

AMENDED Exhibit 104

PLAINTIFFS' OMNIBUS OPPOSITION TO DEFENDANTS' MOTIONS FOR SUMMARY JUDGMENT

Case No.: 4:22-md-03047-YGR

MDL No. 3047

In Re: Social Media Adolescent Addiction/Personal Injury Products Liability Litigation

Have we made people addicted to Facebook?

Last edited March 12, 2021 · 10 minute read



Have we made people addicted to Facebook?

This summer, I've been interning on the News Feed Ecosystems project as a Data Science Intern working to answer the following: "Are there people addicted to Facebook and if so, how can we identify and size this population so we can help them?" When my intern manager, [REDACTED], first called me to tell me this, the timing seemed comical. Just an hour before, I had deleted the Facebook app from my phone because I thought I was obsessively using Facebook. By deleting the app, I was hoping to reclaim my time and hopefully decrease my internalized instinct to keep opening Facebook. Now, I had learned, my 12 weeks here would be around figuring out how we can improve the Facebook experience to make sure people like me don't feel the need to just leave Facebook. As I wrap up my internship, here's what I learned this summer in terms of addiction to Facebook.

What does it even mean to be addicted to Facebook?

How can we understand what being addicted to Facebook means? At the start of this project, [REDACTED], [REDACTED], [REDACTED], [REDACTED], [REDACTED], and myself talked with Nir Eyal, author of the book Hooked. In this book, Nir discusses his extensive research into creating habit-forming products and the Hook model, "a four-step process embedded into the products of many successful companies to subtly encourage customer behavior" to ultimately get users to voluntarily choose to open your app without the need for external advertising.

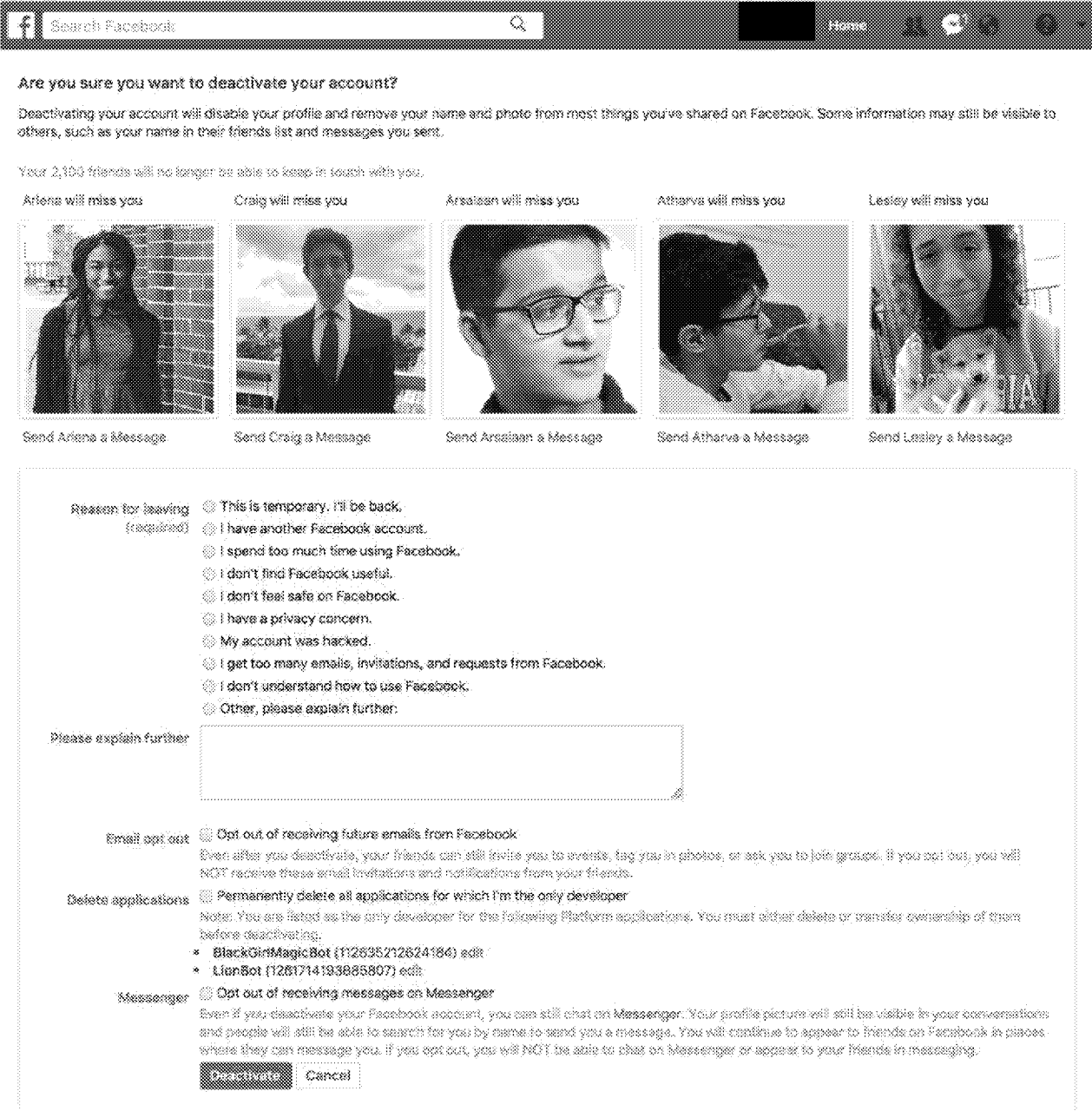
Companies like ours have implemented the hook model well. However, Nir notes that using apps like ours in some cases leads a user from having a habit of using the app to being addicted. The difference between habit and addiction from Nir's perspective is harm: an addicted user is one who cannot stop using a product to the point where it can cause them harm.

