Dinner Mode: Reducing Phone Usage during Dinner Conversations

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Abstract

Phone usage is impacting relationships both positively and negatively. Its impact is even more visible during meal times where phone usage should not be the main activity but usually *is* in today's digital society. Noticing a disconnect in face-to-face interactions due to too much technological connection, we wanted to understand how phone use affects one's relationships while dining and whether or not it leads to feelings of disconnectedness.

Dinner Mode, an application that turns off selected notifications and discourages participants from using their phones by providing them with monetary incentives and game modes, reduces phone usage, facilitates better communication, and fosters better relationship with whomever the user is interacting at dinner times.

Introduction

According to a new study from Brigham Young University, "technoference" can be damaging not just to a relationship but to one's psychological health as well [1]. The study included 143 married women, the majority of whom reported that phones along with other technology devices were significantly disruptive in their relationships [1]. In this particular study, the researchers found that higher levels of technoference were associated with greater relationship conflict and lower relationship satisfaction [1].

As smartphones and wearable devices threaten to erode our personal space even further, over-connected user are practicing their own forms of abstinence from too much

phone usage. Whether it's physical barrier like no phones at the dinner table or more of a conceptual one like turning off the phone when going to sleep, users are implementing their unique techniques and strategies to improve their relationships by reducing phone usage. Moreover, people are starting to expand their efforts to outside of their homes and into more social settings including restaurants and schools.

What if there was a way to get their attention away from their phones, especially during meal times when people are with family and friends? Dinner Mode addresses these pain-points of ineffective communication and feelings of disconnectedness caused by phone usage at dinner time.

Testing Methods and Procedures

The purpose of Dinner Mode was to help aid others with their interpersonal communications at the dinner table, so our user testing methods were one of the most important aspects to how well we could design our app. Only through extensive testing would our group be able to properly identify the strengths and weaknesses of our design.

Target Demographic

Dinner Mode was designed to be used with any user with a mobile device, however we decided it would be best to focus on a demographic that was convenient for us. We decided that we would focus on highly social college students that eat out with their friends rather frequently.

We believed that with this demographic, we would be able to easily recruit our classmates and peers for testing. We would be able to make interviews and testing considerably more casual and make sure the test subject was as comfortable as possible. Additionally, we thought it would be important to test with users that are very familiar with smartphone applications and design.

Interviews

We first began by recruiting folks from our target demographic for a brief interview on our problem space, that being people being distracted by their mobile devices at dinner. We asked a number of basic questions regarding how often they eat out, what they believe their relationship with their phone is, whether it bothers them when people get distracted at dinner, etc. We also took special notice of every time a test subject would underestimate how often they look at their phone by recording whether they kept their phone out during the interview and if it ever distracted them during the conversation.

Paper Prototype

Our first major test came after we built our paper prototype. The prototype was constructed and the interviewer was trained in how to properly use it. The interviewer then met with a small sample of people within our target demographic and sat them down with the prototype. We recorded how the test subject navigated through the prototype, where they pressed, and we asked them to think out loud for the interviewer and note-taker.

The interviewer was in charge of changing out the various paper screens when the users pressed different buttons on the page. The interviewer also made sure to let the interviewee know that there were no mistakes on their part while navigating through the prototype but also made sure not to answer questions but instead ask the subject to interact with the prototype. We made sure to keep this protocol through all of our user tests going forward.

Balsamiq and InVision Prototype

After we completed our Balsamiq and then InVision prototype, we formulated a new testing protocol that

aimed to try and simulate the actual playing of the game. We would begin the test by sitting for five or ten minutes and have a conversation with the test subject about anything and monitor their phone usage during the conversation. Then, we would navigate through the prototype itself and start a mock game. We would again sit for a few minutes and record their phone usage. We were attempting to record whether or not their behavior changed when we were playing the game, but unfortunately it didn't yield too many results when we tried it.

Additionally, our TA responded to our user evaluation plan and suggested that we remove that part of the testing as it would make testing incredibly time-consuming for our group.

