of the HCI community focuses on. That is, we acknowledge a necessity to ignore technological capabilities that may lead to technology-based design solutions, in order to have a more thorough understanding of our problem, its effects on people, and how we can design for it. In doing so, we expand the traditional idea of "design" to include un-design or non-design approaches.

Introduction
Human beings are social animals. Being socially connected increases our happiness and even health. In contrast, being socially disconnected and isolated leads people to feel depressed and unhealthy [1]. We, as humans, need to communicate and crave such interactions, requiring reciprocation. Nonetheless, technology provides new affordances that allow people to connect remotely. The new affordances also make it possible for people to preoccupy themselves with social networks, work, or entertainment wherever they are. It becomes a social norm that people refrain themselves from talking to strangers in public space.

Interaction Technology
The necessary channels for people to interact are not always available in the physical world, such as face-to-face communication. To fill this missing need of interaction, internet and mobile based platforms provide a new channel for people to satisfy their need [2]. This is evident in the readily available means by which stranger interaction is facilitated on online platforms; social media has proven to be effective in fostering user interactions in the cyberspace [1]. With widely available internet access, users are able to interact with other users through online communities. Consequently, users may not feel disconnected when they are alone. Would those new affordances provide

people feelings of being connected and prevent them from seeking connections with people nearby?

Values in Stranger Interactions

Our brain has adapted to function in large, social groups [3]. Social interactions are essential to humans because they fulfill genuine needs to feel included, be appreciated, experience pleasure, reduce stress, and be distracted. In some remote communities, people need to rely on each other, and so a great deal of effort is put into maintaining social relationships and face-to-face interactions are highly valued [4]. Our modern society transforms the value of these interactions into the design of technologies, resulting in online communities formed by simple user interactions [5]. However, the quality of interaction between physically close others and distant others are different. A person's overall well-being is driven by good quality of interactions.

Current Study

University communities are commonly separated into smaller diverse communities through academic interests and living spaces. This means that it is more difficult for students to connect with other students in different majors or living in different residential halls. For that reason, university dining spaces serve an important purpose in student life, where students can eat, work, and socialize together. It is also a critical place to unite people from different communities together by providing opportunities for people to interact with people they do not know.

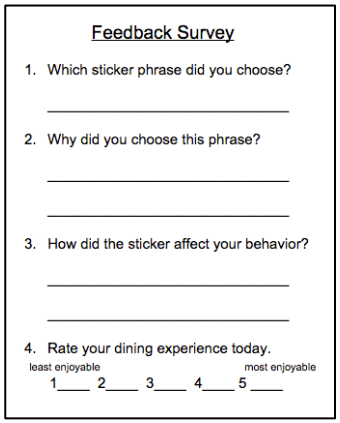
Dining alone is a common occurrence. Despite the desire to be part of a community, the constraints of different class schedules, lifestyles, and work priorities make it difficult to always dine with friends. These instances of dining alone can provide opportunities for stranger interactions. However, through our observations in the dining spaces at Cornell University, we found that most people avoid interactions when they are dining alone, even under crowding circumstances where people are forced to sit in close proximity.

In the current study, we explored stranger interactions in college dining halls and cafes. After collecting survey and interview data from about 50 students, our project was able to contribute to the understanding of stranger interaction in the dining place and the discovery of the barriers that prevent stranger interactions. Our project also contributed to exploring the design space by creating a design where people question and reflect on their own practice.

Method

The following methods were used to gather information as part of the empathizing phase of design thinking in order to guide the defining and ideation phases and to analyze and compare the literature findings in relation to Cornell students and their behaviors.

- Ethnographic observations of Cornell students interacting nor not interacting with strangers at various locations, including libraries, dining halls, cafes, and public spaces.
- Online Qualtrics survey (n = 44) to gather an understanding of the social behavior of students in situations where engaging with a stranger is likely or unlikely. Participants were recruited through Facebook posts. (See Appendix I)
- In-person interviews (n = 6) with different students to gauge a more in-depth understanding and discussion of the specific perspective of each student



Feedback Survey

1. Which sticker phrase did you choose?

_____

2. Why did you choose this phrase?

_____

_____

3. How did the sticker affect your behavior?

_____

_____

4. Rate your dining experience today.

least enjoyable most enjoyable

1____ 2____ 3____ 4____ 5____

Figure 1. Four-question post-experiment survey

when it comes to past experiences interacting with strangers. The participants were recruited based on their voluntary response on the online survey. (See Appendix II)

Based on the results of those empirical methods, as discussed in the following section, the following methods were used to finalize and test our design.