"When we feel overly stressed, we seek serenity, perhaps finding relief in sites like Pinterest. When we feel lonely, destinations like Facebook and Twitter provide **instant social connections** "

While there are many factors that could lead to someone becoming addicted to Facebook, Nir noted that he expected the number of addicted people to be low. I hoped so too based on his definition. Now let's get into the data behind this project.

Deactivations

While working on studying how to find addicted users, we realized that deactivations data could be quite helpful in this process. To explain how, I'll show the current deactivations flow.

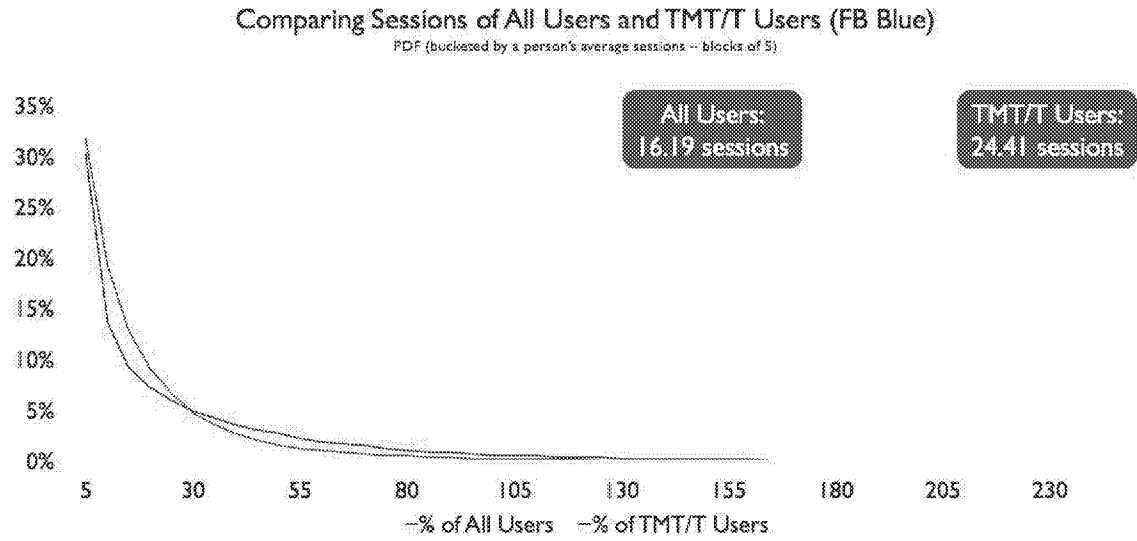


The current Facebook deactivation flow.

The flow is fairly aggressive as we try to stop people from leaving Facebook. We list your some of your friends to remind you that they will no longer be able to contact you through the site and more importantly, we require the user to choose a reason for why they're leaving. For my analysis this summer, we focused on two specific categories: people who said they spent too much time on Facebook and those who selected that their leave was temporary and that they planned to return (since many of these people listed similar reasons for deactivating their accounts). This subset provided a good signal for people who could be addicted, who ultimately leave Facebook as a solution. In a given week, approximately 5.9 million people leave Facebook for just these two reasons alone so clearly we have work to do here if we want to improve the Facebook experience so they do not feel compelled to deactivate their accounts.

After settling on analyzing these two categories, I dug into these users' metrics and found a few interesting things. For the sake of keeping this note succinct, I'll only include a few of the findings and link to my full deck at the end of this for those interested in more information about what I found.

People who cite too much time/temporary have a higher number of sessions

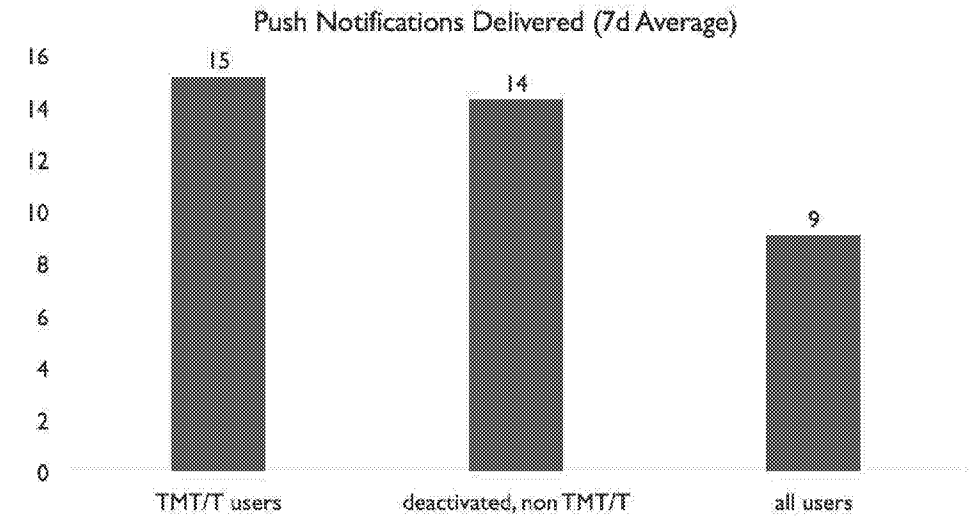


PDF distribution of number of sessions across TMT/T and all users.

One interesting insight discovered was that while people deactivating their accounts citing too much time/temporary had a similar time spent to the average user, they had a higher number of sessions in a day (we define a session as an instance where the user opens the FB app on their phone). This user subset also spent less time per session. From this, it appeared that an addicted user is not necessarily just someone who spends several hours a day on Facebook, but rather someone who had a high number of sessions compared to their time spent.