Sketch Prototype
After revising our protocol from our InVision and Balsamiq testing, we had users go through a similar test to the paper prototype testing. They would navigate through the app, do a few small tasks for us like looking through settings, adding friends to the game, starting a session, etc. From there, we recorded their feedback, consolidated UX changes we deemed necessary, and completed the final prototype. By this point, we had become very well-versed in our testing procedures and were able to complete them efficiently and thoroughly.

Design Process

In order to create our finished product, we went through a comprehensive, iterative design process. Given the task of finding a meaningful problem so solve, we initially all came up with different problem statements and collaborated on creating one we all agreed on.

This started us with a "digital sidewalk" idea, where users could find better walking routes and project their final destinations onto the sidewalk to avoid looking at their phone extensively. However, we learned that we were too focused on the solution itself first, and were not digging deeper down into the root of the problem.

We then changed our approach and spent more time observing our friends and peers in their daily interactions. This shed light on the issue of lack of connection at the dinner table due to phone use. After we really began to identify a real problem, we began to pinpoint more of who are users were and began to understand them and their struggle with our identified problem.

Through our user observations and interviews, we reached a major pivot point in defining our people problem. This was identifying that phone use at a dinner table is a chain reaction- it is less about actually using your phone, and more about being feeling left out or like you're missing out when others go on their phone.

From this discovery, we were able to begin our design process. We each came up with 20 different ideas and collaborated on creating a solution we felt was the most effective solution to solving our identified problem. This led us to come up with the initial idea of Dinner Mode acting as a collaborative app to filter out extraneous notifications at the dinner table in order to find a happy medium of phone use at the table. If it is for an individual user, it would have less purpose because no one would voluntarily subject themselves to filtered phone use if the people they are with aren't as well.

This allowed us to move forward with a better understanding of the problem we were facing and a more rounded approach to creating a solution. From there, we began to build our persona and really understand the needs and wants our users would have for our app. After we identified all of the pain points and areas that we needed to include in our app, we began to build out a

rough paper prototype. We then conducted several rounds of user testing and feedback to see how to further develop our app before we created a mid-fidelity prototype with balsamiq. The low-fidelity prototype helped keep our ideas fluid and subject to change. We found that the higher fidelity the prototype, the more we focused on the cosmetics and got stuck into different idea paths. This then translated into our mid-fidelity balsamiq prototype. Keeping it simplified allowed for us to make some major changes in the flow of our screens and taking out/implementing in different principles from our testing, such as the decision to get rid of the social media game.

After our user-testing and feedback, we each conducted heuristic evaluations in order to quantify and organize our findings and analyze them to keep making iterations for the high-fidelity sketch prototype. Once we got to the high-fidelity sketch prototype, we generally had the basis of how the app would be laid out and the purpose and functionality of each page. However, through several rounds of user-testing we were able to take away some really key findings in order to make our app more usable, such as streamlining the setup process into a condensed 3 simple steps in order to move the process along quicker. Throughout all of these iterative steps, we would meet as a team to discuss the proposed changes and analyze the data we would get back. Our design was constantly molded and evolving through an iterative process of testing and feedback along with analyzing the data from these findings in order to make calculated and thoughtful design decisions.

Research Results Analysis

From our user testing and analysis, we found that users want to feel engaged with their dining partners at meals, and feel that phone usage does indeed detract from those feelings of engagement. We learned that users are most likely to reach for their phones after receiving a notification, and often hold their dining partners more accountable for their phone usage at meals than they hold themselves. We also noticed that users tended to be somewhat unaware of how often they are actually using their phones, and through our interviews found that users believed this to be useful knowledge. Finally, we found that users would like the aid of an external source to help hold them and their dining partners accountable for their phone usage. From this information and analysis, we proposed several straight-forward design solutions targeting these issues individually. However, not all of our proposed solutions worked as expected, and as a result there was quite a bit of iteration in our design process aided by our user testing, and at times it was even necessary to completely remove parts of our design.

