

# Less is Not More: Improving Findability and Actionability of Privacy Controls for Online Behavioral Advertising

CHI 2023

Jane Im, Ruiyi Wang, Weikun Lyu, Nick Cook,  
Hana Habib, Lorrie Cranor, Nikola Banovic, Florian Schaub



# Tech companies that rely on ads for business **massively collect users' data.**



image source: <https://www.eff.org/fr/issues/social-media-surveillance>

TECH

## Facebook is 'the biggest threat' to US democracy, Cambridge Analytica whistleblower says

PUBLISHED TUE, OCT 22 2019•6:37 PM EDT | UPDATED FRI, OCT 25 2019•1:16 PM EDT

JON BROOKIN, ARS TECHNICA

SECURITY MAY 26, 2022 2:00 PM

## Google Urged to Stop Tracking Location Data Ahead of *Roe* Reversal



On the platforms, **ad settings** are the most basic way for users to **have a say over their data.**



“People have a control over how their information is used in ads in the product today.”

- Mark Zuckerberg in Senate hearing (2018)

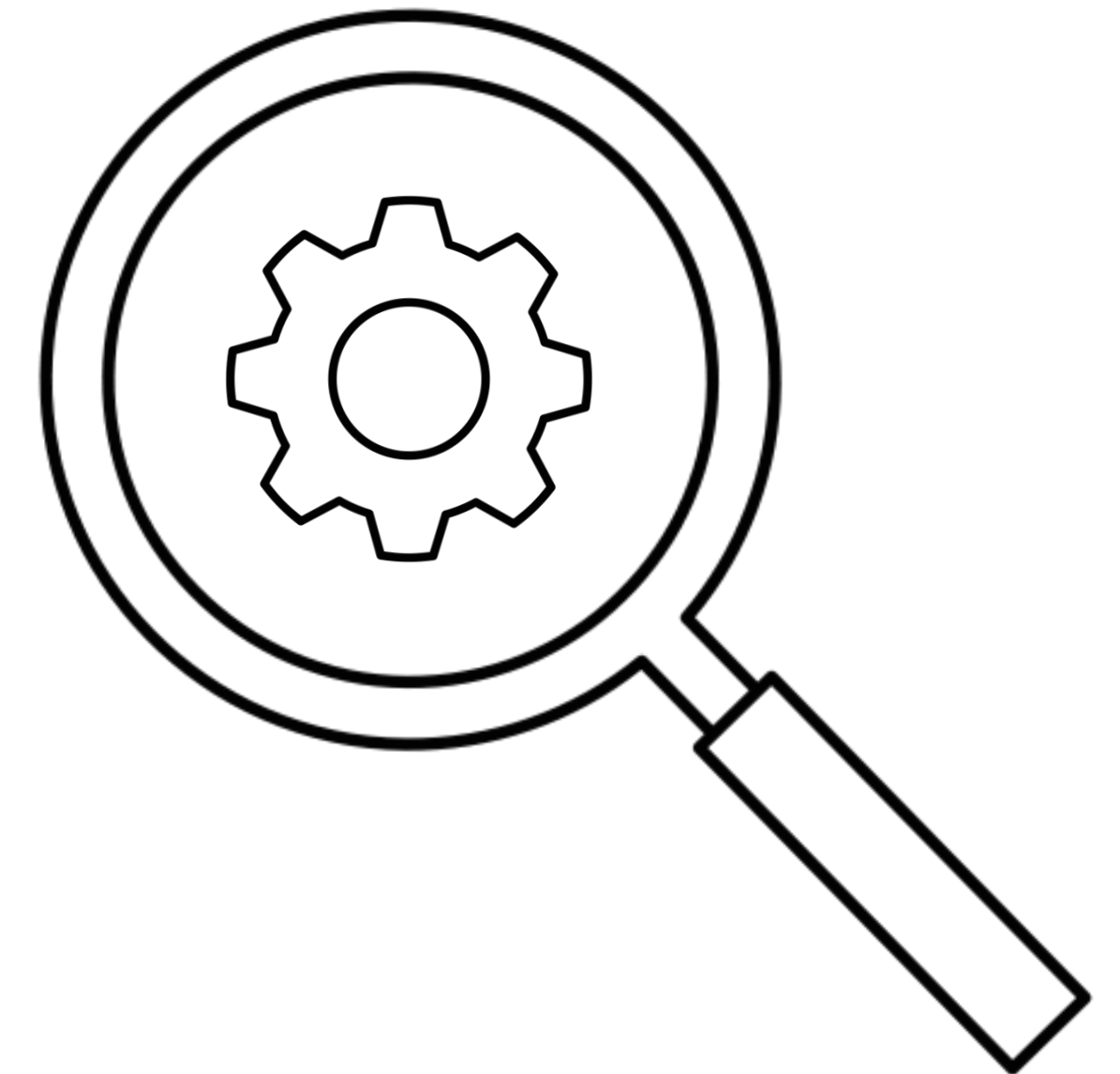
<https://www.washingtonpost.com/news/the-switch/wp/2018/04/10/transcript-of-mark-zuckerbergs-senate-hearing/>





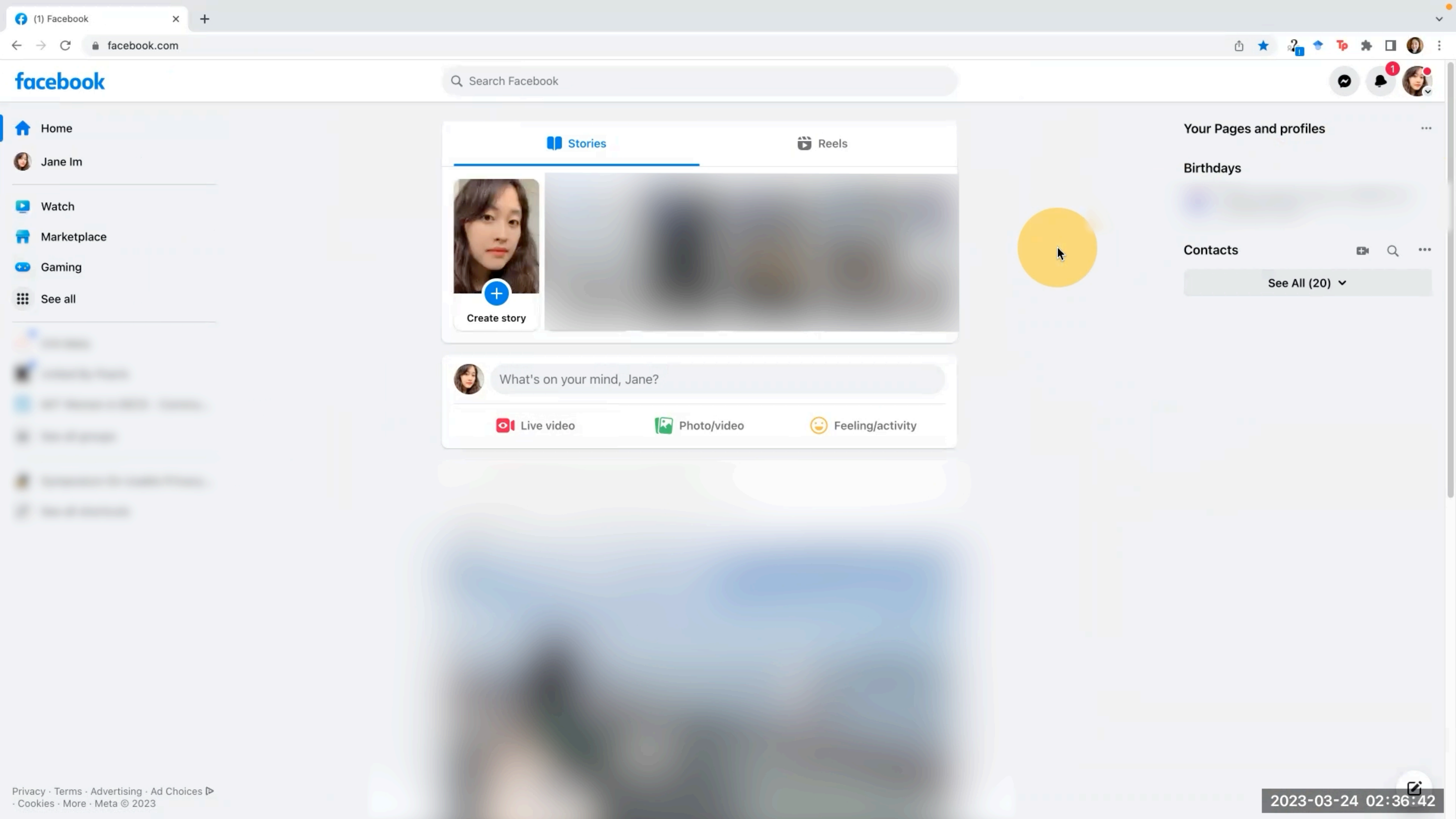
# Research has shown **advertisement settings are hard to discover and find.**

For example, Facebook users are largely unaware of available ad settings on the platform (Habib et al., 2022).



Habib, Hana, Sarah Pearman, Ellie Young, Ishika Saxena, Robert Zhang, and Lorrie Falth Cranor. "Identifying user needs for advertising controls on Facebook." Proceedings of the ACM on Human-Computer Interaction 6, no. CSCW1 (2022): 1-42.







Users have to **navigate three pages and click at least five times** to find the majority of the privacy-related ad controls on Facebook.



Many regulations across countries say that companies should provide ad controls to users.



Many regulations across countries say that companies should provide ad controls to users.

But they do **not concretely specify how the controls should be designed.**



# Research Questions

How can we design ad settings so that they are **more findable** on social platforms?

And once designed and deployed, how would they **impact users' behavior and sentiment towards the settings and platform?**



# Quick glimpse of takeaways 🙄🙄

Our study shows it **is feasible to design more findable ad controls.**

**Platform companies can do better** when it comes to making ad settings usable.



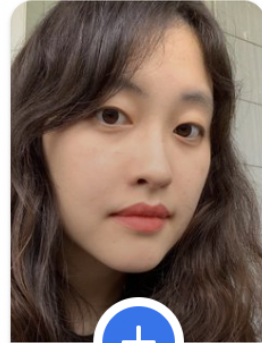
**Entry points**



Level of actionability

Initial interface a user would click on to find a path that leads to the correct ad setting.





## Create story



What's on your mind, Jane?

 Live video Photo/video Feeling/activityInsider Tech 

Yesterday at 4:32 PM · 🌐



The TikToker said she estimated her mom paid the equivalent of around \$270 for the Gucci dress in the 90s.



## Your Pages and profiles

## Birthdays



's birthday is today.

## Contacts









facebook

Q Search Facebook

1

Home

Jane Im

Watch

Marketplace

Gaming

See all

See all groups

See all shortcuts

Stories

Reels

+

Create story

What's on your mind, Jane?

Live video

Photo/video

Feeling/activity

Insider Tech

Insider Tech

Yesterday at 4:32 PM ·

...

×

The TikTokker said she estimated her mom paid the equivalent of around \$270 for the Gucci dress in the 90s.

Your Pages and profiles

Birthdays

Contacts

's birthday is today.

Privacy · Terms · Advertising · Ad Choices · Cookies · More · Meta © 2023

15








Suggested for you

---



LADbible

3d · 🌐

...

✕

'I drew a hopscotch outside my house and strangers love it' 😄👏



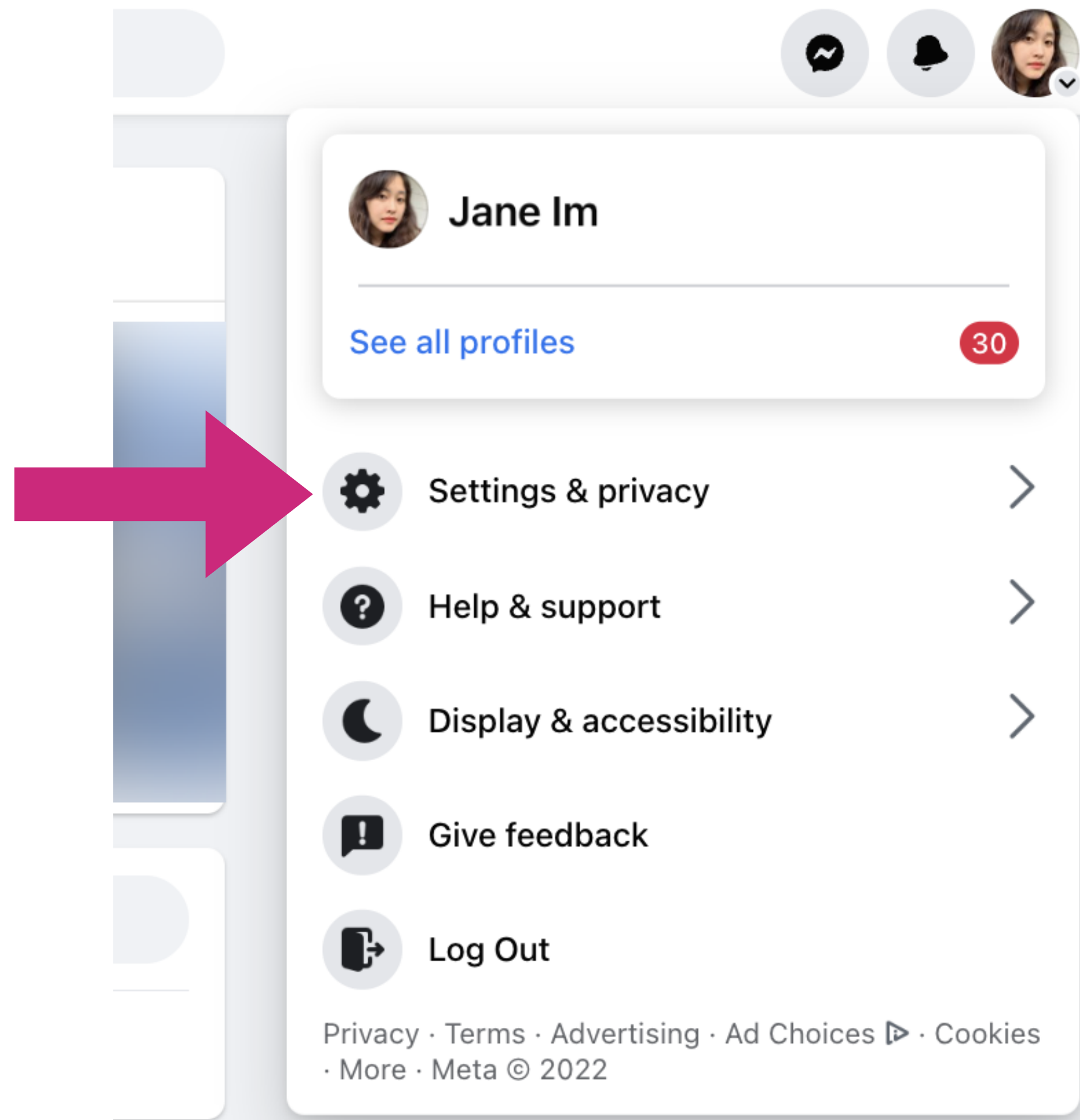
Entry points

**Level of actionability**

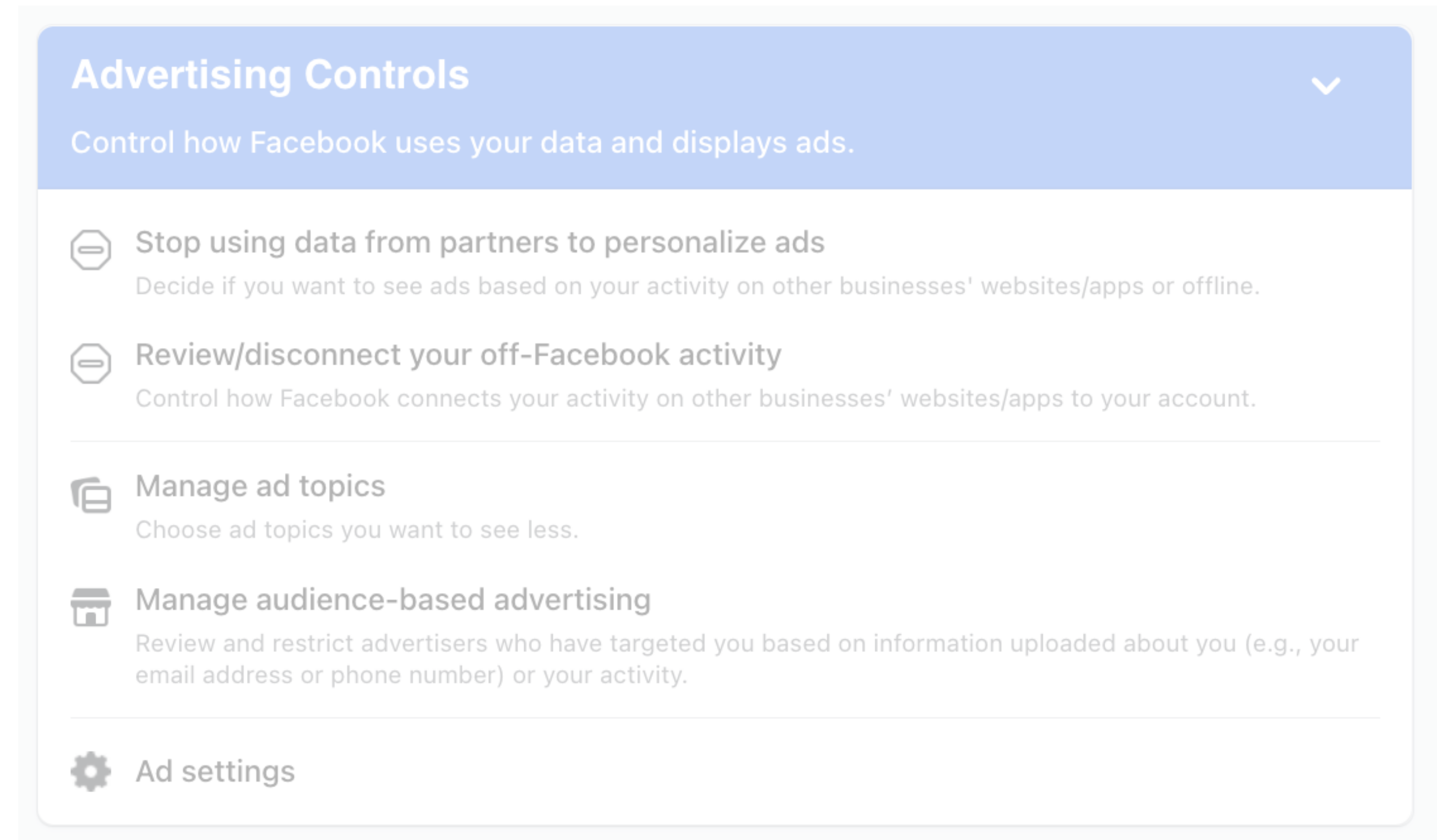


How actionable are the provided options in the ad control interface.



