

# User Comfort with Android Resource Accesses in Different Contexts

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## Hypotheses

How do differences in resource access contexts affect user comfort?

**H1.** The provided reason for resource access affects participants' comfort levels. (why)

**H2.** Users are more comfortable if given a reason for background use.

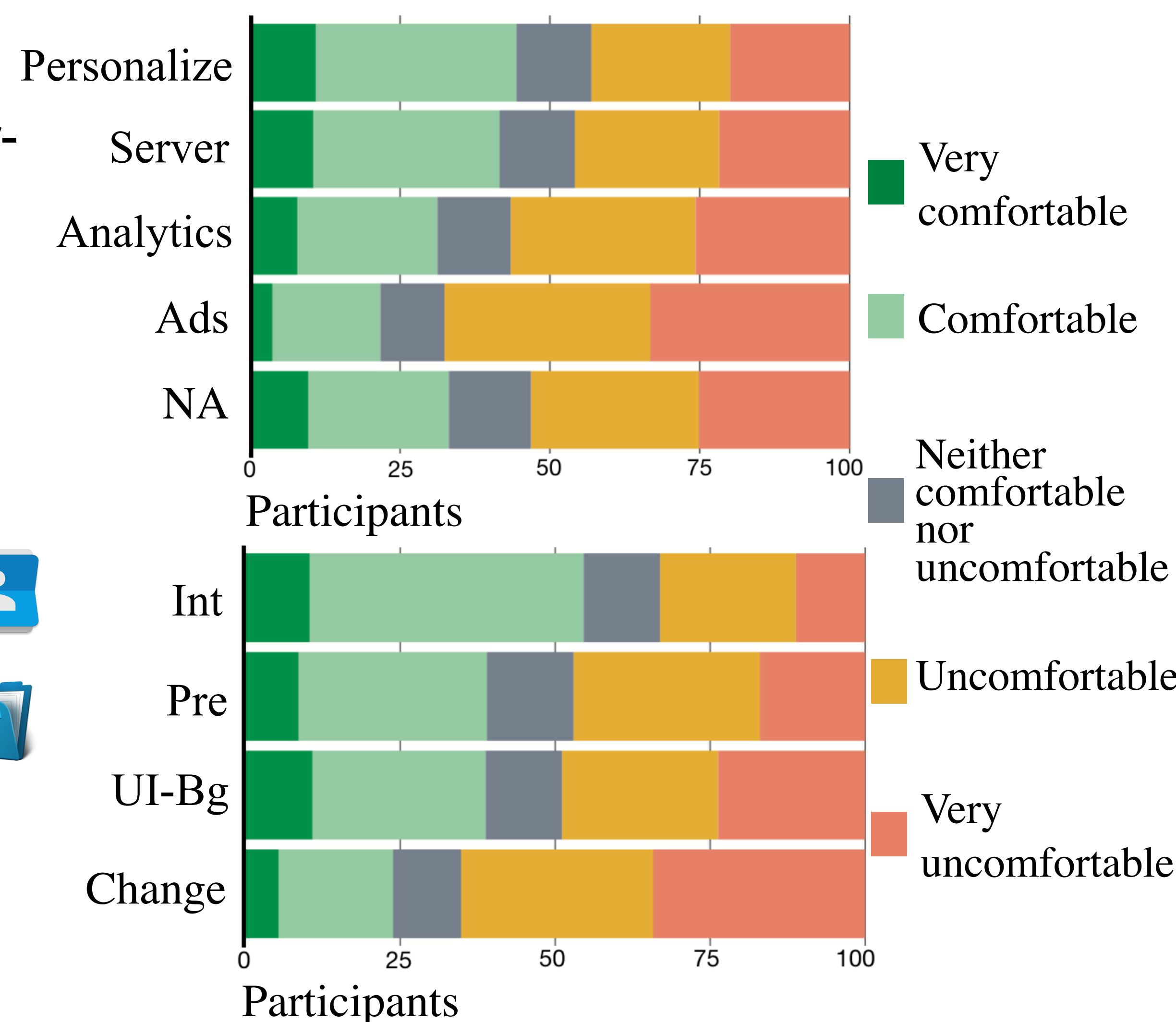
**H3.** Users have different comfort levels when resource accesses are triggered by different events. (when)