Technology Analysis

With goals of reducing phone usage and increasing motivation to interact with the people one is at dinner, we found that an app that serves several key purposes would work best to aid our users. When using our app users begin individual or group sessions, which they self-select based on whether or not they are using the app in conjunction with friends or family at a given meal. While we initially believed that greater external accountability would work best for the app. One of our greatest learning moments was that this was not actually the case. In our initial design, we proposed two methods of external accountability in the form of games. These games were a Venmo game, where you must Venmo your friends each time you use your phone during a group dinner session, and a social media game, where the app posts a passive-aggressive

message on the user's chosen social media platform. This passive-aggressive message was chosen by the user, and could be edited to what they wanted it to be. In group sessions, users also had the option of letting friends write their posts. However, this game did not go over well in user testing. Many users found the game to be too intrusive and potentially damaging. More so, many were uncomfortable with the thought of the app being able to post to their accounts regardless of what the message said. As a result, the game needed to be removed entirely. While we did not expect to have to remove part of our design, the finished product was better as a result of doing so.

The Solution – Dinner Mode

Dinner mode is an app with several features designed to help users reduce their phone usage. First and foremost, the app introduces an innovative notification management system that gives users the ability to decide what notifications are important enough to remain, while delaying the arrival of all other notifications until after the dinner session has ended. The app also allows users to see how often they use their phones with an activity log. This log addresses users' goals of better understanding and tracking their own phone usage so they can reduce it. These are the main features of the app for individual sessions. The group session introduces Dinner Buddies, who can be added simply using a phone number or an email address. These Buddies are also able to limit their notifications and see their phone usage through the app. If the group wants to, they can play the Venmo game. The Venmo game is a game that creates an atmosphere in which users have an added desire to reduce their phone usage, as they will suffer a monetary loss should they use their phone. This monetary loss is decided at the beginning of each session by the user and their Dinner Buddies, and everyone in the session is entered into the game should they choose to participate. The game gives users added motivation to stay off of their phones during meals with friends. The app has two methods of ending sessions, timed ending and unlock to end. For timed endings, users set a duration of time during which their phone will be in Dinner Mode. With unlock to end, the session ends when users unlock their phone. Each of these options and design solutions allow users to create a dinner experience that best serves their needs.

Key Features:

- Notification manager that delays all unwanted notifications until after their dinner session ends
- Activity log that keeps track of how many times one users their phone and the duration for which they use it during a session. Allows users to compare this information to previous sessions to better understand their own phone usage
- Venmo game for group sessions that create an added accountability. Users must Venmo their Dinner Buddies a set amount of money each time they use their phone and vice versa.

The Design

We chose dark pink as the theme color to indicate intimacy of engagement at dinner. To minimize users' memory load, a plus sign is placed on the center of the tab, serving as a shortcut of creating new sessions. This feature is introduced by an on-screen tutorial with the instructional text "Start a new session here." We applied minimalist design by using line icons to

visualize each step of creating sessions, including How to End, Notifications, Add Buddies, and Venmo Game. Error prevention is achieved by allowing users to navigate and revise complete set ups through the tab that contains the icons representing each step. The icons also change fills and background colors accordingly to indicate different system status such as active, inactive, and on progress. The app uses the second-person pronouns "you" in the instructional text, for example, "How would you like to end the session," to speak with users in a friendly tone. Consistency of design is achieved by applying the same font size and color to structurally related elements such as headings and subtitles and the same color pattern to logically related elements such as active and inactive icons.

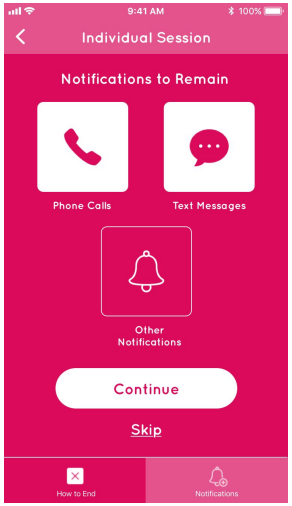

Figure 1. Notifications to Remain

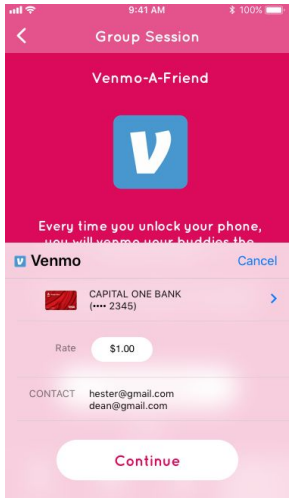

Figure 2. Venmo Game

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References

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