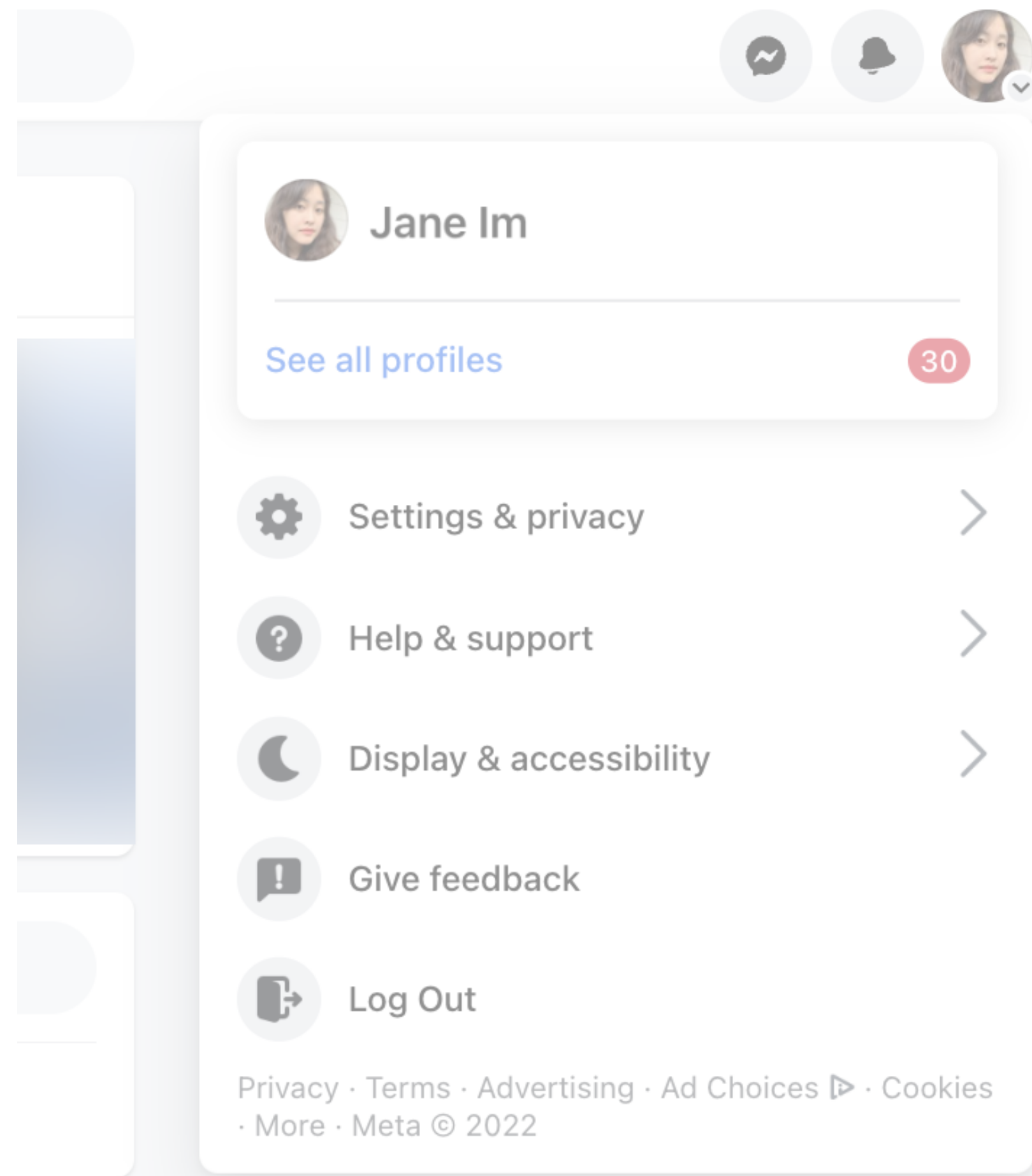


Low actionability: Provides link to general ad settings page

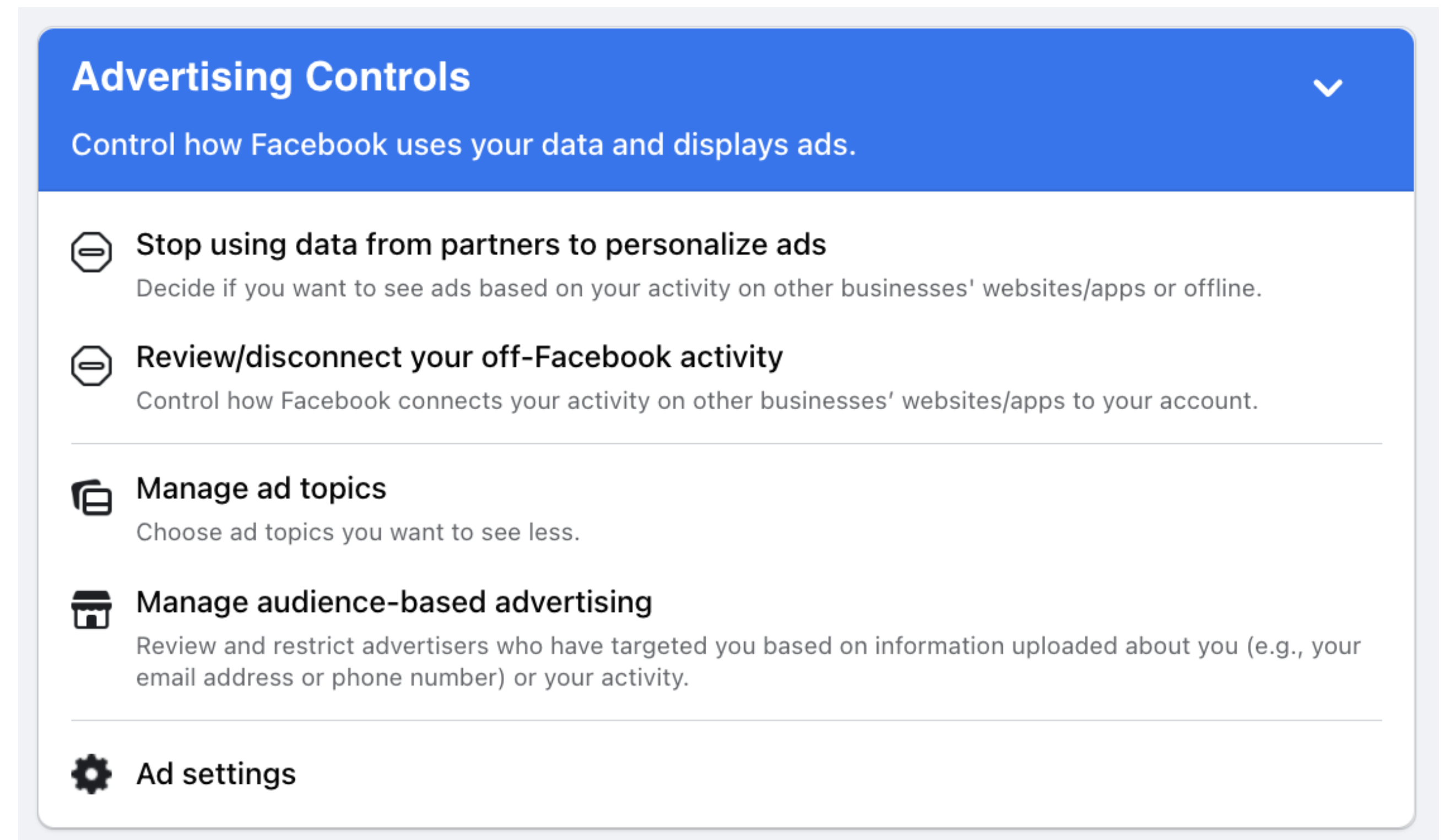


High actionability: Directly surfaces links to specific ad setting functionalities



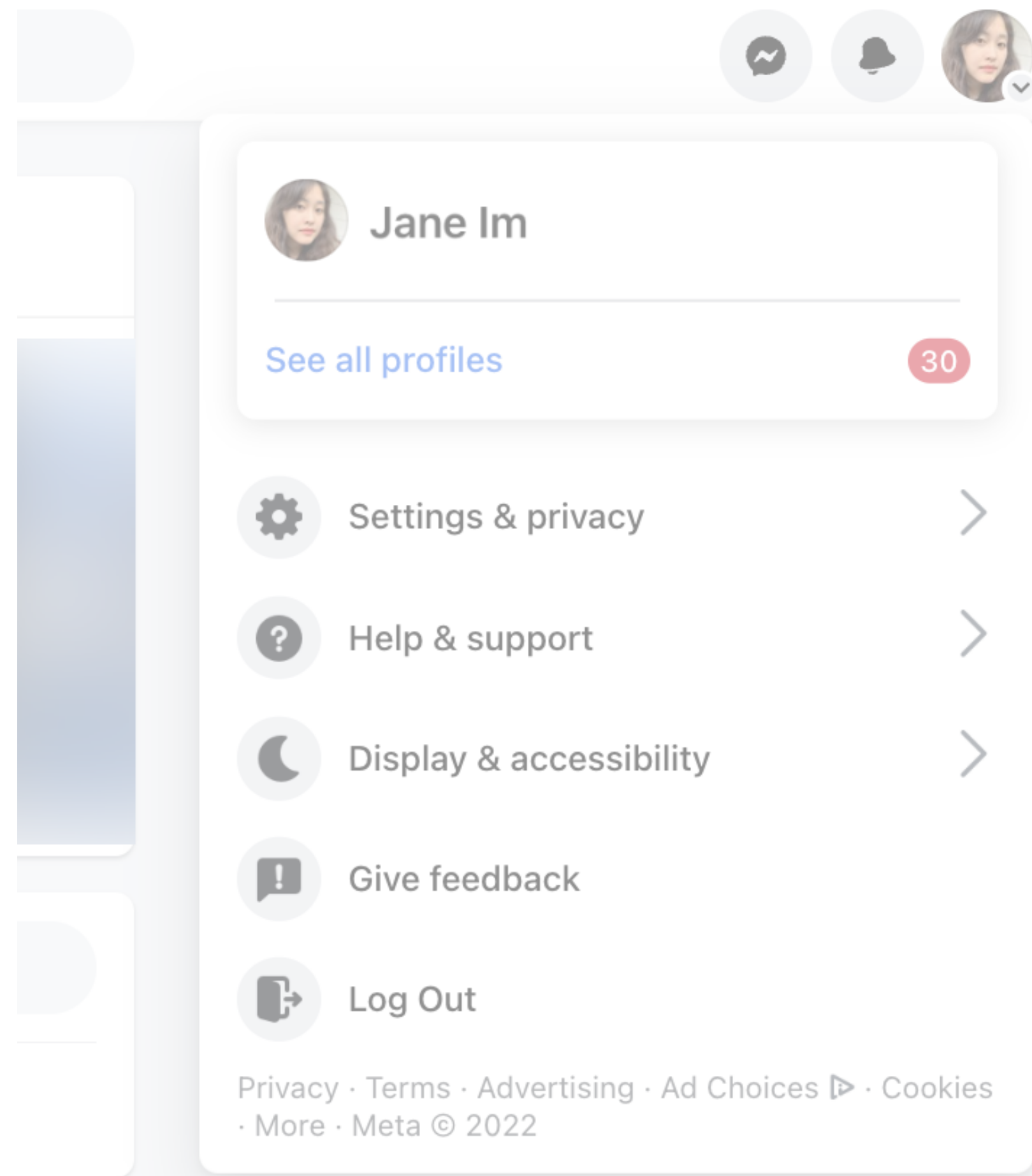


Low actionability: Provides link to general ad settings page

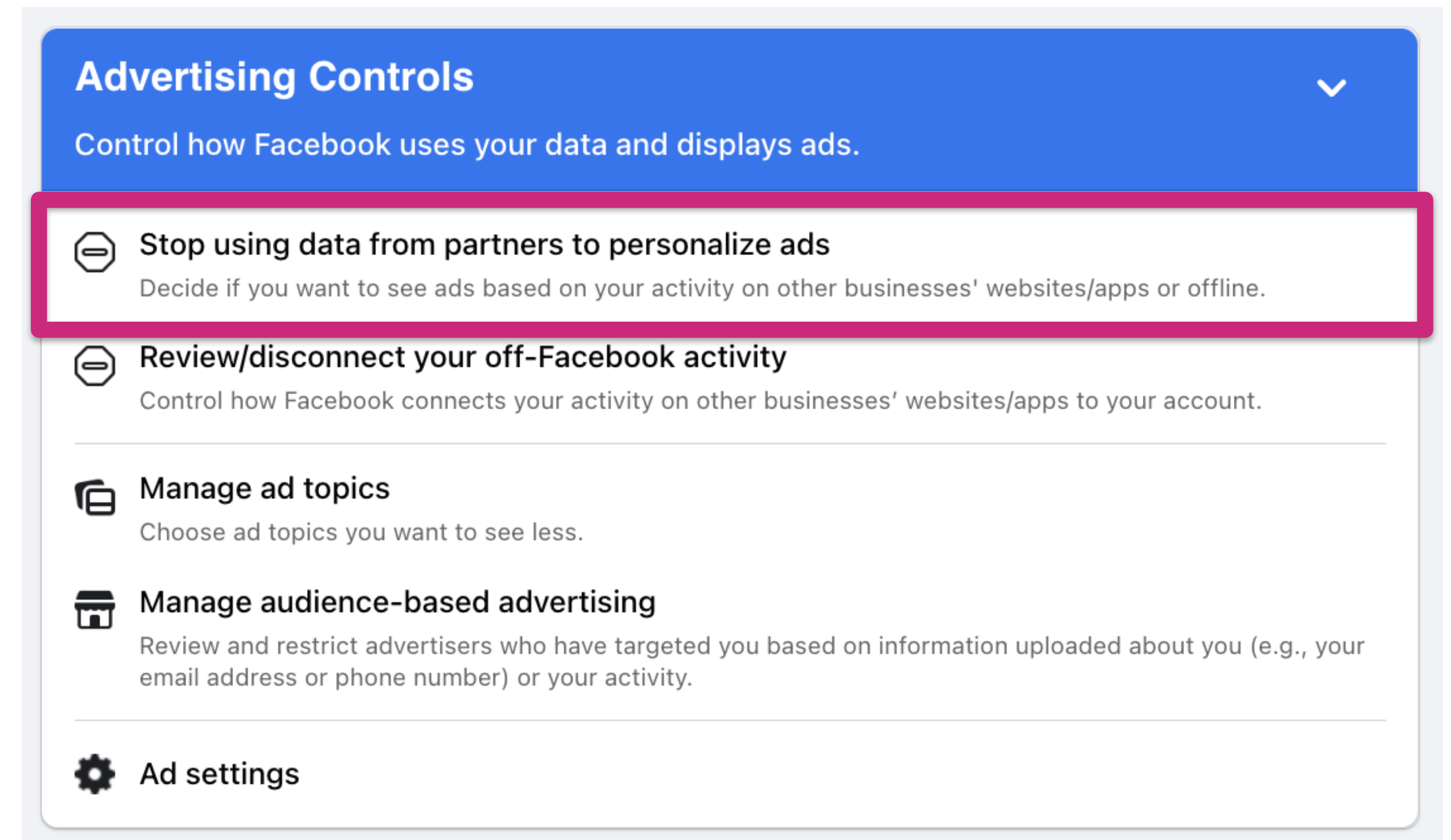


High actionability: Directly surfaces links to specific ad setting functionalities





