

Deciding on Personalized Ads: Nudging Developers About User Privacy

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Why Advertising Networks?

- About 77% of free Android apps contain an ad library
- Massive data collection, including sensitive data like location data
- Some users find personalized ads discomforting, discriminating, and intrusive

“Options” Given to Developers

Restricted data processing

Google AdMob CCPA

You can choose from two options for users that Google determines are in California. If you want to continue to show personalised ads, tell us the partners that you want to monetise your ads with below. By default, data processing isn't restricted and personalised ads will continue to show.

- Don't restrict data processing**
Google continues to show personalised ads to eligible users in California. Personalised ads are based on a user's past behaviour, such as previous visits to sites or apps or where the user has been.

- Restrict data processing**
Google restricts how it uses certain unique identifiers and other data. Google only shows non-personalised ads from Google demand to eligible users in California. Non-personalised ads are based on contextual information, such as the content of your site or app.

Select the type of ads that you want to show

Google AdMob GDPR

You can choose from two ad serving options. If you don't make any changes, personalised ads will continue to show for EEA and UK users. Your selection will not affect mediation.

- Personalised ads** ⓘ
Google can show personalised ads to your users in the EEA and the UK.

- Non-personalised ads** ⓘ
Google will show only non-personalised ads to your users in the EEA and the UK.

Research Questions

How does choice framing in ad networks impact developers' decisions about ad personalization?

What are the reasons behind developers' choices of personalized or non-personalized ads?

Impact of (Nudges)

- An online between development experience
- Six conditions, v descriptions
- Other questions and what regula
- Analysis: quantit

Imagine that you are a shareholder in a software development company. Together with a small team, you created a app. The app will be published in Europe and the United States and is mainly targeted towards adults (above age of 18).

To monetise the app, you have decided to use the "Acme" ad network to show ads to your users.

The Acme ad network offers a step-by-step Assistant – a graphical user interface that provides various configuration choices for integrating ads into your app.

The Assistant asks the developer several questions and then provides ad network configuration code based on the answers that can be imported directly into an app with minimal additional coding required.

The following are the 5 questions asked by Acme's Assistant, please answer them as if you were developing the app.

Which ad formats are you integrating?

- Interstitial: full-page ads appear at natural breaks & transitions, such as level completion. Supports video content.
- Rewarded Video: ads reward users for watching short videos and interacting with playable ads and surveys. Good for monetising free-to-play users. Supports video content.
- Banner: A basic ad format that appears at the top & bottom of the device screen.
- Native: customisable ad format that matches the look & feel of your app. Ads appear inline with app content. Supports video content.

What level of graphics do you want for your ads?

- Ads with moderate to low graphics quality. These ads will work on most phones.
- Ads with highest graphics quality. These ads will work best on newer phones with the latest operating systems.

Which platform are you integrating Acme ad network on?

- iOS
- Unity
- Windows Phone
- Android

Select the type of ads that you want to show.

- Non-personalised ads: Acme will show only non-personalised ads to your users.
- Personalised ads: Acme can show personalised ads to your users.

Which of the following regulations apply to this app?

- COPPA (Children's Online Privacy Protection Act)
- CCPA (California Consumer Privacy Act)
- GDPR (General Data Protection Regulation)
- HIPAA (Health Insurance Portability and Accountability Act)
- I don't know
- None of the above

Framing ions

h mobile app

venue, and user facing

d, quality of graphics,

Six Conditions

Control–Minimal Information

- Personalized ads
- Non-personalized ads

Data Processing Restrictions

- Ads with unrestricted data processing
- Ads with restricted data processing

User-Facing Descriptions

- “Personalized ads” tag will be displayed to users
- “Non-personalized ads” tag will be displayed to users