- Paper prototyping of the stickers was done on an individual basis to test and make sure the messages on each were appropriate and thought provoking before running the experiment.
- Critical design implementations. The first implementation was at the Alice Cook House dining hall and the second implementation was at the Okenshields Dining Hall in Willard Straight Hall. For both iterations, the stickers were passed out for the first thirty minutes.
- A four-question post-experiment survey was passed out to participants that had taken a sticker as they exited the dining hall. (See Appendix IV or Figure 1)

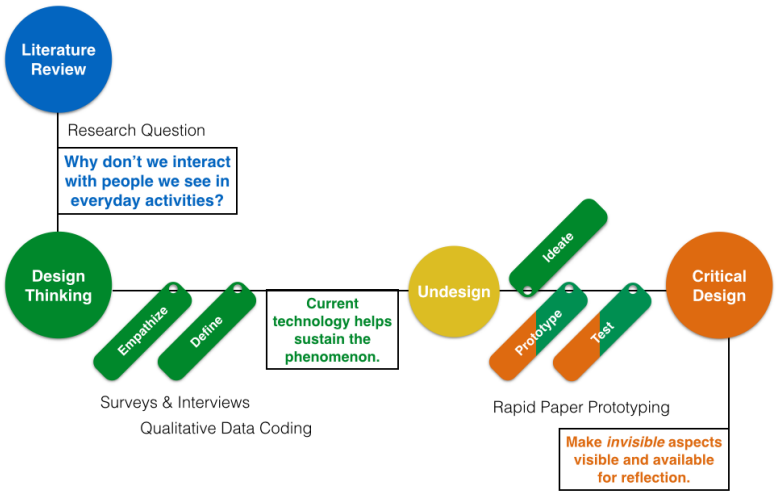


Figure 2. Visualization of the methodology timeline

Survey Findings

We gained a significant amount of insights for the motivations of people's perception and their behaviors regarding to stranger interaction. The results can be grouped into two subsets, people who were open to or desired stranger interaction and people who intentionally did not want any kind of social interactions with others for a variety of reasons. Therefore we have grouped our preliminary data collection results into pro-interaction and anti-interaction.

Pro-interaction

From the survey results, most people will sometimes initiate conversation, but it tends to be rare. Most feel some or a little anxiety, which implies that anxiety might not be the major barrier to stranger interaction. In the context of the dining environment, people would rarely initiate conversation. This is based off of the quantitative questions, the open-ended answers yields more qualitative information.

Participants gave various reasons that they would interact with strangers. One was to get something in something not tangible versus physical such as asking for help with directions versus asking a neighbor to borrow a pencil. The other reason was highly depend on the person's current mood, such as one was mood-based as they were happy or just wanted social interactions outside of their current network, though this was less common.

Anti-Interaction

The survey results show that people are not necessarily strictly anti-interaction. The main reasons for not interacting were because "personal space is important", shyness, "there was no reason to" or social norms. In

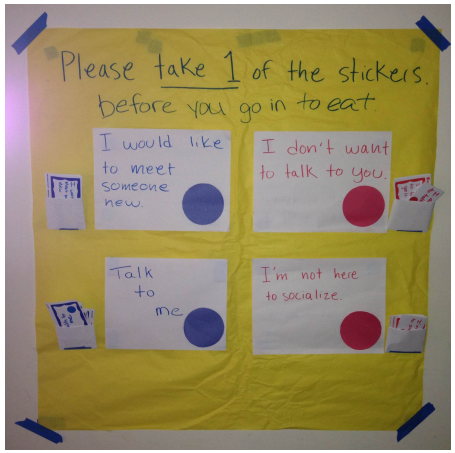


Figure 3. Poster with instructions and stickers placed outside dining hall entrance.

this case, people will not interact with strangers simply because they do not want to. However, there is a significant subset of people who do not interact because they are unsure of how the other person feels about interacting with them and they want to avoid awkwardness or rejection.

