

## **AMENDED Exhibit 88**

# **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

## **Document Provided in Native Format**

# Nielsen Deactivation Study [A/C Priv]

Facebook App Research, Demography & Survey Science, Core Data Science, Integrity Research & Instagram Research

tl;dr

We are running an experiment in which some people will stop using Facebook (or Instagram) (in comparison to those who will use as normal) to help us understand the impact that Facebook and Instagram have on people's lives especially in areas of:

- Well-being & Polarization
- Substitution & Competition

This study builds off of and improves on prior academic work (e.g., Stanford Study).

if people stop using FB and everyone goes towards using YouTube

Network effects -- whether the treatment effects vary by the users' graph size (larger graphs mean more value). Could impact debates on competition -- academic work has not explored this; this may inform how we talk about the benefits of being "BIG." an impact on how people value the app...how the value of FB differs by how people use our family of apps -- if I stop using FB,

- Expectation effects
- Self-reported biases
- Compliance for deactivation
- Deactivation confirmation
- Power
- Network effects

Caveats:

Pilot is 18+

- Even in the full study, teens will not be metered, and we'll only look at teens and IG (not FB)
- For a variety of legal/privacy/policy reasons we are only doing mobile sensor stuff with Android users

- Pilot for FB only
  - N=3,198, 200 metered
  - Report: March 2020
- Full study for FB and IG
  - N= TBD
  - Report: August 2020

|                                     | Politics | Well-Being | Neutral |
|-------------------------------------|----------|------------|---------|
| Deactivate FB for 1 week (for \$25) | 550      | 550        | 550     |
| Use FB (as normal)                  | 550      | 550        | 550     |

- For detailed overview of the study, see [here](#).
- For study design, see [here](#).
- For details on the analytics plan for the pilot, see [here](#).

## Data\*

| Survey data                                                                                                                                                                                                                               | Mobile sensor data                                                                                                                                                                                                           | FB/IG log data                                                                                                                                                                                              |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Well-being</b> (e.g., loneliness, positive affect)<br><br><b>Polarization</b> (e.g., affective, issue)<br><br><b>Self-reported activities and interactions</b> (e.g., news consumption, time with friends and family, advice received) | News apps<br>Video apps<br>Photo apps<br>Games apps<br>Messaging & call apps<br>Email apps<br>Social apps other<br>Search apps<br>Shopping apps<br>Reading apps<br>Music/Podcasts apps<br>Other (search engines, docs, etc.) | Time spent on FB<br><br>Time spent on messenger<br><br>Time spent on IG<br><br>Time spent watching video<br><br>Graph size<br><br>Times spent in Groups<br><br>Interactions on FB<br><br>Interactions on IG |

\*Lots of data and privacy XFN challenges

Why is our study unique?

Panel quality

Meter quality

How can this study help inform the way we think about competition?

- What users view as substitutes to FB? how do substitutes vary by primary FB use-case?
- Whether switching costs are high
- How users typically use mobile apps

- In a normal week, do they use Facebook + SnapChat + iMessage concurrently? (i.e. how common is **multi-homing**)

## Next Steps in 2020

|                                        | January | February | March | April | May | June | July | August |
|----------------------------------------|---------|----------|-------|-------|-----|------|------|--------|
| Analysis of Wave 1 Pilot               |         |          |       |       |     |      |      |        |
| Fielding of Wave 2 of Pilot            |         |          |       |       |     |      |      |        |
| <i>Report of Pilot Findings</i>        |         |          |       |       |     |      |      |        |
| Privacy Review Full Study              |         |          |       |       |     |      |      |        |
| Fielding Full Study                    |         |          |       |       |     |      |      |        |
| <i>Report with Full Study Findings</i> |         |          |       |       |     |      |      |        |
|                                        |         |          |       |       |     |      |      |        |

## Measurement Appendix

## How would the market change if FB didn't exist?

We will rely on the diversion ratio from FB to app X. The diversion ratio will be computed for a specified set of apps.

$$\text{Diversion Ratio} = \text{Time gained by App X} / \text{Time Lost by FB}$$

We will look at app individually, and also explore “categories” of apps (which are negotiable). We will also look at whether the effects of deactivation vary by graph size.

2/ The list of sensor data is for us internally, but it does not limit our analysis and/or how we present the findings. We can explore different possibilities here. It would be great to discuss this with you and get your perspective on our plan.

We are examining the impact of deactivating FB for week (a month in the full study) on diversion rates. Diversion rates are defined as the time spent on a given app and the time lost by Facebook. We are doing this for a number of apps (the set of apps is [here](#)).

1. For IG we will be able to examine how FB deactivation changes app usage. For example, whether deactivations it leads to more messaging through the app, more sharing behavior, etc.
2. This work will allow us to identify who are the main competitors of FB.