Privacy Focused

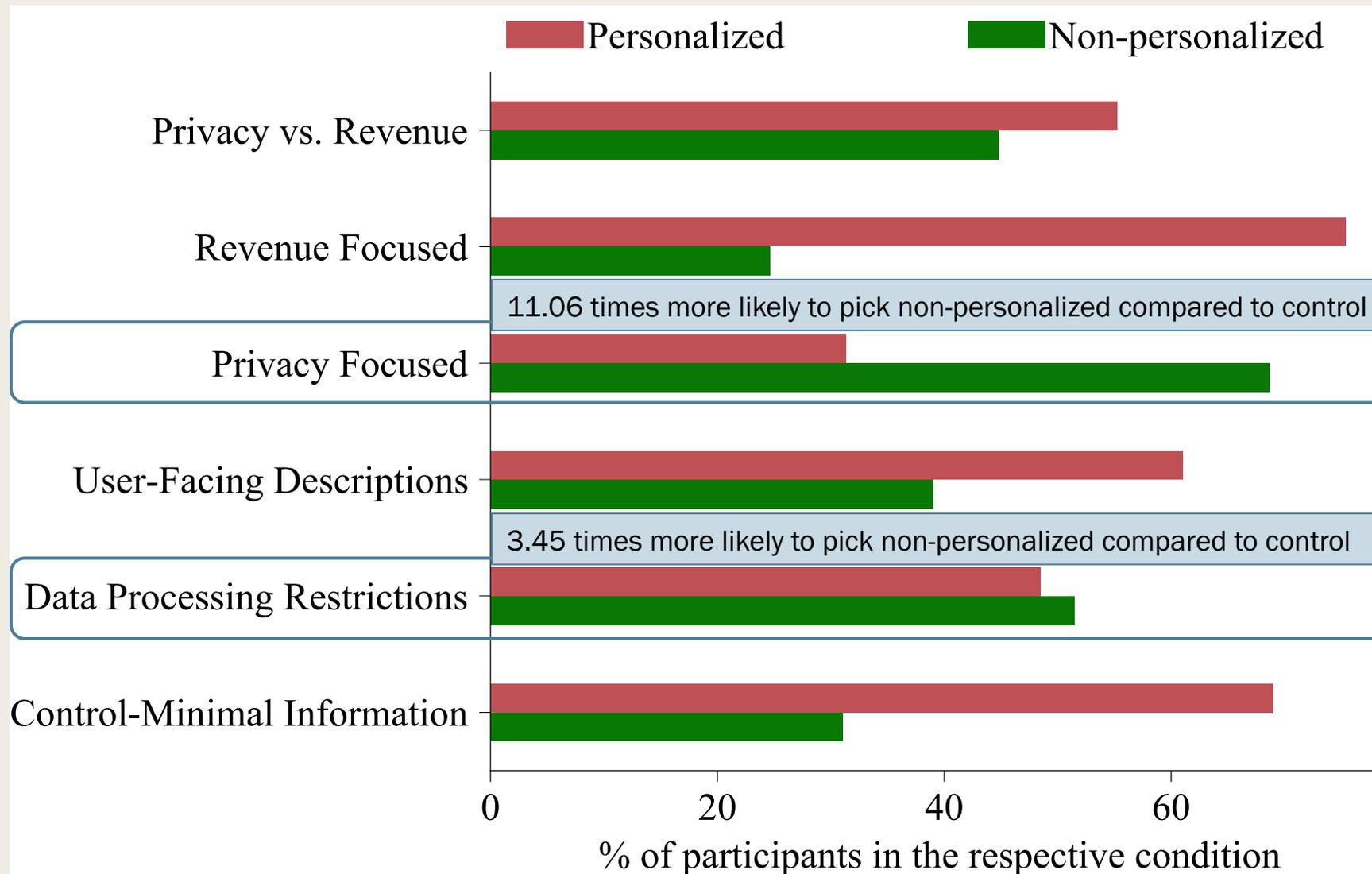
- Ads with lower user privacy
- Ads with higher user privacy

Revenue Focused

- Ads with higher revenue
- Ads with lower revenue

Privacy vs Revenue

- Ads with higher revenue
- Ads with higher user privacy



Final Thoughts

- Framing of “options” given to developers have an impact on developers’ decisions, and consequently their users’ privacy
- Minimizing the use of dark patterns directed to developers
- Transparent and honest interfaces are needed

Thank you!

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