Research Questions

Our objective is to explore the design space by creating a design in Cornell dining space that can help people to reflect and question their own practice, based on the understanding we gained from data collection.

Our research questions are:

1. What prevents stranger interactions in college dining spaces?
2. What design helps people reflect and question their current practice?

Design

Design Objectives

The overall objective of our critical design is to make people question their behaviors in reference to the cultural and societal norms among which they live. We aim to call attention to the motivations for which people do or do not interact with strangers. To do this, we test the boundaries of the stranger interaction experience by exploring the design space.

Design

Our critical design was to conduct a social experiment in one of the dining halls. The experiment consisted of a poster by the dining hall entrance instructing students going inside to eat to choose from one of four stickers and wear it during their meal (See Figure 3). The stickers were separated into two categories: blue and red. The blue stickers were more positive, meaning the person wants to interact with someone they don't know, while the red were more negative, meaning the person does not want to interact with someone they don't know.

There were two options for the blue stickers:

- "I would like to meet someone new"
- "I'm open to conversation."

There were also two options for the red stickers:

- "I'm not here to socialize."
- "I don't want to talk to you."

In our second iteration, we replace the "I'm open to conversation" option with "Talk to me."

As students approached the entrance, they were asked to stop and pick a sticker that they would then wear while eating and until they left the dining hall. (See Figure 4).

Figure 4. Participants picking up stickers during Session II in Okenshields

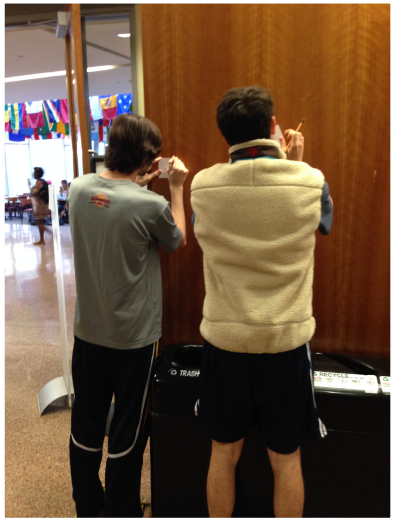


Figure 5. Participants filling out the post-experiment survey after Session I in Alice Cook Dining Hall

Design Rationale

Addressing the issue of stranger interactions on a college campus is quite tricky, as it entails a combination of sociological, psychological, and scientific approaches, making it wickedly difficult to know what the first steps to take are, let alone how to propose a solution. Therefore, in order to be able to improve stranger interaction, or do anything in regards to the understanding of the intended target audience and their behaviors in regards to stranger interactions. The user-centered design process of design thinking allows designers to learn about the audience and use their stories, needs, and insights to guide the creative process. By becoming design thinkers, we were able to empathize with the users, define the challenge we needed to tackle, ideate designs, and prototype and test them.

During the ideation phase, our original aim was to find a way to use technology to facilitate an increase in interpersonal interactions between people who do not yet know each other. Our goal was to think of a way to design for devices, in order to get people off of their devices. After brainstorming potential solution based mobile application designs, we realized that our goal was not doing a good job at solving the problem, but in fact continued to add to the problem of students isolating themselves on their phones. Because existing technology, mainly mobile phones, contributes to the problem, why would we design another application to attract students to their phones? In fact why bother designing technology at all? If implementing a technological solution might result in more harm than good, perhaps it would be a better alternative to take a non-design approach to the problem and design something other than technology.

At this point of the design process we did not see lack of interaction as a problem, but rather a common experience, yet to be fully valuated. As we moved away from a problem-solution approach, we gained a better understanding of experience.

Therefore, we decided that creating a critical design would be the best way to further evaluate the experience, while at the same time criticize the existing norms and challenge social assumptions to provoke new ways of thinking about the situation. The goal of this experiment was not to see what happened in the dining hall after the participants took the stickers. The goal was instead to make the time the participants spent deciding which sticker to choose to be a time of reflection on themselves, their intentions, the social norm, and how others would perceive their decision. All four of these factors would influence the decision of which sticker the participants would take by challenging the social norms of public perception, shifting the contexts of the experience, making one's intentions, usually an invisible aspect, visible and available for reflection, and raising disturbing issues they usually would not think about.