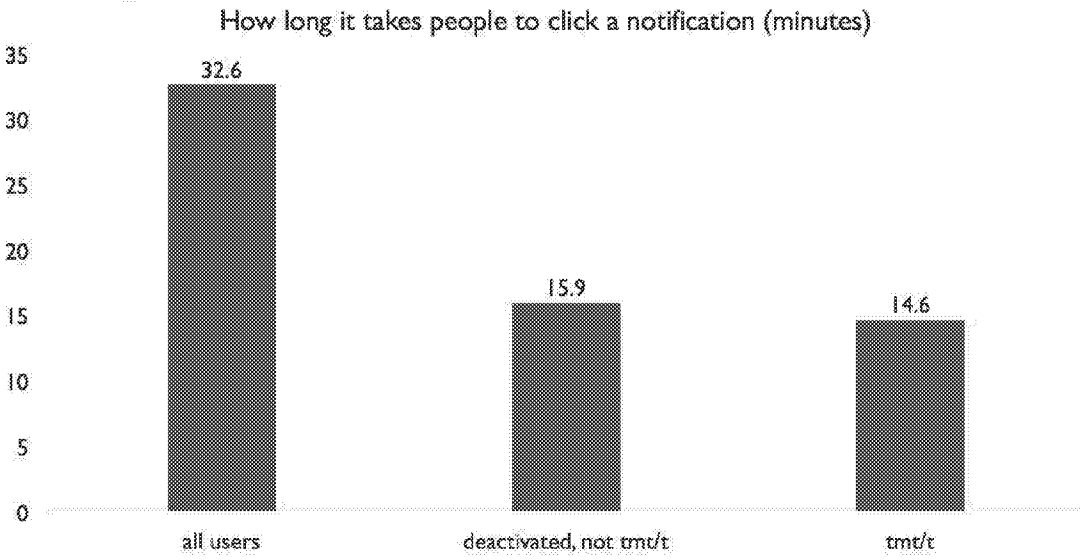
Analyzing notifications data, people in the TMT/T subset both received more notifications than the average user and also responded to them faster.

TMT/T users get 60% more push notifications



Visualization of average push notifications a user gets in a day.

TMT/T users also click them sooner



Average time it takes a user to click on a delivered push notification.

Surveying Users/Building a Model

We wanted to learn about whether people would admit they were addicted to Facebook. To do this, I worked with [REDACTED] [REDACTED] and the Communications team to make a branded survey that asked users the following questions:

How often in the last month have you:

- Spent a lot of time thinking about Facebook or planned use of Facebook? (0.61)