## Slide 1

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1 I think we can delete this slide.  
[REDACTED]; 12/18/2019 8:52:06 PM

1 Yes, agree. It's a bit too high level to be useful.  
[REDACTED]; 12/18/2019 8:52:06 PM

| Games                                                                                                                                             | Video                                                                                                                            | News                                                                                                                                                                                                                                                                                                                                               | Messaging & Calls                                                                                                      | Email                                       | Social Media                                                                               |
|---------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------|---------------------------------------------|--------------------------------------------------------------------------------------------|
| Fortnite<br>Candy<br>Crush<br>Wordscapes<br>Twitch<br>Pokemon<br>Go<br>Clash<br>Royale<br>8 Ball Pool<br>Clash of<br>Clans<br>ROBLOX<br>Minecraft | YouTube<br>Netflix<br>YouTube<br>TV<br>Hulu<br>TikTok<br>Amazon<br>video<br>HBO<br>DisneyNow<br>Vimeo<br>Crackle<br>Vevo<br>Veoh | News Break, Apple News, Huffpost, Yahoo!, NYtimes, CNN, Fox News, Washington Post, BuzzFeed, NBC news, MSNBC, MSN News, BBC, USA Today, Boston Globe, NPR, CBS, Breitbart, Dailycaller, Occupy Democrats, The Blaze, InfoWars, Wall Street Journal, US News & World Report, Atlantic, Vox, Drudge, Slate, Google News, Chicago Tribune, Al Jazeera | Discord<br>Whatsapp<br>Google<br>Hangouts<br>iMessage<br>FB Messenger<br>Native phone app<br>Skype<br>Telegram<br>Line | Gmail<br>Outlook<br>Native email<br>Hotmail | Snapchat<br>Twitter<br>Pinterest<br>WeChat<br>Instagram<br>Reddit<br>Next Door<br>LinkedIn |

1/ One category that seems to be missing here is photo sharing apps, which we talk about quite a lot in our competition messaging. Would we be able to add the examples there...

| Browser          | Searching                               | Shopping                     | Reading                           | Music/Podcasts                                                                                             | Photo                                                                            | Other                    |
|------------------|-----------------------------------------|------------------------------|-----------------------------------|------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|--------------------------|
| Chrome<br>Safari | "Google" App<br>Google<br>Yahoo<br>Bing | Amazon<br>Craigslist<br>Ebay | Kindle<br>Nook<br>Google<br>Books | Spotify<br>Pandora<br>Google podcasts<br>Castbox<br>Pocket Casts<br>Anchor<br>Podcast Addict<br>Podcast GO | Google photos<br>Android native<br>camera app<br>Android native<br>photo library | iFunny<br>Google<br>Docs |

Flickr: 1,000 downloads in past 6 months

Tumblr: 5,000 downloads in 6 months

Top photo apps according to onavo in US: VSCO (2.2M DAP), Picsart (1.2M DAP), Motocamera (2.4M) ( [REDACTED] didn't actually think these were the types of apps we were discussing)

I just got out of a legal meeting and no one's talking about apps like VSCO...

**SUBSTITUTION EFFECTS**

Overall time spent on phone

# of overall phone sessions

# of Apps Used Daily

Time Spent for specific apps (listed below)

# of unique sessions in specific apps (listed below)

Speed reactivation to using FB / IG

Overarching time spent for categories (e.g., "games") listed below

# of overarching unique sessions for categories (e.g., games) listed below

# of unique apps used for categories listed below (e.g., games)

Distribution of session length

Time spent on URL (for specific apps listed below e.g., cnn.com, youtube.com)

# Websites Visited on Smartphone

URL visited for specific apps listed below e.g., cnn.com, youtube.com)

## Monetary Value of FB

FROM [REDACTED]:

Thanks. Some of the external efforts to do something similar to this have combined the deactivation piece with a willingness-to-accept piece about how much people would have to be paid to give up FB. Have we considered combining the randomized part of this with an arm that includes willingness-to-accept? First, that would give us our own measure that could be argued to be consumer surplus from use of FB. And second, even if some of the metrics on well-being go down, we may still see that post-experiment, there is still a substantial value that people believe they get from FB. Not suggesting that we change anything about launch here, but wondering if we may want to look at something like that for either the month

long study or a future study along these lines.

██████ and ██████ would know more about this external work.

Would be great to know if Nielsen will track substitution to other apps for us and report that in a way that would be useful. ██████ would also be a good input on that.

## We can also measure changes in value of FB

- 2 Our approach can be extended to examine whether people's FB valuation changes after deactivation across different product segments

- We ask the following:

Consider the following hypothetical scenario: would you be willing to keep your Facebook account deactivated for the next 7 days if compensated with an additional \$25 in points?

Yes  
No

- Large changes in valuation will tell us that people cannot find a close substitute for a given product
- DSS is in the process of implementing a larger project focusing on WTA across holdouts:  
<https://fb.quip.com/RuXXAfYzzZIJ>

- Current limitations: not traditional WTA experiment.