Low actionability: Provides link to general ad settings page

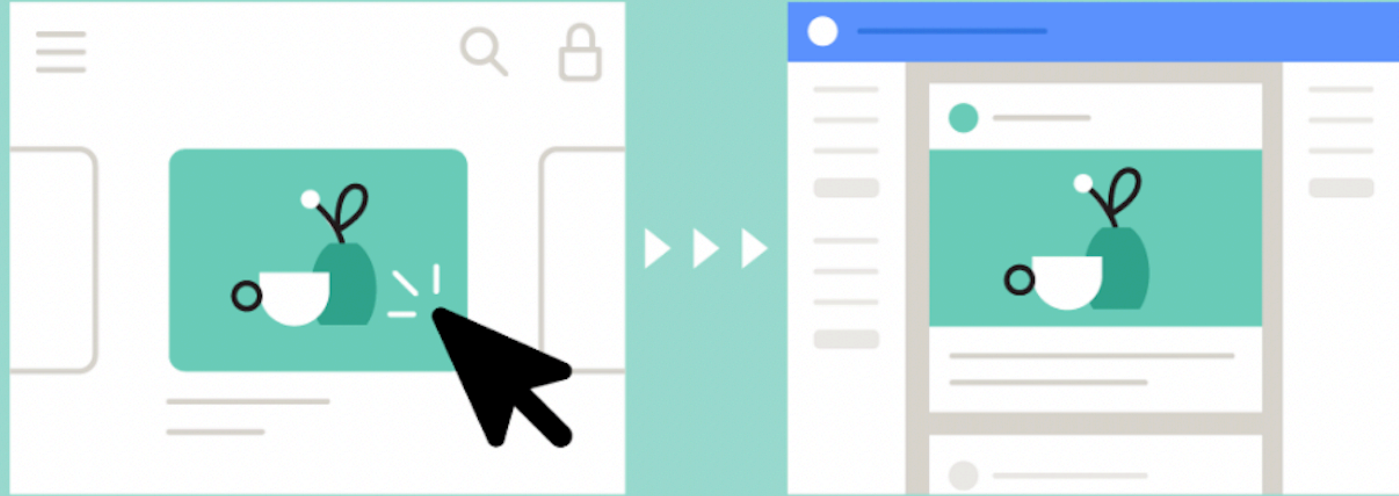


High actionability: Directly surfaces links to specific ad setting functionalities



### Data about your activity from partners

Personalized ads based on your activity on other websites, apps or offline



To show you more relevant ads, we receive and use data from advertisers and other [partners](#) about your activity on their websites and apps, as well as certain offline interactions with them, such as purchases. For example, if you visit a website off of Facebook Company Products, we may show you an ad based on your activity on that website. We never sell your data.

**You can choose whether we can show you personalized ads based on data about your activity from partners, and you can change your choice at any time.**

Not Allowed ☐

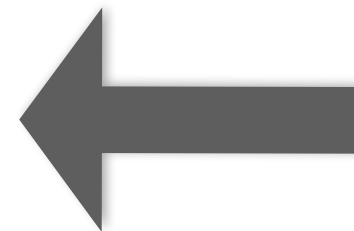
#### What You Should Know

This setting doesn't change the number of ads you'll see. ▼

This setting controls how certain data is used. ▼


Where this setting applies: ▼

Was this section useful? Yes No




## Advertising Controls


Control how Facebook uses your data and displays ads. ▼

**Stop using data from partners to personalize ads**


Decide if you want to see ads based on your activity on other businesses' websites/apps or offline.

**Review/disconnect your off-Facebook activity**


Control how Facebook connects your activity on other businesses' websites/apps to your account.

**Manage ad topics**

Choose ad topics you want to see less.

**Manage audience-based advertising**

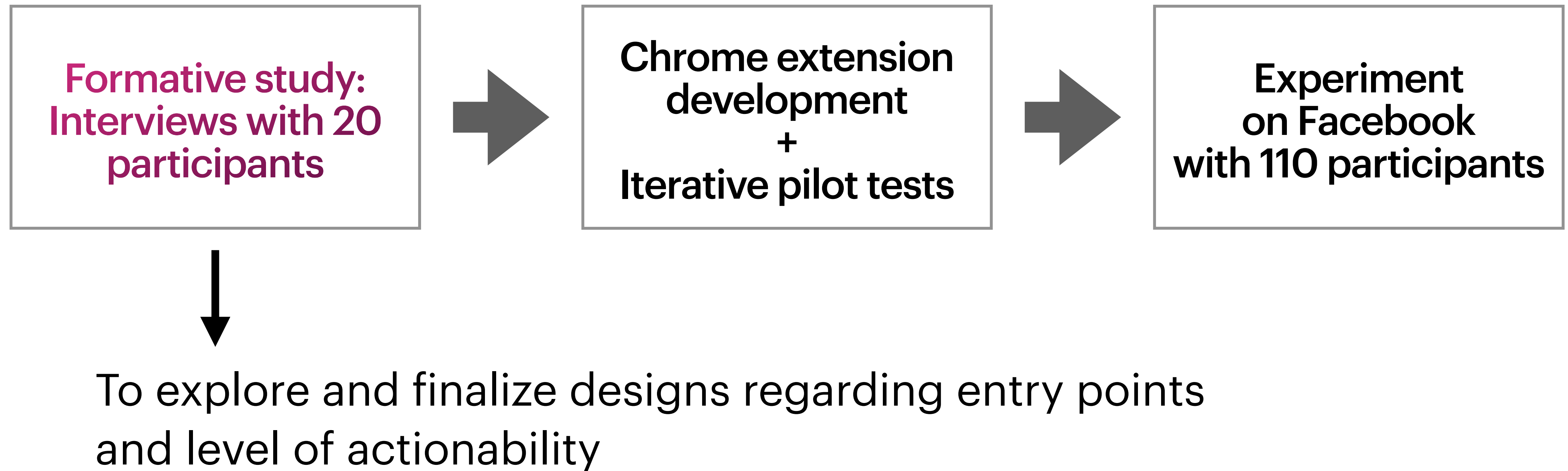
Review and restrict advertisers who have targeted you based on information uploaded about you (e.g., your email address or phone number) or your activity.

**Ad settings**

High actionability: Directly surfaces links to specific ad setting functionalities



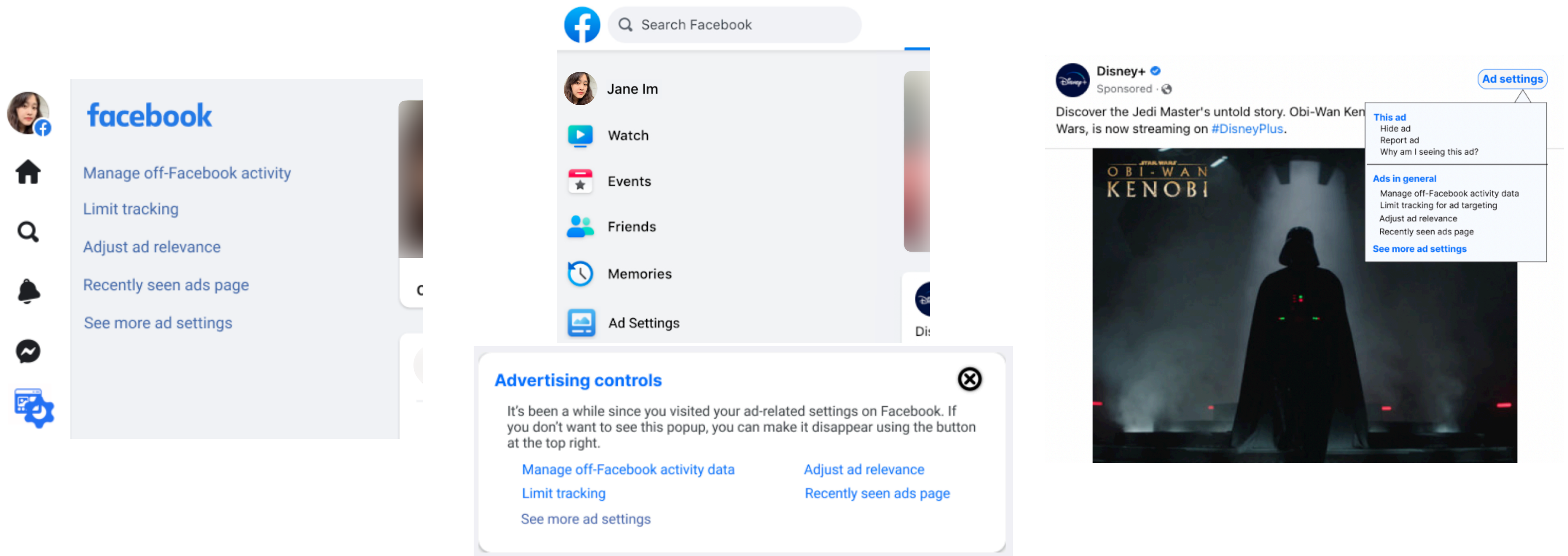
# Study process





# Formative study

Conducted interviews with 20 participants to explore and select designs shown via mockups and interactive prototypes.





# Designs finalized from formative study

## 1. Location of entry points

- Within ads
- Top of content feed

These two were the most **findable** among the explored designs.

## 2. Level of actionability provided in the control's interface

- High
- Low

Many participants **preferred or were open to** high actionability interfaces.



# Designs finalized from formative study

## 1. Location of entry points

- Within ads
- Top of content feed

These two were the most **findable** among the explored designs.

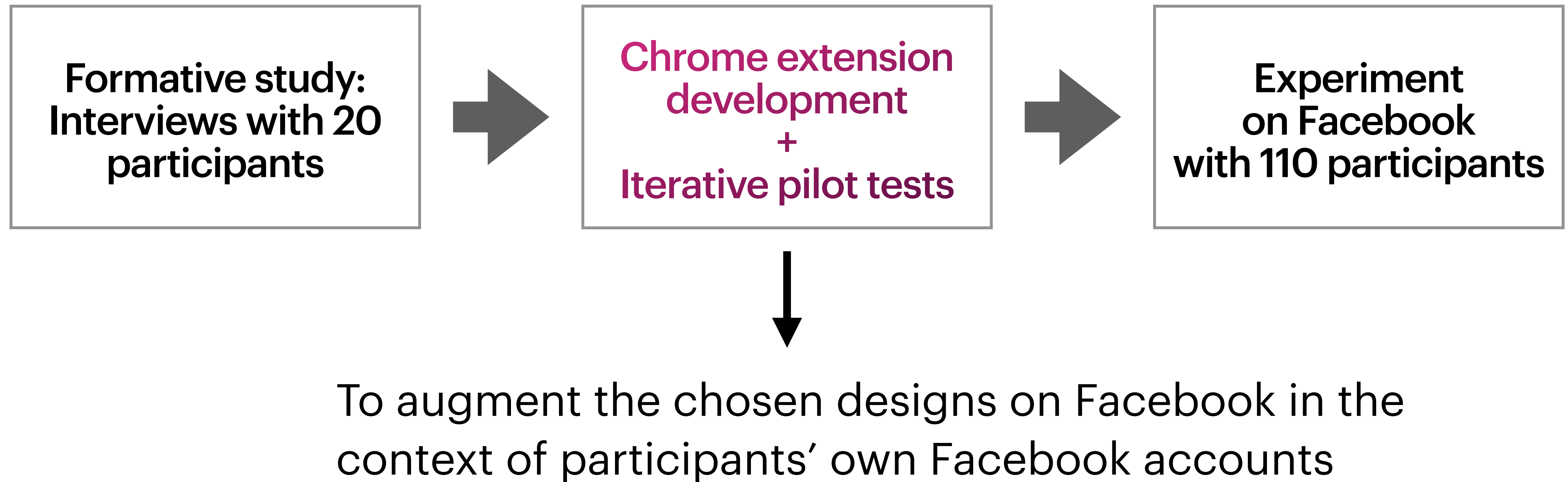
## 2. Level of actionability provided in the control's interface

- High
- Low

Many participants **preferred or were open to** high actionability interfaces.