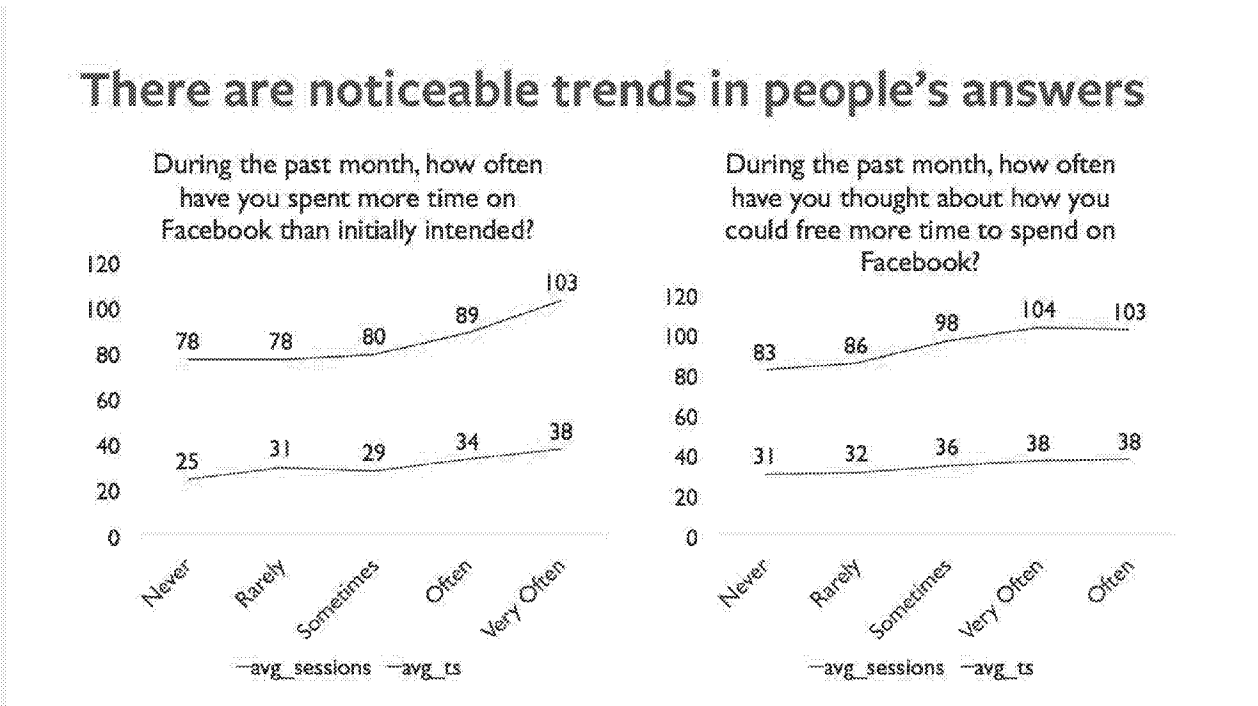
•Thought about how you could free more time to spend on Facebook? (0.42)

•Thought a lot about what has happened on Facebook recently? (0.55)