Findings

In order to evaluate the success of the design, we took down notes of what participants said while they were picking a sticker and provided a survey on their way out of the dining hall. (See Figure 5)

Some responses to the red stickers included:

- "Wow ok, I don't know whether I'm comfortable with [wearing a red sticker]"
- "I'm here to write a paper, but I feel bad [wearing a red sticker]"

- "Oh my god! I would take a red one, but I don't want to be rude to people. Should I just take a blue one instead?"

Table 1 shows the distribution of sticker selection per day and per color category. The results showcase two different sets of participants: those who were genuine about their intentions and those who were not genuine and masked them.

Genuine
Some of the participants picked a sticker based on their current mood or whichever reflected their personality the most. These participants were genuine with their intentions and chose the stickers that best matched their moods. For example, some participants picked a blue sticker because:

- "It best fit my mood"
- "I wouldn't have been opposed to sitting with a new face"
- "I want to meet new friends"

Some participants picked a red sticker because:

- "I wanted to eat quickly"
- "Studying"
- "I have a final in an hour"

Session I	Blue (Taken: 25/28)	Red (Taken: 11/20)
	"I'd like to meet someone new." (7/10) "I'm open to conversation." (18/18)	"I'm not here to socialize." (5/10) "I don't want to talk to you." (6/10)
Session II	Blue (Taken: 16/34)	Red (Taken: 25/40)
	"I'd like to meet someone new." (8/17) "Talk to me." (8/17)	"I'm not here to socialize." (20/27) "I don't want to talk to you." (5/13)

Table 1. Summary of how many participants took each sticker

Non-genuine
On the other hand, some participants were reluctant to grab a sticker that matched their intentions at the moment. This was only the case for those who would have normally picked a red sticker, but were intimidated by the social stigma that would come from wearing one. The fear of a negative, antisocial, or rude perception from others made them mask their intentions with a blue sticker. Not only did participants voice their displeasure with the red stickers while deciding which to choose, some participants that picked a blue sticker said it was because:

- "Don't want to be seen as rude."
- "It had the most "positive" phrasing"
- "Most positive & friendly"

Discussion

Throughout our design process, the results we gathered built upon each other. The online surveys showed that there is a clear trend that most participants have this desire to interact with strangers, and they perceive interacting with strangers a positive experience, but most of them would not start the interaction and/or assume the other person prefer not to interact with them. This highly informed our critical design as we made it easy for people to know if others wanted to talk.

The direction of the interviews went more in the way of what would inhibit people who were pro-interaction from talking to others. The interviews confirmed that people were reluctant to initiate for the same reason we observed in the survey data. But some did say they would create reasons to initiate such as "What time is it?" When asked if they would be more comfortable

knowing whether or not strangers around them were open to having a conversation, most said they would be and they would be more inclined to initiate stranger interactions.

The observations themselves provided enough feedback to call the experiment a success because the messages, in particular those on red stickers, were provocative and made people really think about how it would affect their dining experience. Even thinking about selecting a sticker was immediately self reflective for our users. We observed near-visceral reactions to even the thought of deciding how someone wanted to interact with others in the dining hall. We saw many grins and frequent hesitancy when people made their choice. Apologetic comments were made towards the "I'm not here to socialize" sticker and shrugs

Participants that genuinely picked a sticker not only made a choice to wear the stickers that most closely matched their intentions, but for the ones that chose red, they were not intimidated by the perception of others and were able to challenge the social norm. Alternatively, based on the findings for the non-genuine participants, it appears that even after self-reflection and knowing one's true intentions, it is actually hard for some people to act on this intention if it can possibly result in deviating from the social norm and if it affects one's public perception. Therefore, it is much easier for people to mask their genuine intentions and be more conventional and appealing to the norm.