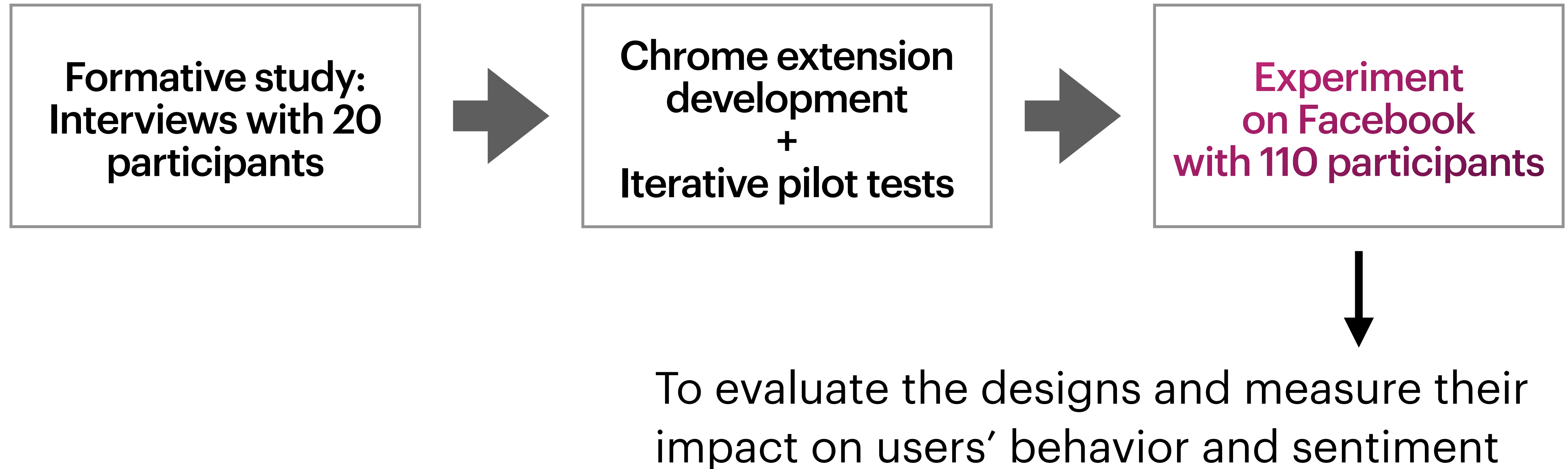


# Study process



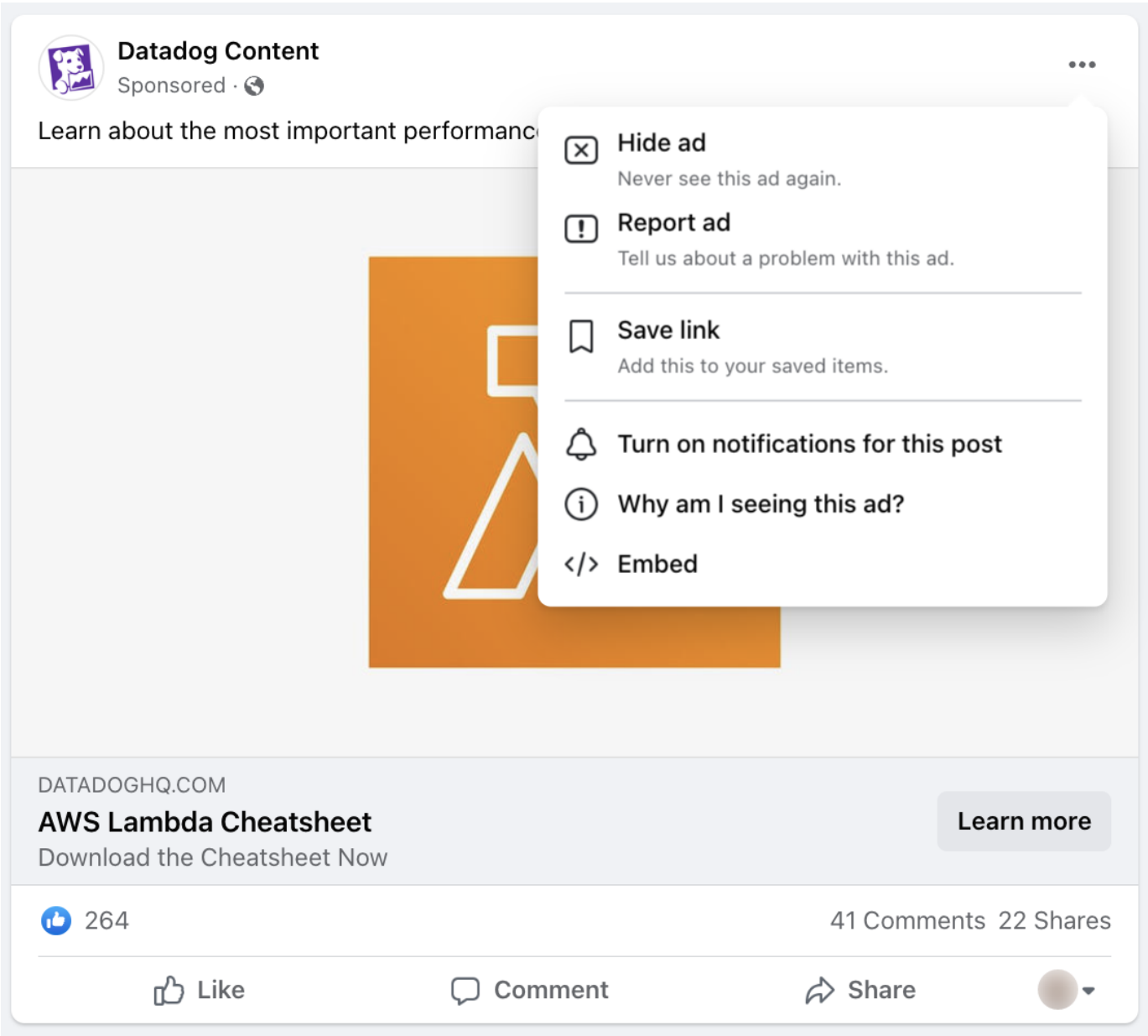
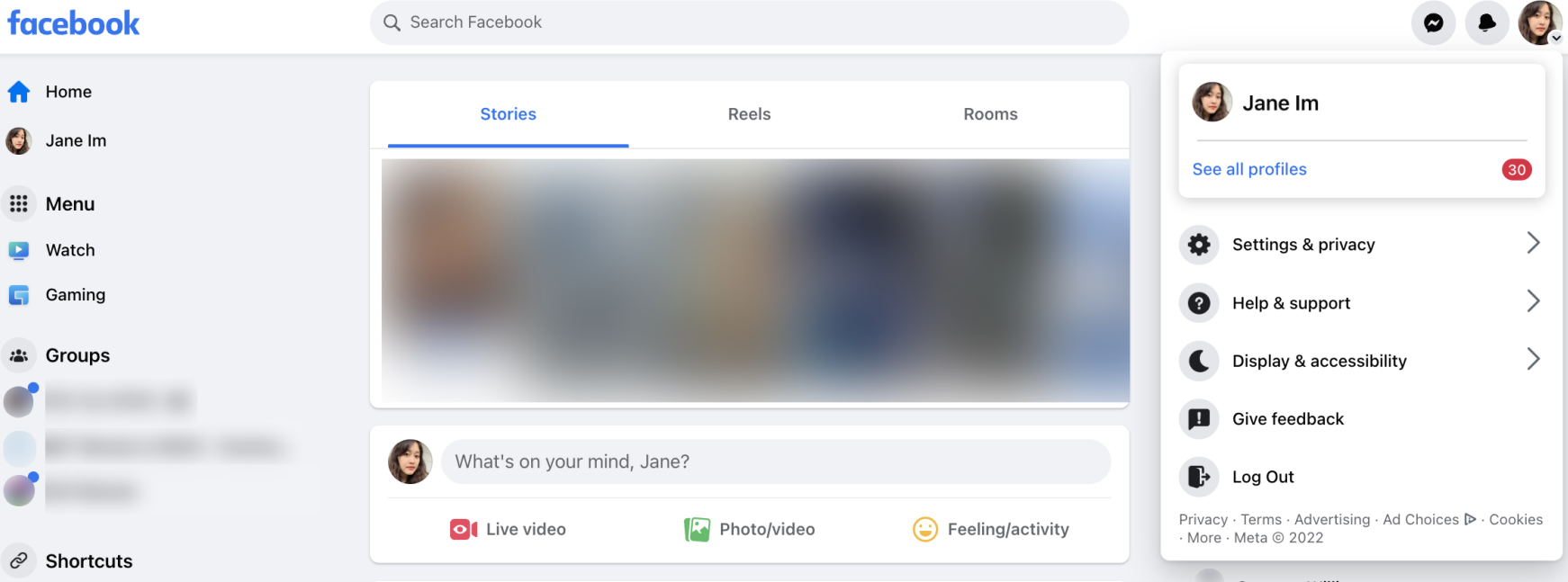


# Study process

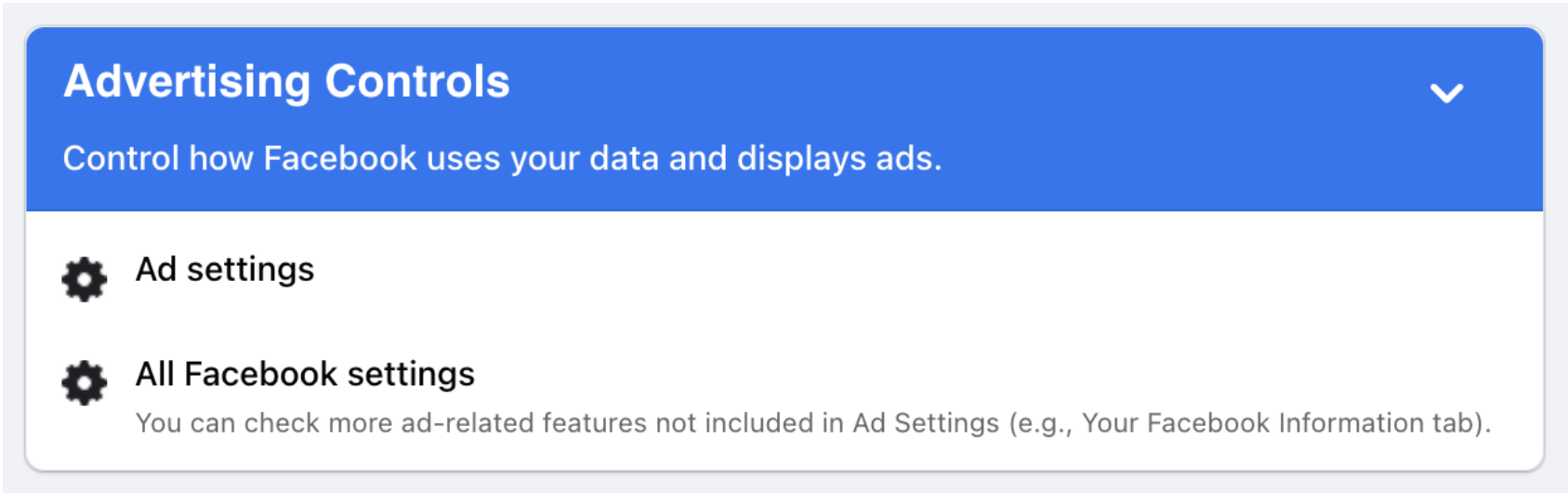
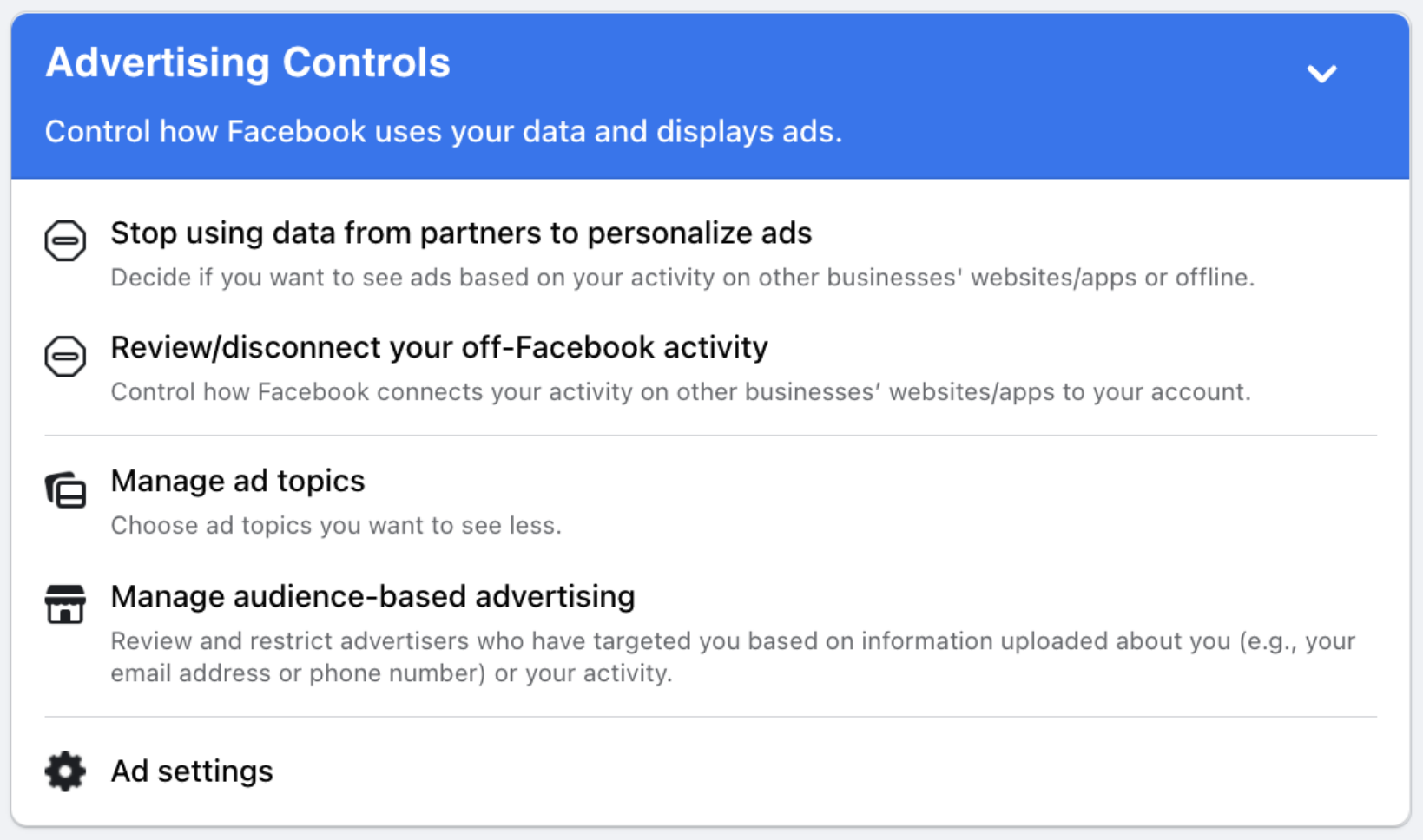
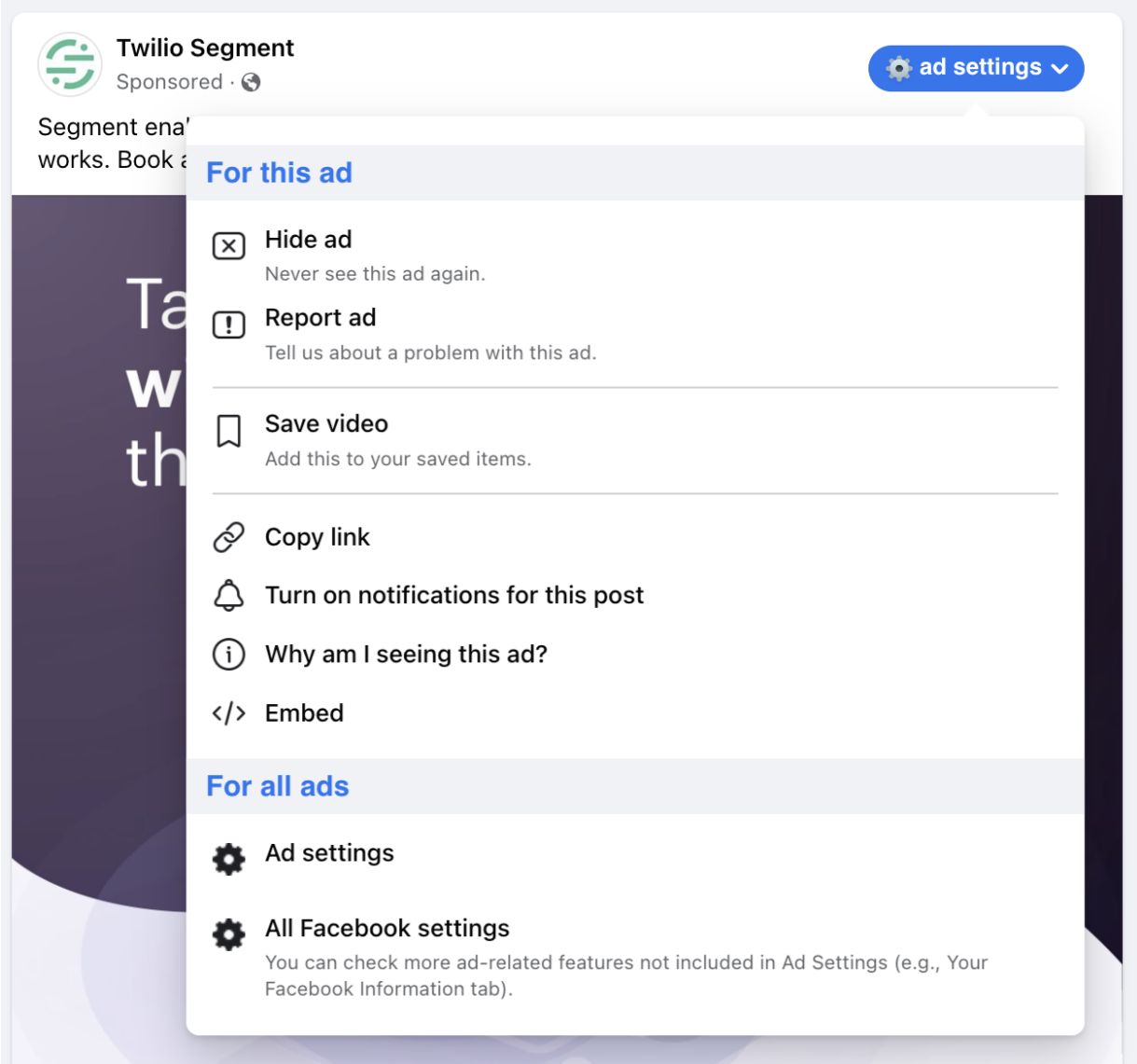
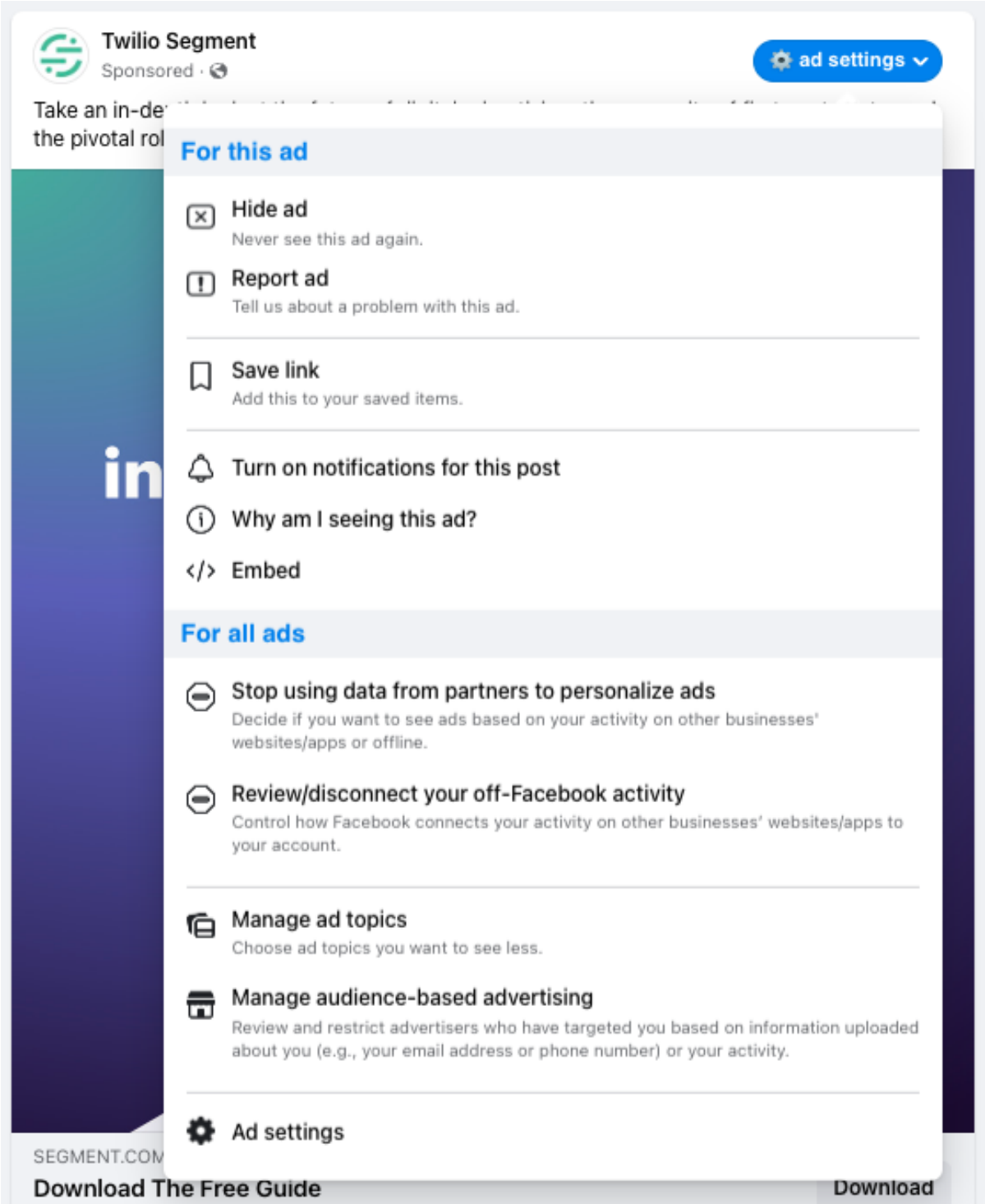