•Spent more time on Facebook than initially intended? (0.68)

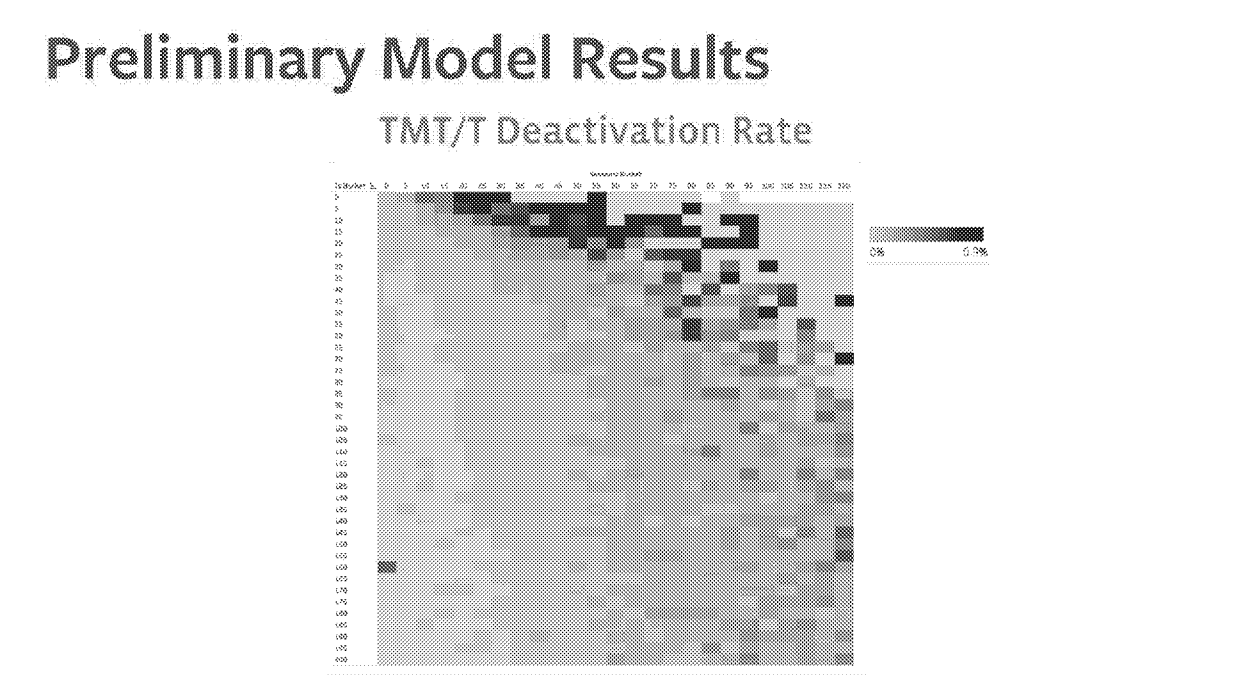
•Felt bad if you, for different reasons, could not log on to Facebook for some time? (0.58)