Between the two sessions, we recognized the context of the users' experience was drastically different. On a college campus, we acknowledge that willingness to socialize is highly dependent on how busy students are, so running session II within days of final exams likely contributed to users not being inclined to talk to others. Furthermore, we attribute results in session I to observations that Alice Cook dining hall is frequented by athletes in groups. Results for session II are attributed to more students dining alone, which may increase the comfort level of being uncommunicative. Our results are highly context-dependent, and different dining spaces attracting different types of students on different days, as a definite affect on users' behavior. For future study, we would run each session in the same environment, with as little variation in the context as possible.

The main thing we learned was an example of how human behaviors do not align with beliefs or values. We were hoping to create an increased awareness among participants of their social behavior in the context of stranger interactions. With the critical design we were also hoping to see a change in behavior with the increased awareness. Most people did not change their actions despite the design, this is because people do what is comfortable and awareness alone is not enough to prompt a physical reaction.

Though we know people want to connect with each other, there are intangible social constructs that disable members of a community from the interactions they would benefit from. By practicing techniques such as un-design and critical design, we have illuminated the barriers that people face in their community and how they contribute to breaking or supporting those barriers.

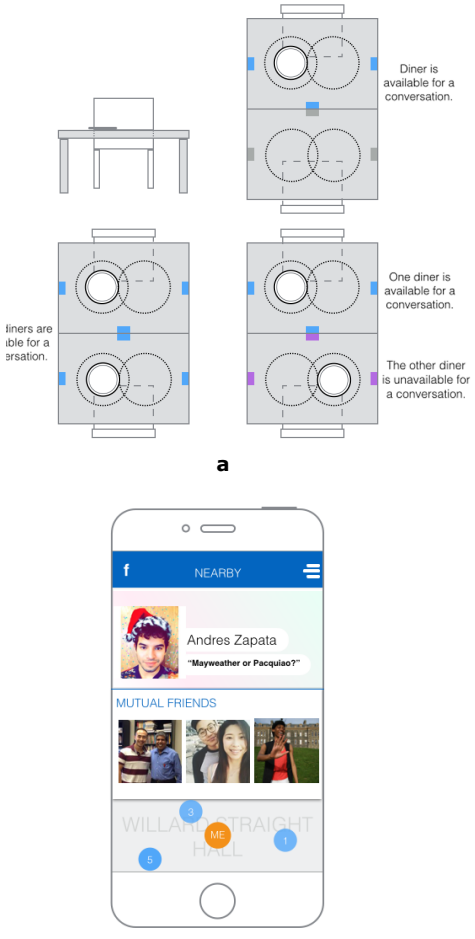


Figure 6. Social-Light Tables (a, top) and Nearby app (b, bottom)

Design Implications

In a way, we took the conservative account, a solution-based approach to the unfamiliar interaction problem. However, what we really did was mask our critical design with a design solution. Following this can allow designers an accessible way to be both innovative and empathetic to their users in order to reach grounded innovation. By using critical design to identify when, where, and why this experience occurs, we have the fundamental elements that provide a platform for innovation in our design space.

Potential technological and interactive concepts that have resulted from our critical design experiment and analysis are Social-Light Tables (Figure 6a) and the Nearby application integrated with social media, such as Facebook (Figure 6b). Social-Light Tables indicate whether a person seated is available for a conversation or not. Nearby tells you who your mutual friends are with the people near you, ultimately leading you towards new groups of people who would like to talk about a shared interest.

Conclusion

Stranger interactions can be both beneficial and pleasurable. Our design was based off the paradox that many people do not take advantage of the many opportunities to increase their network. After initial research, we created a critical design which showed a distinct disconnect between people's desires and actions regarding stranger interactions. People told us they would be more open to these interactions if they were certain that the other person was also open. Yet when given the chance, they did not want to initiate, yet they did not want to choose the anti-interaction stickers because of the negative connotation. This inhibits stranger interaction from both ends.

By avoiding the cyclical nature of building solutions to address problems that come from previous solutions, we open the design space to a plethora of divergent innovations that build off of one fundamental understanding of a social construct, which we have identified to be (1) "I may enjoy interacting with someone I don't know," (2) "but I'm averse to initiating conversation," (3) "because I fear the possibility that they don't want to talk to me."

The HCI community can benefit by expanding the scope of research from computer-based solutions to impactful designs that consider the effects of current and future technologies. Advanced methods such as non-design and critical design allow for this greater understanding.

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