# Experiment setup



control condition



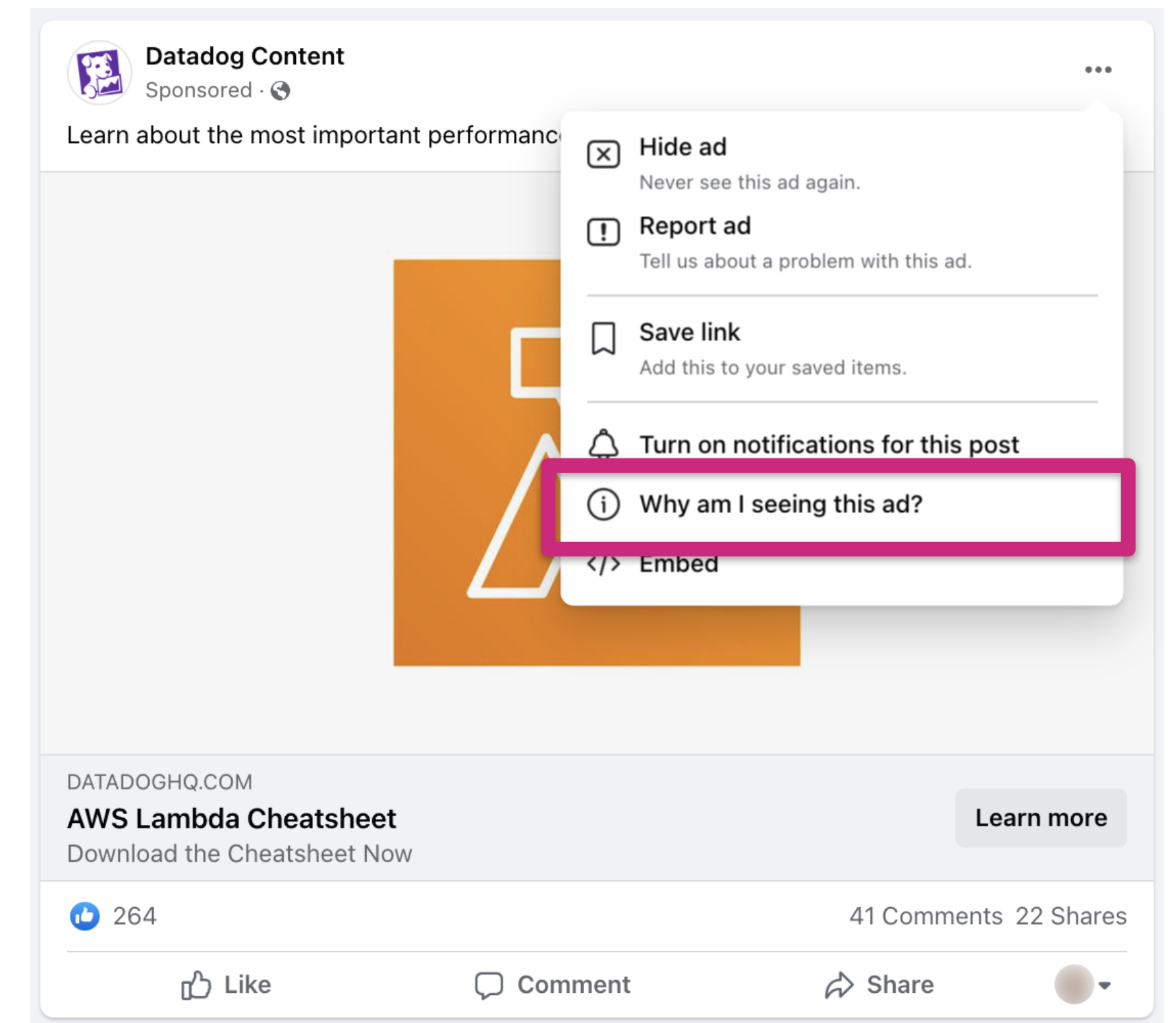
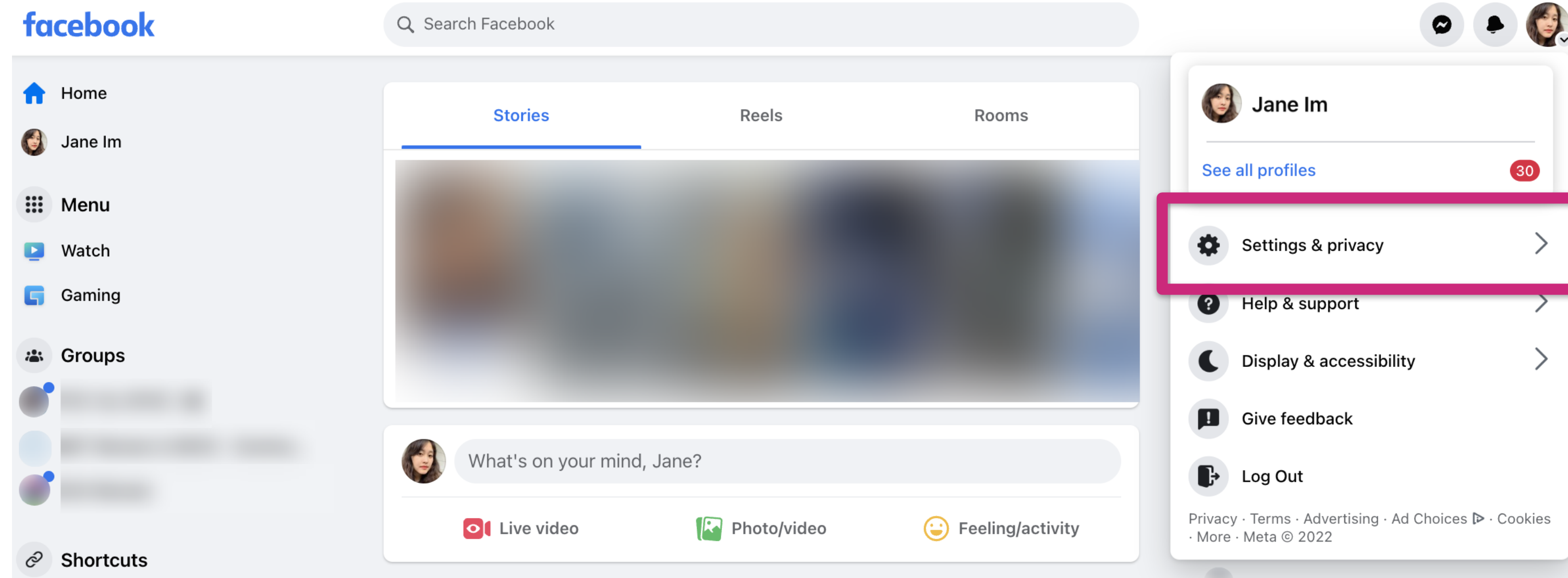
four treatment conditions



# Experiment setup

| condition                                      | Location of entry points   | Actionability |
|--|--|---------------|
| <b>control condition (Facebook)</b>            | Facebook's entry points (profile image in feed's menu bar or three dots in ad/dropdown menu) | low           |
| <b>ad menu &amp; low actionability</b>         | Facebook's entry points + button in ad/dropdown menu   | low           |
| <b>ad menu &amp; high actionability</b>        | Facebook's entry points + button in ad/dropdown menu   | high          |
| <b>feed dashboard &amp; low actionability</b>  | Facebook's entry points + dashboard at top of feed   | low           |
| <b>feed dashboard &amp; high actionability</b> | Facebook's entry points + dashboard at top of feed   | high          |





control condition



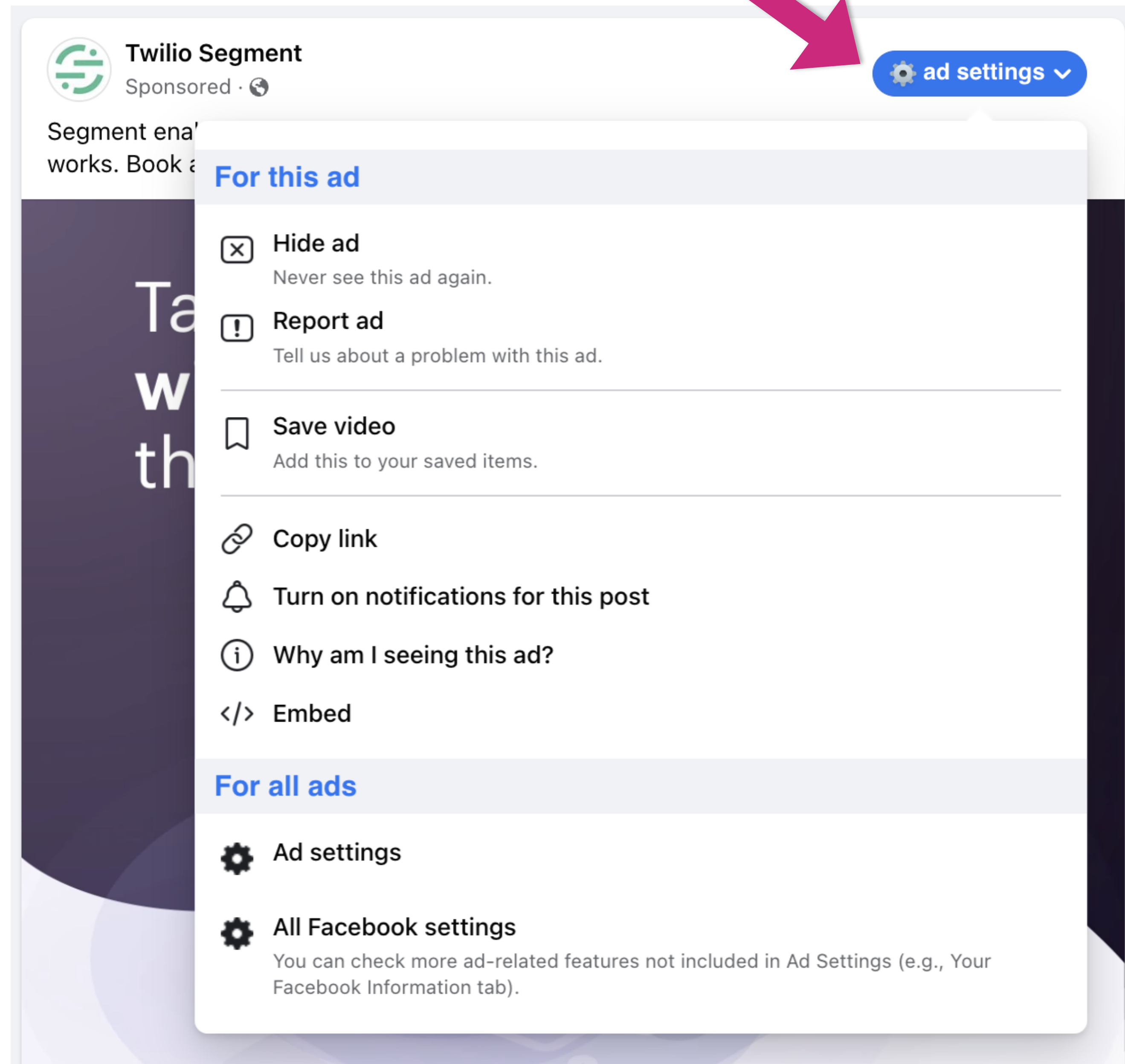
# Experiment setup

| condition                           | Location of entry points   | Actionability |
|-------------------------------------|--|---------------|
| control condition (Facebook)        | Facebook's entry points (profile image in feed's menu bar or three dots in ad/dropdown menu) | low           |
| ad menu & low actionability         | Facebook's entry points + button in ad/dropdown menu   | low           |
| ad menu & high actionability        | Facebook's entry points + button in ad/dropdown menu   | high          |
| feed dashboard & low actionability  | Facebook's entry points + dashboard at top of feed   | low           |
| feed dashboard & high actionability | Facebook's entry points + dashboard at top of feed   | high          |