We left the survey running for a week and focused on Facebook users living in the United States. In that week, we received around 1300 responses. The main insight we found was that for most questions posed to these survey takers, people who marked often/very often had an average higher time spent and number of sessions than someone who said rarely/never (I've excluded notifications data here because while we log them well, in their current form it's hard for us to analyze the data over long periods for all users).



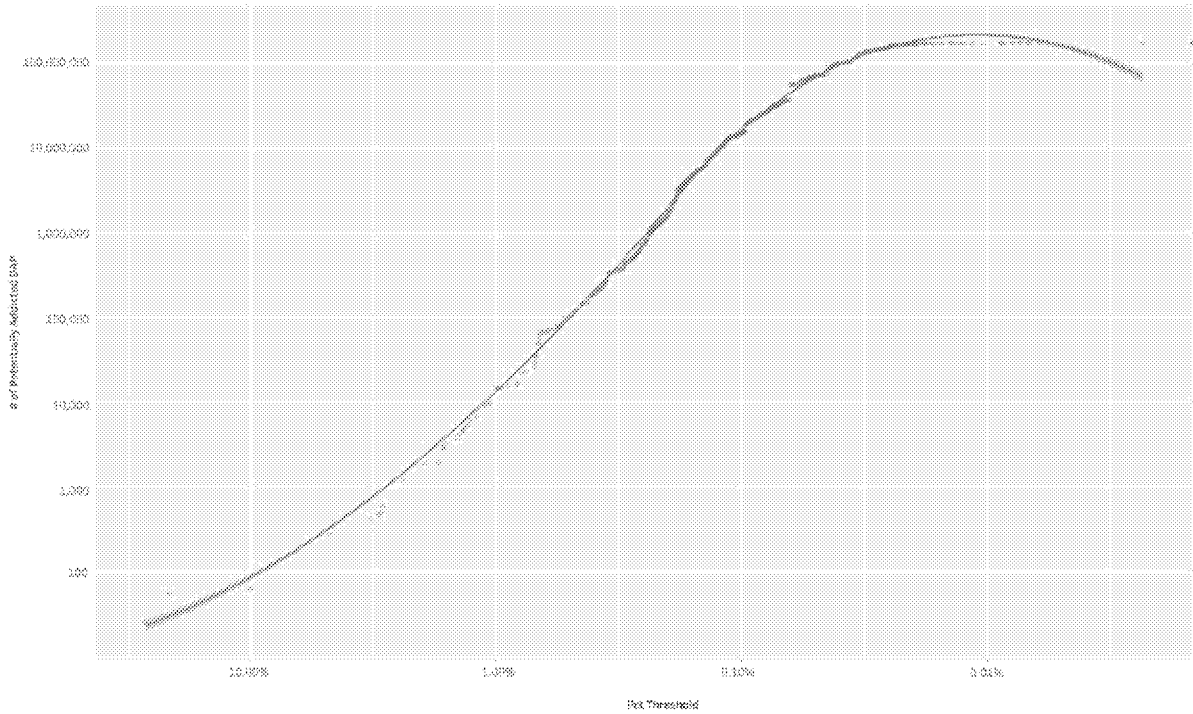
Sample of results from user survey.