## Slide 1

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2

Not sure whether it makes sense to add a bullet here to mention the DSS work on WTA.

[REDACTED]; 12/18/2019 7:47:42 PM

## Appendix

## How we answer these questions

1. Examine whether impact of FB deactivation differs by primary way people use the app
1. Divide people according to primary product/service they use in FB (e.g., messaging, photo sharing, videos, selling products, etc.)
1. For each product segment estimate impact of FB deactivation on diversion ratios:

$$\text{Diversion Ratio} = \text{Time gained by App X} / \text{Time Lost by FB}$$

1. Want to show diversion ratios are large for different apps across product segments. This implies competition is fierce and arguments of break-up lose power.

- Counterfactual we approximate is what if FB does not exist?
- If diversion ratios are small across all app within a given product segment it means that FB has no peers within a given product dimension.
- We can do this for WTA?
- Limitation of metric is that we don't know how people use other apps

## Slide 1

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- 1 Needs [REDACTED] review  
[REDACTED] 12/19/2019 12:03:50 AM
- 2 We'll want to study user heterogeneity (1) for sure but the first step just seems to be: where does user attention go without facebook? Does it go off-line? Does it go to other apps?  
[REDACTED] 12/19/2019 12:00:49 AM
- 3 If as in [REDACTED] study, FB time spent goes entirely to messaging apps (e.g.) that suggests social networks/messaging apps compete for time/attention. Splitting by use case will be interesting but not the first priority  
[REDACTED] 12/19/2019 12:03:13 AM
- 4 Do we need this slide?  
[REDACTED] 12/19/2019 12:03:50 AM

## Project Improves on prior academic work

- Expectation effects
- Self-reported biases
- Compliance for deactivation
- Deactivation confirmation
- Power
- Network effects

### Caveats:

- Pilot is 18+
- Even in the full study, teens will not be metered, and we'll only look at teens and IG (not FB)
- For a variety of legal/privacy/policy reasons we are only doing mobile sensor stuff with Android users

Does Facebook make Partisan identification? Is Facebook making people like democrats

### Caveat highlights:

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|                                                                        |      |       |        |          |       |
|------------------------------------------------------------------------|------|-------|--------|----------|-------|
| <a href="#">VSCO</a>                                                   | 2.5% | 8.68M | 2.22M  | 5.5 min  | 15.7K |
| <a href="#">PicsArt Photo Editor: Pic, Video &amp; Collage Maker</a>   | 2.2% | 7.67M | 1.23M  | 12.2 min | 40.7K |
| <a href="#">Moto Camera</a>                                            | 1.8% | 6.27M | 2.35M  | 2.5 min  | 3.20K |
| <a href="#">Layout from Instagram: Collage</a>                         | 1.7% | 5.78M | 441.4K | 1.7 min  | 19.9K |
| <a href="#">Snapseed</a>                                               | 1.0% | 3.29M | 367.7K | 4.0 min  | 6.75K |
| <a href="#">Video Editor &amp; Video Maker - InShot</a>                | 0.7% | 2.43M | 179.0K | 7.8 min  | 17.1K |
| <a href="#">Motorola Gallery</a>                                       | 0.7% | 2.39M | 743.4K | 5.1 min  | 516.0 |
| <a href="#">PhotoGrid: Video &amp; Pic Collage Maker, Photo Editor</a> | 0.7% | 2.23M | 244.3K | 5.7 min  | 6.14K |
| <a href="#">SNOW</a>                                                   | 0.4% | 1.48M | 222.0K | 2.4 min  | 2.92K |
| <a href="#">KineMaster - Video Editor</a>                              | 0.4% | 1.29M | 240.7K | 12.5 min | 10.2K |

We are here.

Prelim. substitution findings

Full substitution findings

**Nielsen Study Timeline**

|               | <b>Pilot 1</b> | <b>Pilot 1 analysis</b> | <b>Pilot 2</b> | <b>Pilot Report(s)</b> | <b>Full Study</b> | <b>Full Study Report</b> | <b>More deactivation studies?</b> | <b>Publication</b> |
|---------------|----------------|-------------------------|----------------|------------------------|-------------------|--------------------------|-----------------------------------|--------------------|
|               | FB only        | FB Only                 | FB only        | FB only                | FB & IG           | FB & IG                  | .....                             | 2021               |
| Deactivated   |                |                         |                |                        | TBD               | TBD                      | TBD                               |                    |
| Use as normal |                |                         |                |                        | TBD               | TBD                      | TBD                               |                    |
| Metered       | 200            | 200                     | 200            | 200                    | TBD               | TBD                      | TBD                               |                    |
| Deliverable   | 10/19          | 1/20                    | 2/20           | 3/20                   | 6/20              | 8/20                     | 2020/2021                         |                    |