# Final Designs

ad contextual menu  
with low actionability

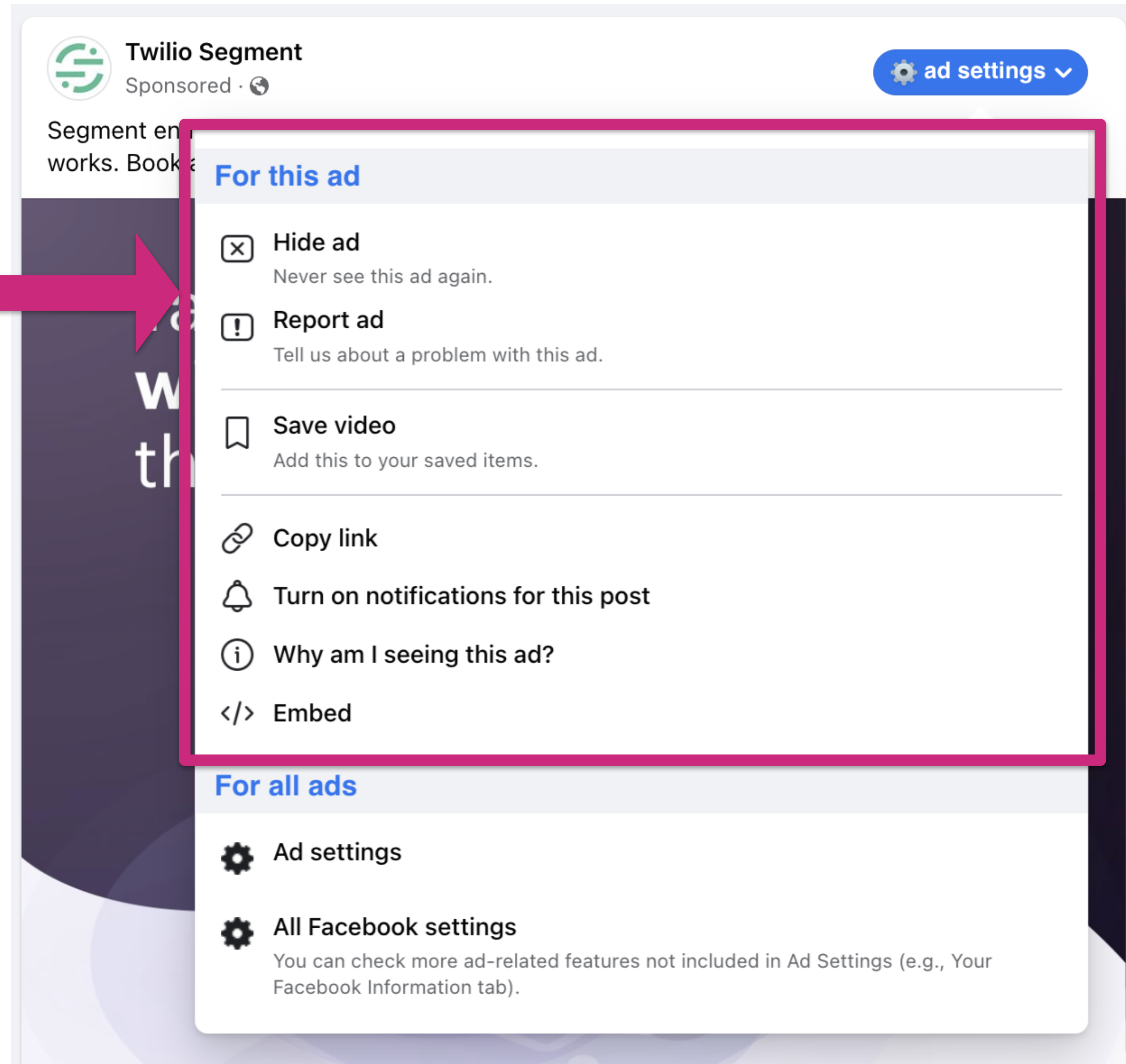




# Final Designs

Facebook's original options

ad contextual menu  
with low actionability

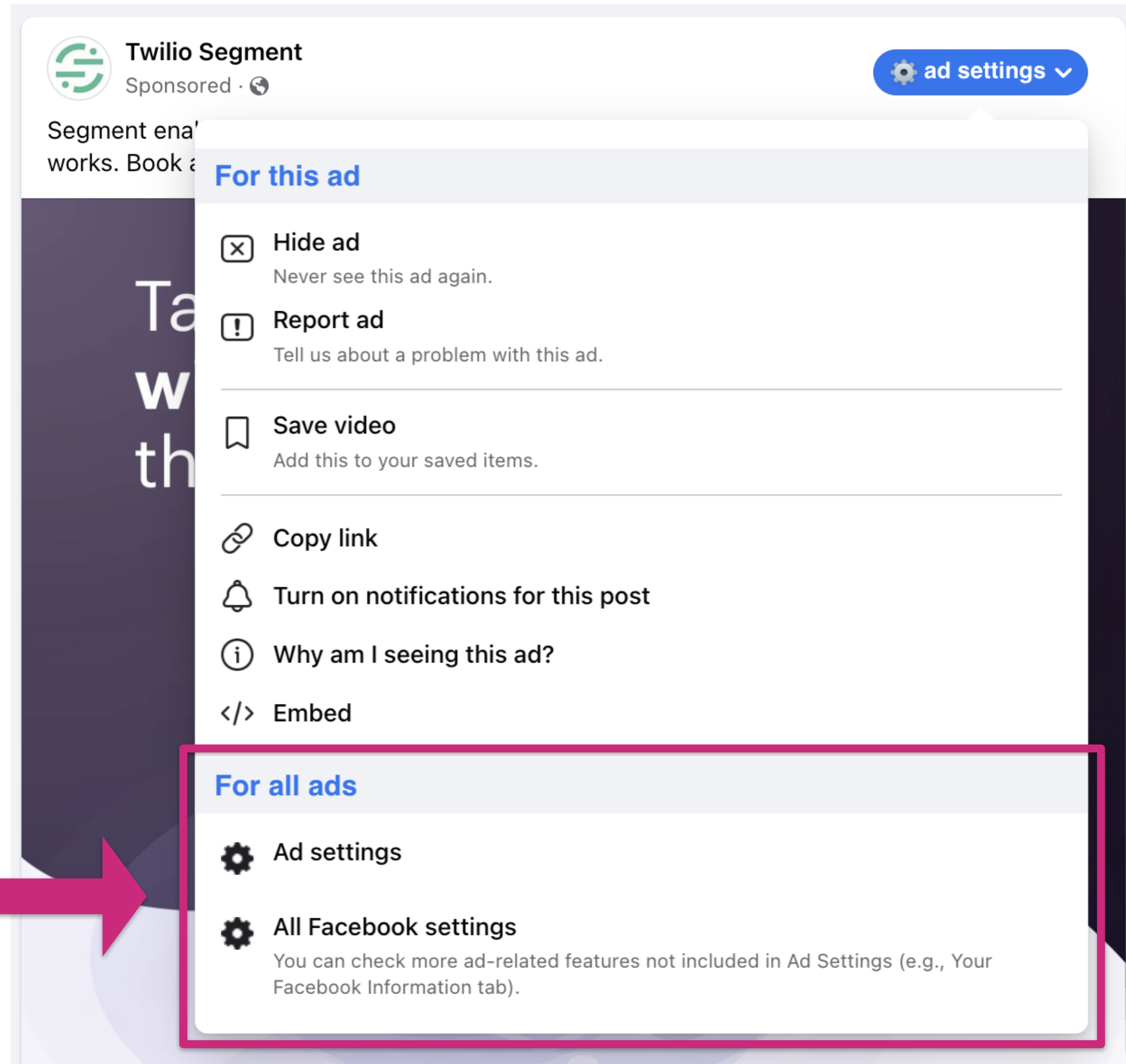




# Final Designs

ad contextual menu  
with low actionability

newly added options





# Experiment setup

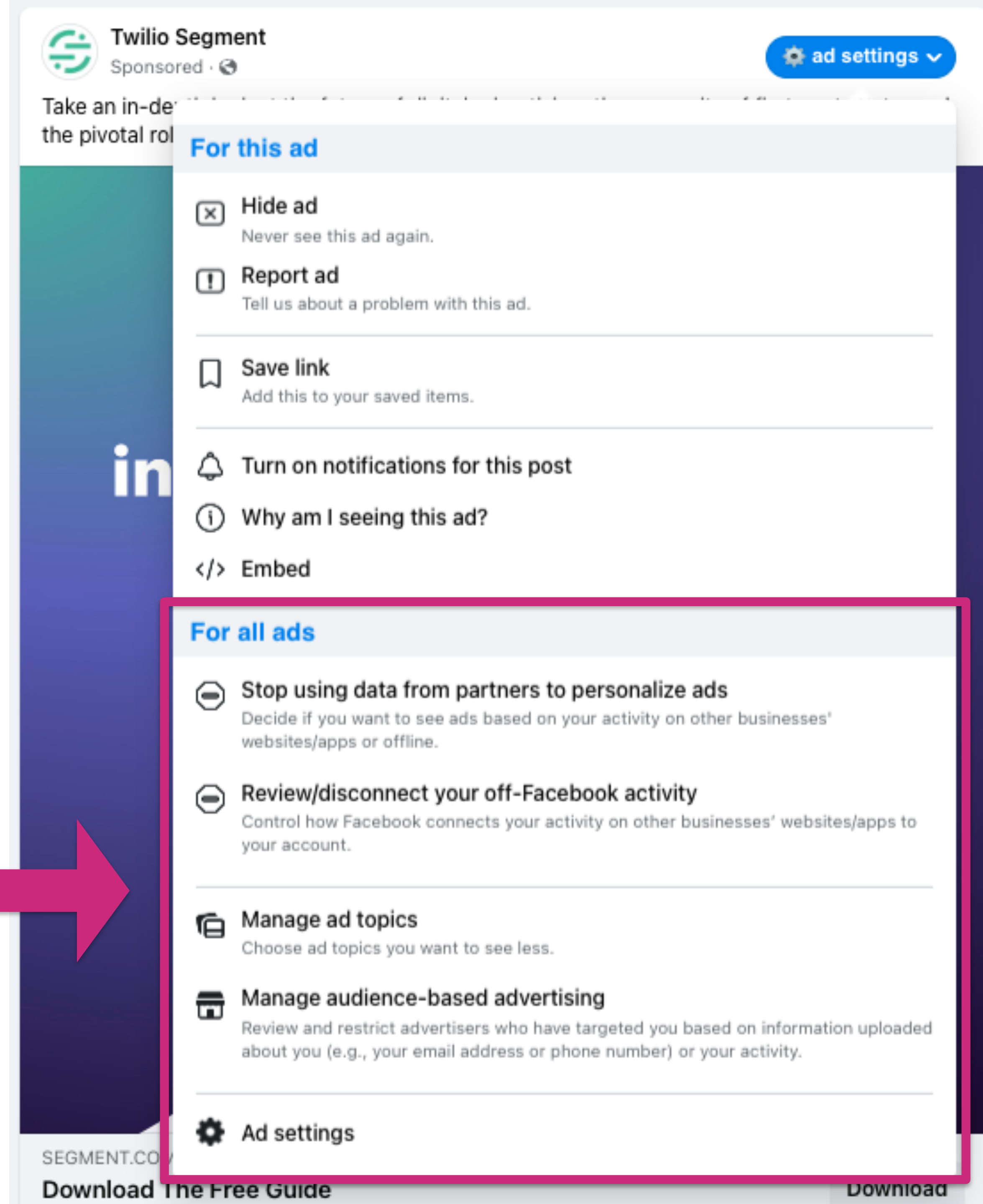
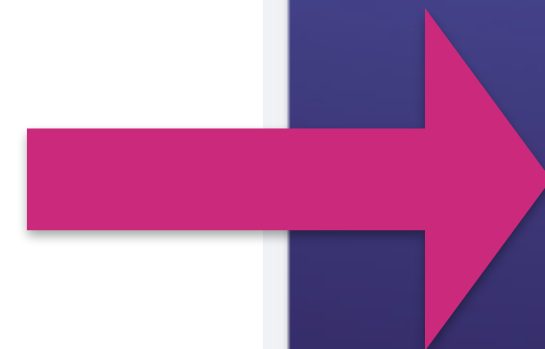
| condition                           | Location of entry points   | Actionability |
|-------------------------------------|--|---------------|
| control condition (Facebook)        | Facebook's entry points (profile image in feed's menu bar or three dots in ad/dropdown menu) | low           |
| ad menu & low actionability         | Facebook's entry points + button in ad/dropdown menu   | low           |
| ad menu & high actionability        | Facebook's entry points + button in ad/dropdown menu   | high          |
| feed dashboard & low actionability  | Facebook's entry points + dashboard at top of feed   | low           |
| feed dashboard & high actionability | Facebook's entry points + dashboard at top of feed   | high          |



# Final Designs

ad contextual menu  
with high actionability

newly added options



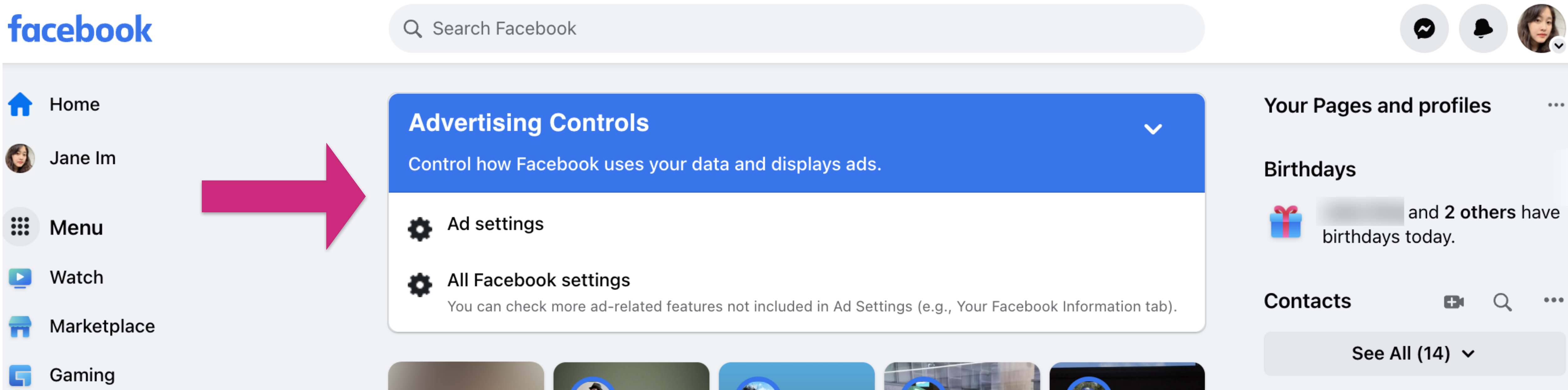


# Experiment setup

| condition                                      | Location of entry points   | Actionability |
|--|--|---------------|
| <b>control condition (Facebook)</b>            | Facebook's entry points (profile image in feed's menu bar or three dots in ad/dropdown menu) | low           |
| <b>ad menu &amp; low actionability</b>         | Facebook's entry points + button in ad/dropdown menu   | low           |
| <b>ad menu &amp; high actionability</b>        | Facebook's entry points + button in ad/dropdown menu   | high          |
| <b>feed dashboard &amp; low actionability</b>  | Facebook's entry points + dashboard at top of feed   | low           |
| <b>feed dashboard &amp; high actionability</b> | Facebook's entry points + dashboard at top of feed   | high          |



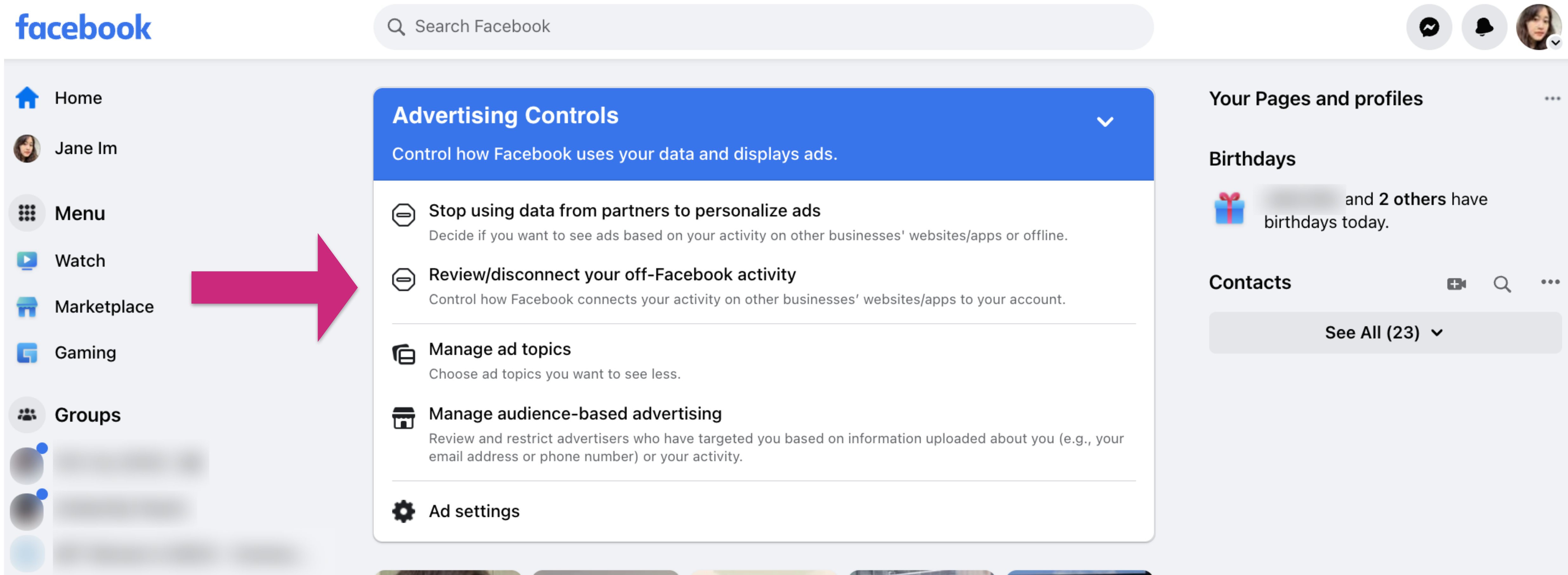
# Final Designs



feed dashboard  
with low actionability



# Final Designs



feed dashboard  
with high actionability



# Experimental tasks

Participants were asked to find a series of ad settings after reading scenario-based prompts.

*“Imagine you recently read an article about advertisers using lists of personal information to reach you, and you want to review which companies did this.”*

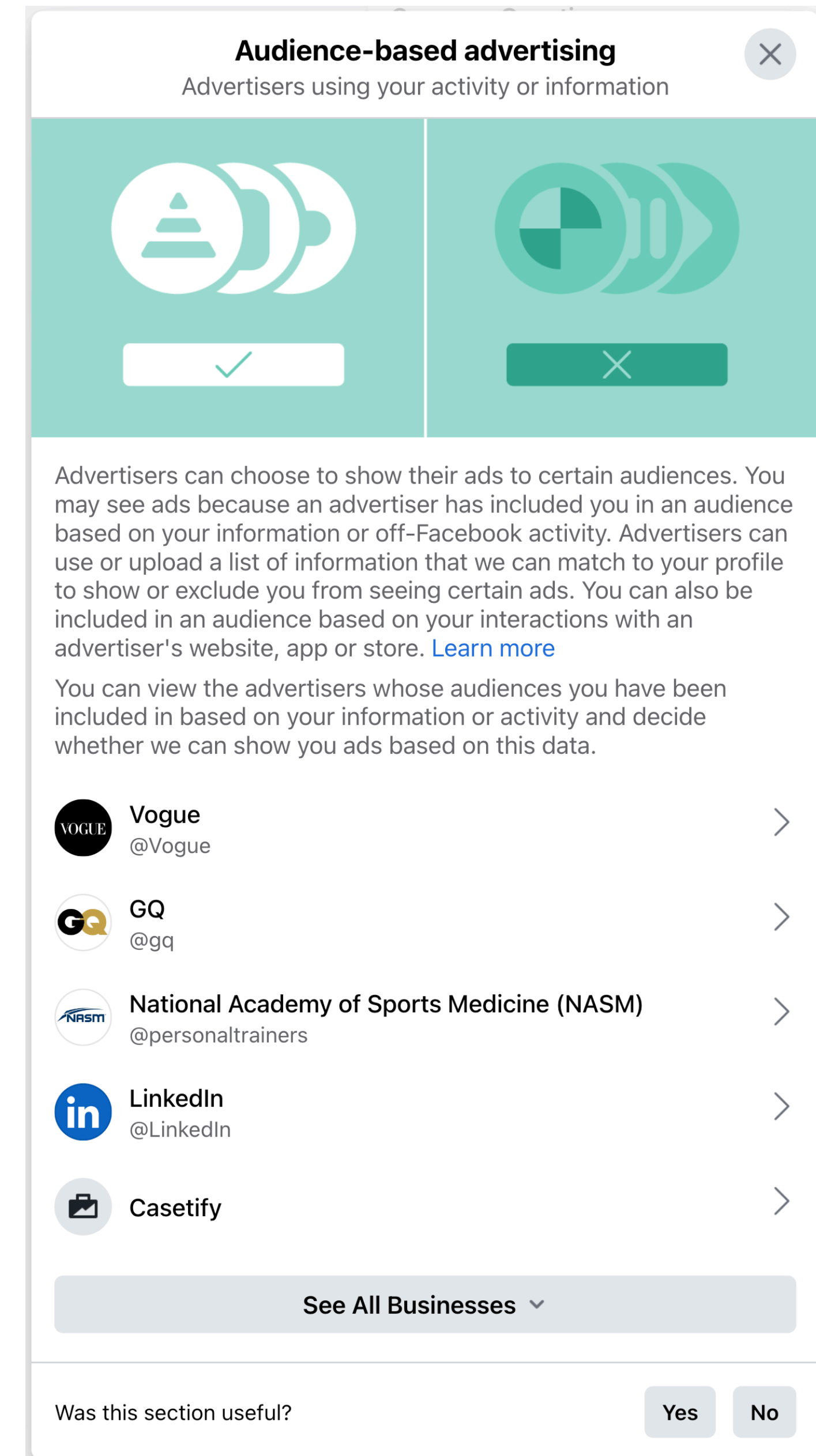


# Experimental task 1

Review advertisers that targeted ads using lists of personal information (e.g., phone numbers)

Have to find:

>> **Audience-based advertising**





# Experimental task 2

Controlling the topic of ads one sees on Facebook

Have to find:

>> **Ad topics page**


## Ad Topics


Browse all ad topics and choose to see less of the ones you aren't interested in. [Learn more.](#)


Search all topics

### Data-driven topics

Topics that represent interest categories advertisers can use to reach you. We add you to these categories based on your activity.