Next, we built out a model to try and size the number of addicted users. To build this, we used both sessions data and average time spent and looked at the deactivation rate in each bucket.



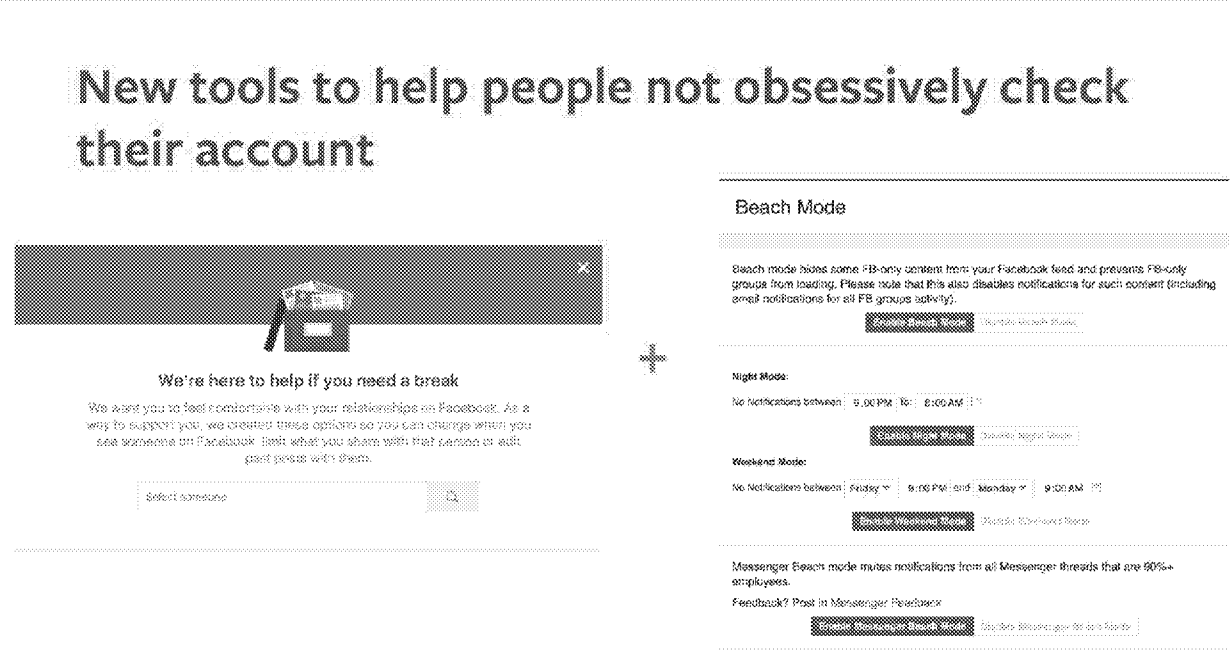
A model of mapping addicted users. The darker the area, the more deactivated TMT/T users that were in that bucket. Note: This is only U.S. users.

From here, we plotted out the number of people that could be considered addicted based on the threshold we set. This threshold is based on the TMT/T deactivated users as a percentage of total DAP. At a minimum threshold of 1%, that would be ~15k people we could call addicted, but if we loosen the threshold to 0.2%, that’s nearly 200k people.



A plot with approximate line of best fit of how many users could be considered addicted based on threshold set. Note: the trend line does not fit well after 0.02%.

How do we help these users?



Screenshot of Take a Break Tool and Beach Mode

In order to help these users, we can create new tools that don't stop them from using Facebook, but help them feel more in control of when they choose to visit the app. To this end, we could leverage the easy to navigate structure of the Take a Break tool by the Protect and Care team. The tool, designed for breakups, makes it easy for someone to adjust their settings to see less of a person in their feed, photos, or messages. Rather than digging through the settings tab, this tool makes it easier to find the relevant settings a person may want to change.