 Line Webtoon >


 iPhone accessories >


 Tech Insider >


[See more](#)

### Topics you see less of

Ad topics you've chosen to see less of.

 Cosmetics & makeup >

 Shopping and fashion >

 Retail: shopping malls >

[See more](#)



# Experimental task 3

Stop Facebook from showing ads based on the websites/apps one has visited.

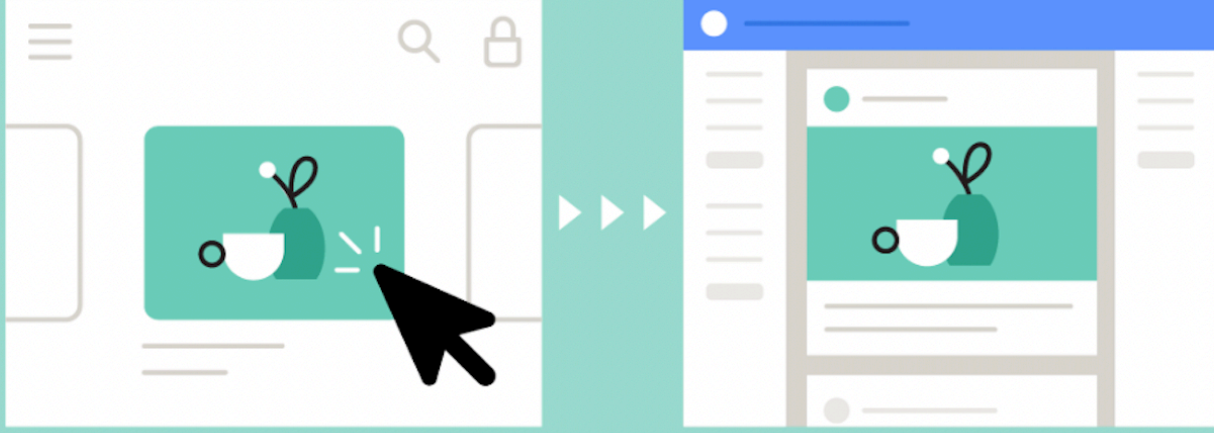
Have to find either:

>> **Data about your activity from partners**

>> **Off-Facebook activity**

### Data about your activity from partners

Personalized ads based on your activity on other websites, apps or offline





To show you more relevant ads, we receive and use data from advertisers and other [partners](#) about your activity on their websites and apps, as well as certain offline interactions with them, such as purchases. For example, if you visit a website off of Facebook Company Products, we may show you an ad based on your activity on that website. We never sell your data.


**You can choose whether we can show you personalized ads based on data about your activity from partners, and you can change your choice at any time.**

Not Allowed ☐

#### What You Should Know


This setting doesn't change the number of ads you'll see. 

This setting controls how certain data is used. 



Where this setting applies: 

Was this section useful?

### Off-Facebook activity







Off-Facebook activity includes information that businesses and organizations share with us about your interactions with them, such as visiting their apps or websites. [Learn more](#)



 **Recent activity**  
theverge.com, indiatimes.com, and more 

#### What you can do

You can control or disconnect the information businesses send to Facebook.

 Explore activity 

 Clear previous activity 

 Disconnect future activity 



# Collected data

**Log data collected via the Chrome extension  
(only while participants were browsing on Facebook)**

clicks

page history

## **Survey data**

perceived usability of existing ad settings on Facebook

perceived usability of augmented ad controls

perception of Meta (Facebook)

demographics

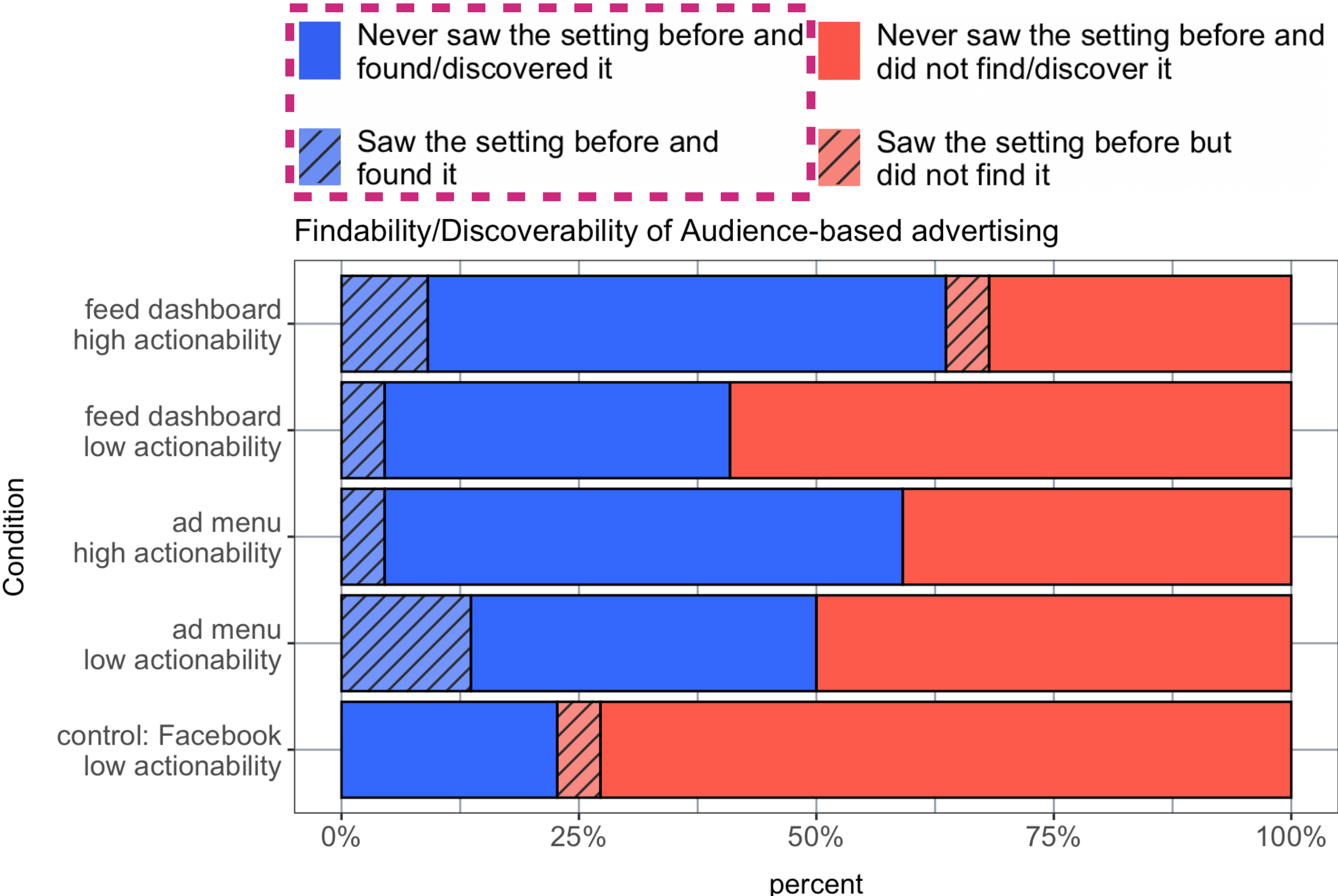


# Findings: Findability of ad settings

Ad controls within ads and at the top of feed, and high actionability, **increased the findability of ad settings.**

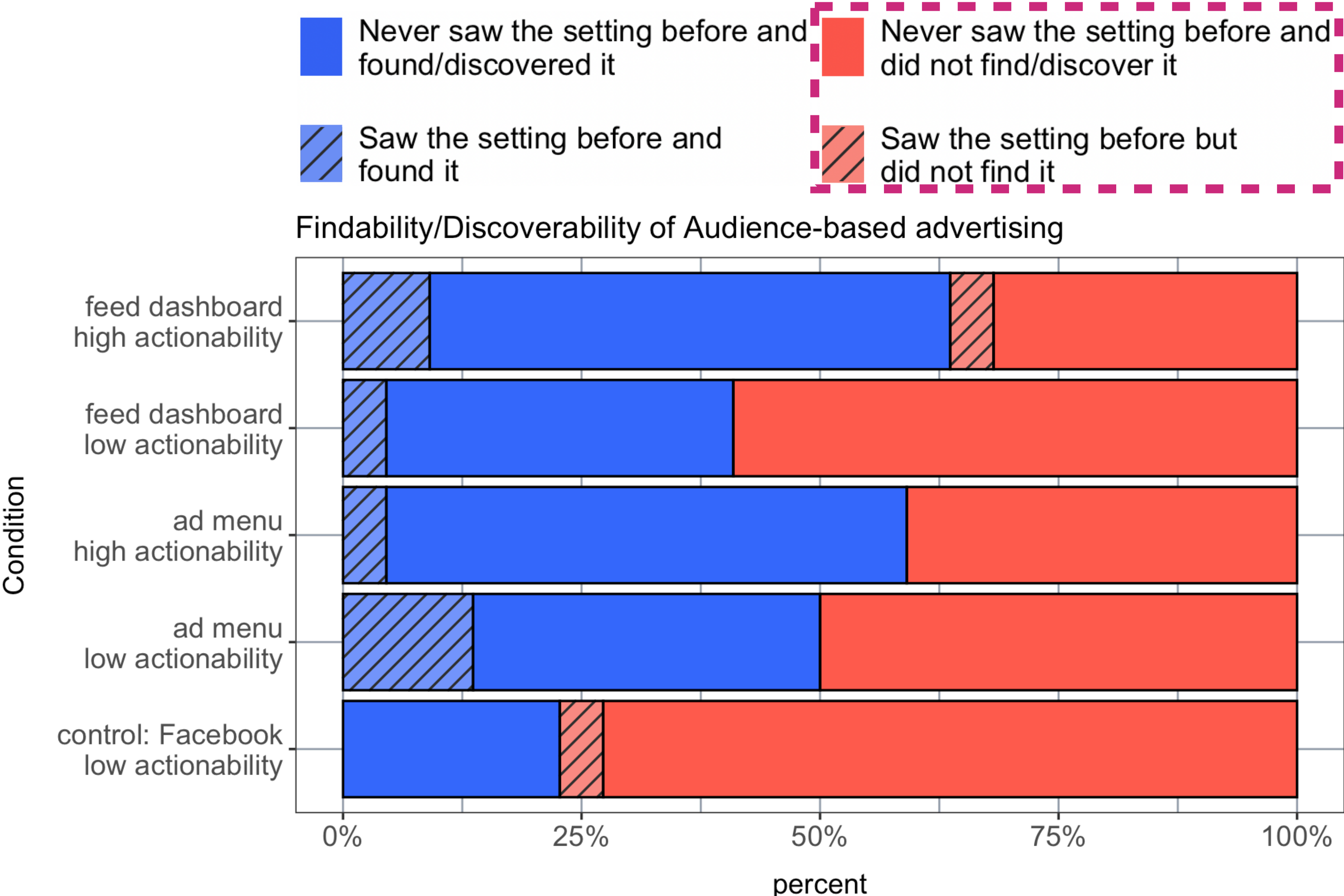


# Findings: Findability of ad settings



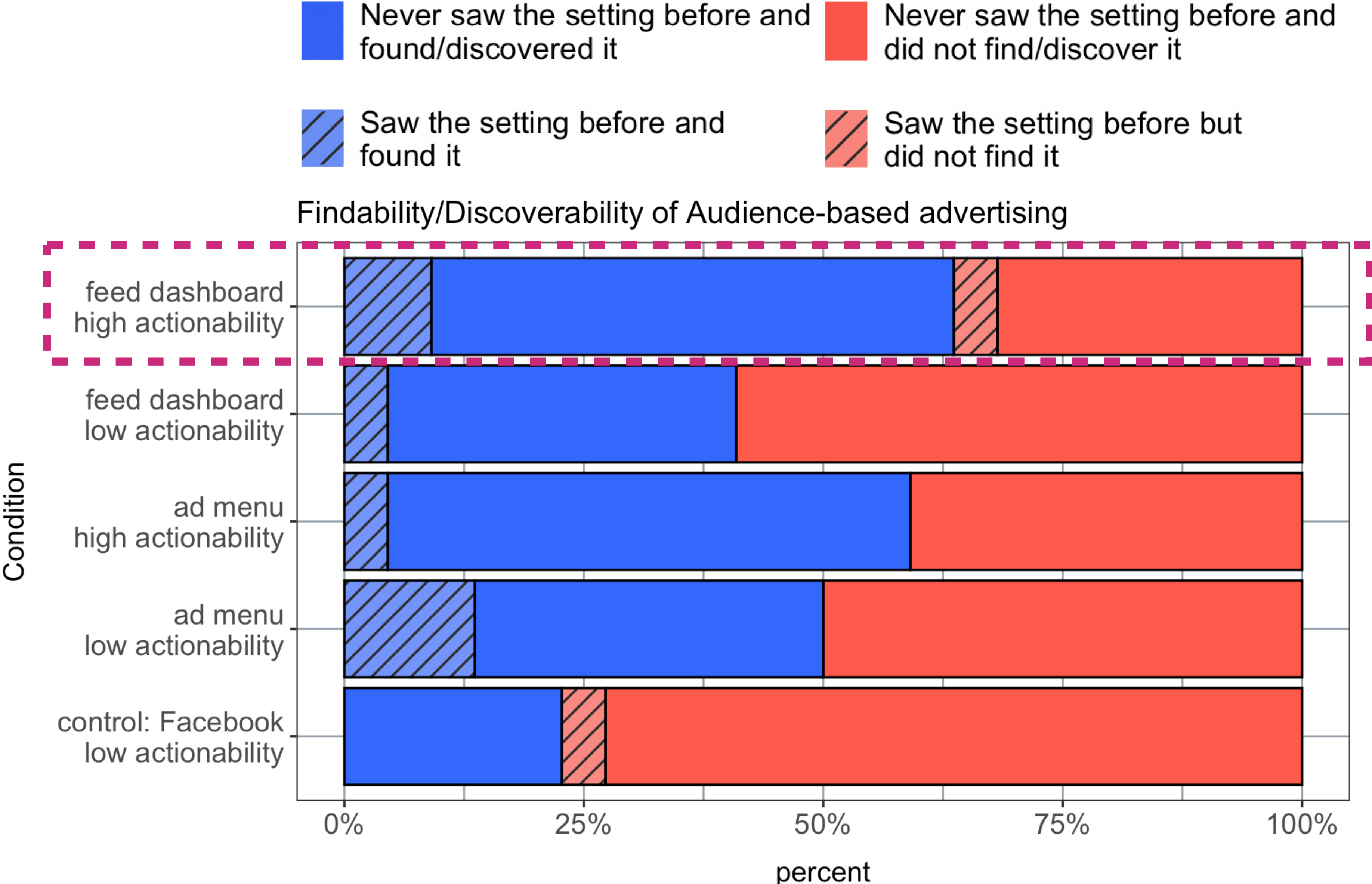


# Findings: Findability of ad settings



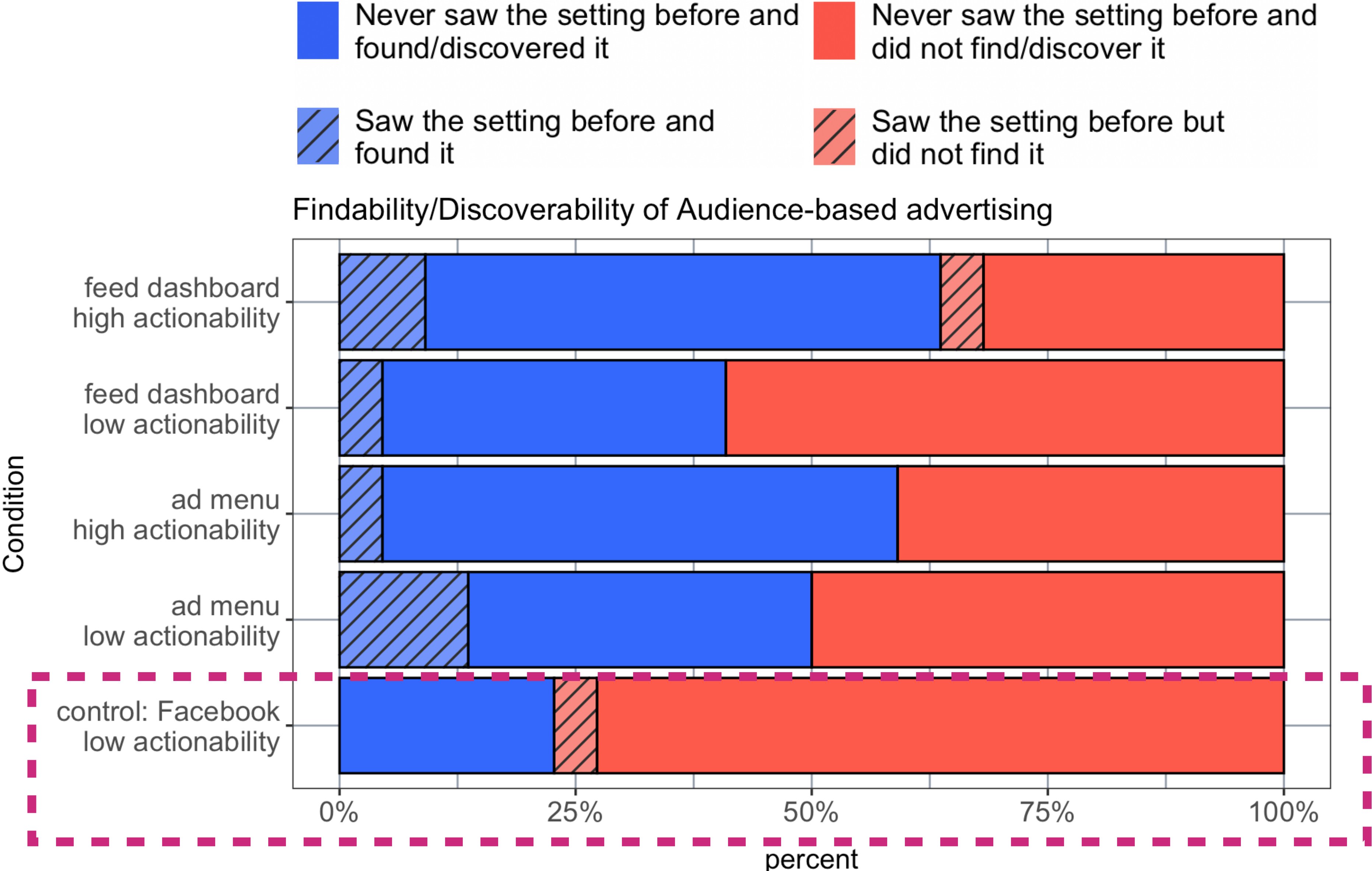


# Findings: Findability of ad settings





# Findings: Findability of ad settings





# Findings: Findability of ad settings

Our designs increased the findability rate of ad controls by as much as **41%** compared to the baseline.



# Findings: Participants' perception of existing Facebook ad settings

Ad controls within ads and at the top of feed, as well as high actionability, both **positively impacted users' perception of existing Facebook ad settings.**



# Findings: Participants' perception of existing Facebook ad settings

I found the interface unnecessarily complex.





# Findings: Participants' perception of existing Facebook ad settings

I found the interface unnecessarily complex.





# Findings: Participants' perception of existing Facebook ad settings

I found the interface unnecessarily complex.





# Findings: Participants' perception of existing Facebook ad settings

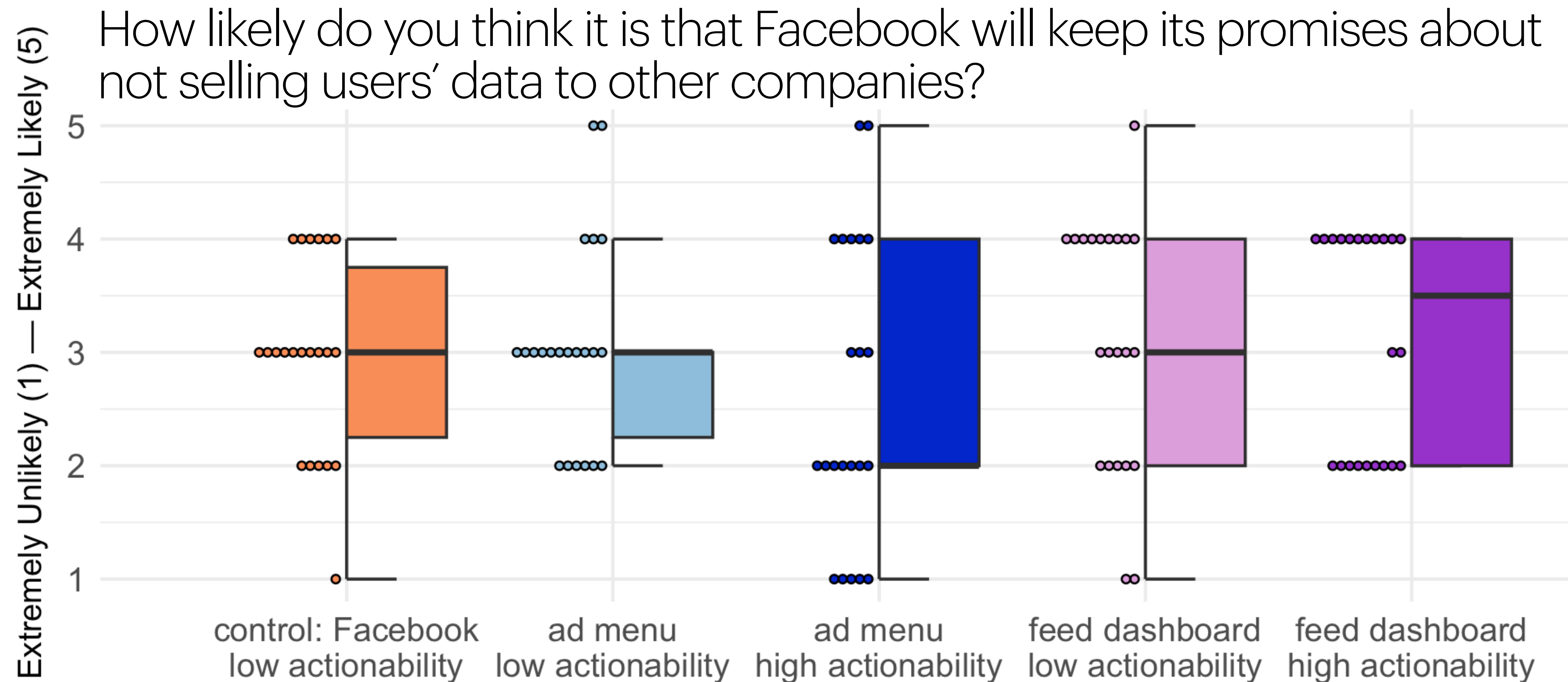
I found the interface unnecessarily complex.





# Findings: Participants' perception of Facebook

Our tests could **not** find that our designs significantly impacted users' perception of Facebook.





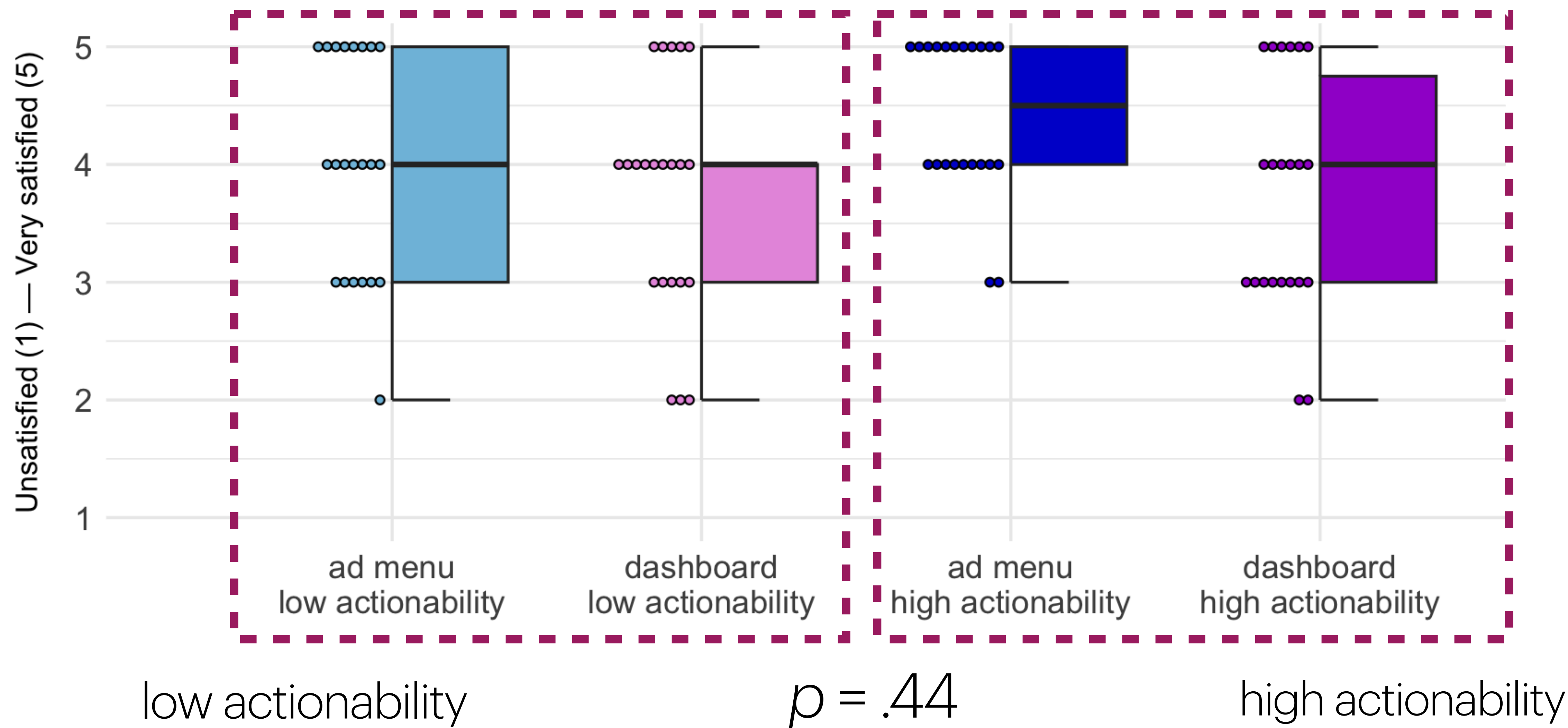
# Findings: Participants' perception of actionability

Participants perceived ad controls with high actionability and low actionability as **usable, with high ratings for both**.



# Findings: Participants' perception of actionability

How do you feel about the new interface overall?





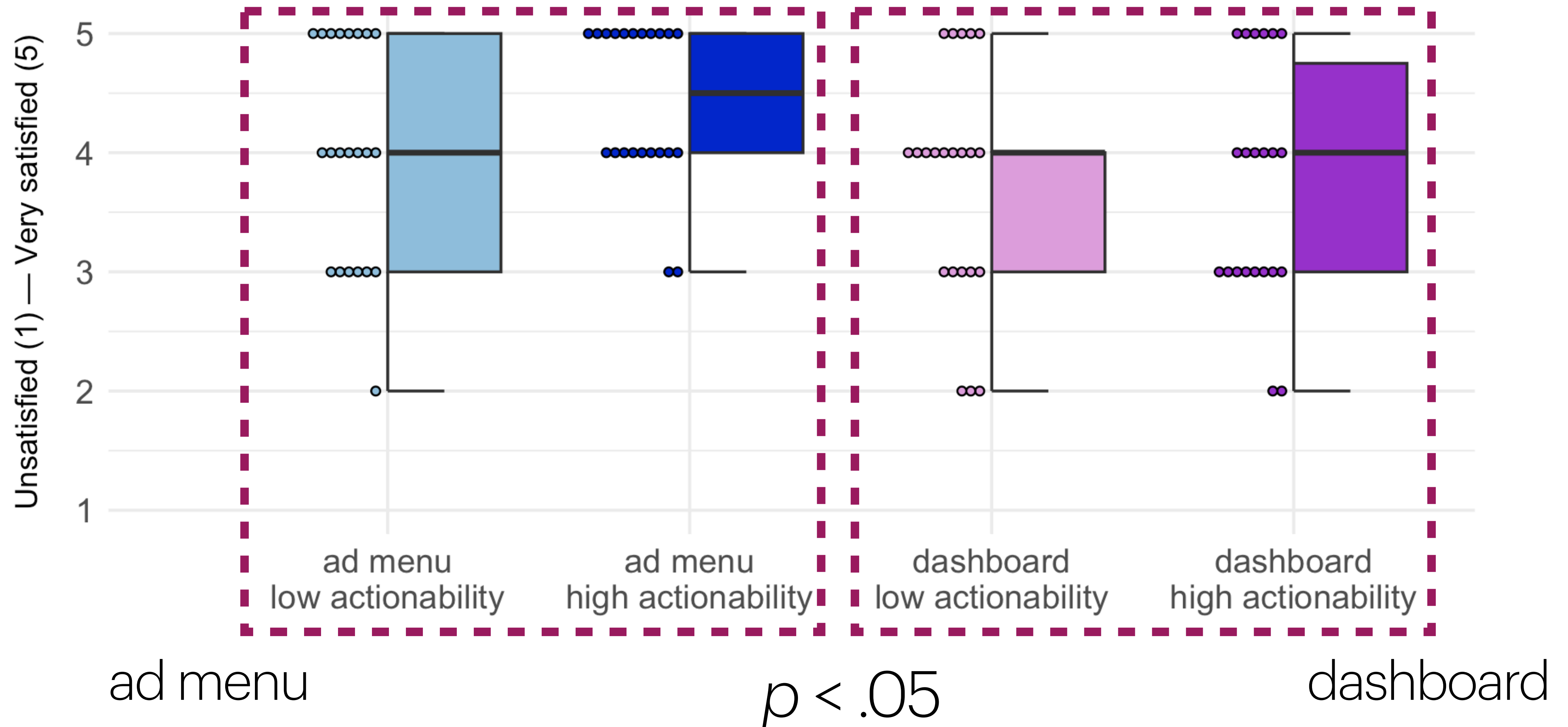
# Findings: Participants' perception of entry points

Participants **preferred the ad menu more** than feed dashboard, although the usability ratings were overall high for both.



# Findings: Participants' perception of entry points

How do you feel about the new interface overall?





# Takeaways

1. Companies **can and should do better** when it comes to making ad settings more usable.
2. Regulators should provide **research-informed requirements** to companies on how to design ad controls.
3. The ad menu **increased the findability** of ad settings and users **also preferred** it more than the feed dashboard.
4. We caution against **designs that hide important functionalities under the guise of being minimalist**.



# Takeaways

1. Companies **can and should do better** when it comes to making ad settings more usable.
2. Regulators should provide **research-informed requirements** to companies on how to design ad controls.
3. The ad menu **increased the findability** of ad settings and users **also preferred** it more than the feed dashboard.
4. We caution against **designs that hide important functionalities under the guise of being minimalist**.



# Takeaways

1. Companies **can and should do better** when it comes to making ad settings more usable.
2. Regulators should provide **research-informed requirements** to companies on how to design ad controls.
3. The ad menu **increased the findability** of ad settings and users **also preferred** it more than the feed dashboard.
4. We caution against **designs that hide important functionalities under the guise of being minimalist**.




# Takeaways

1. Companies **can and should do better** when it comes to making ad settings more usable.
2. Regulators should provide **research-informed requirements** to companies on how to design ad controls.
3. The ad menu **increased the findability** of ad settings and users **also preferred** it more than the feed dashboard.
4. We caution against **designs that hide important functionalities under the guise of being minimalist.**



# Thank you!

Jane Im

 @im\_jane  
imjane@umich.edu

<https://imjane.net/papers/chi23-ad-control-findability.pdf>

 **SCHOOL OF INFORMATION**  
UNIVERSITY OF MICHIGAN

 **EECS** ELECTRICAL ENGINEERING  
AND COMPUTER SCIENCE  
UNIVERSITY OF MICHIGAN

## Takeaways

1. Companies **can and should do better** when it comes to making ad settings more usable.
2. Regulators should provide **research-informed requirements** to companies on how to design ad controls.
3. The ad menu **increased the findability** of ad settings and users **also preferred** it more than the feed dashboard.
4. We caution against **designs that hide important functionalities under the guise of being minimalist**.