## Background

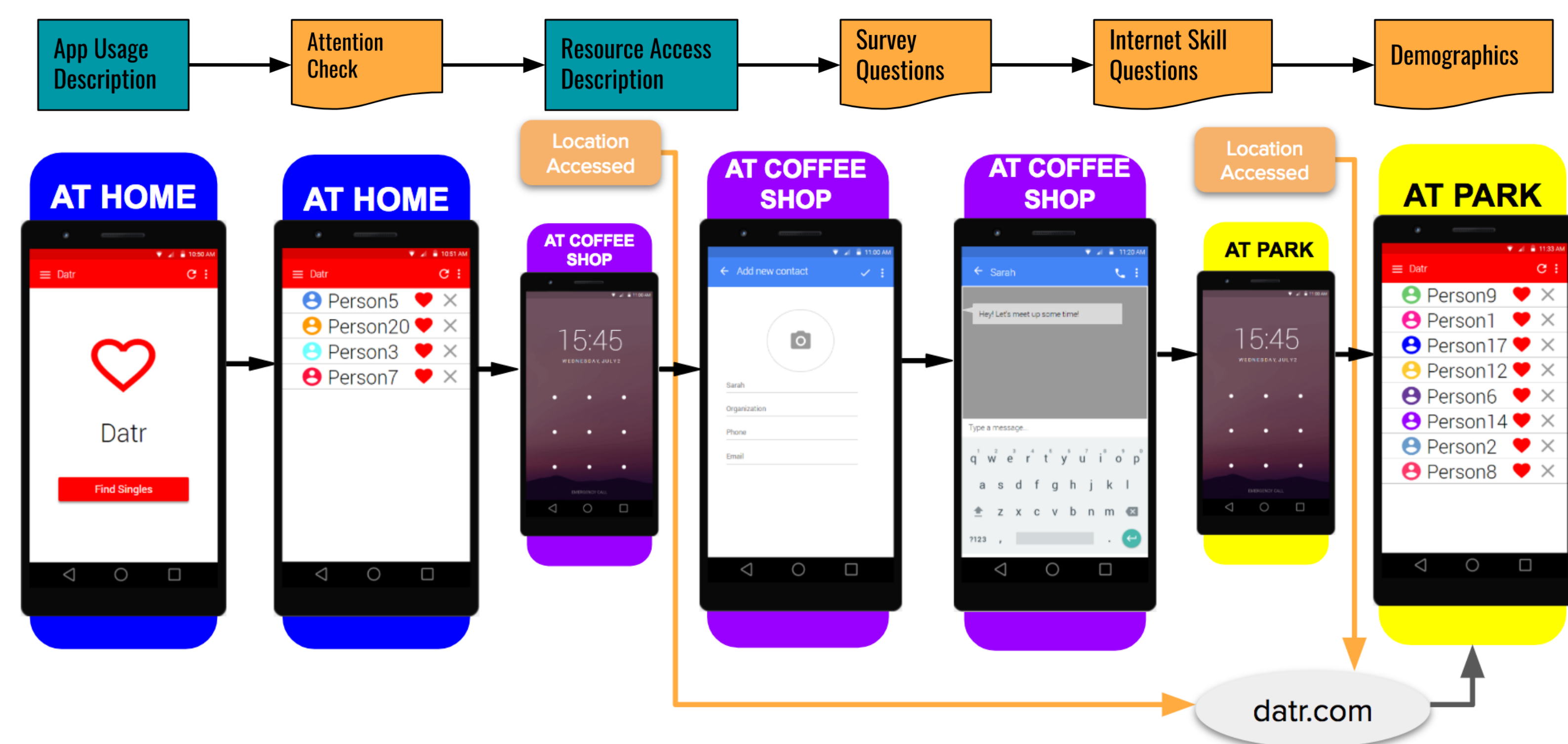
Android controls sensitive data with user-granted permissions. Prior work has considered aspects of context in isolation.



## Results



## User Study



**H1.** Users were less comfortable when data was shared with a third party (*Analytics, Ads*)

**H2.** Users were less comfortable when given no reason, despite generally assuming the least invasive case (*Personalize*)

**H3.** Users were least comfortable with accesses when the app was off-screen (*Change*), but also uncomfortable when the access was not obvious from the interaction (*Pre, UI-Bg*)

## Recommendations

1. Inform users when the same resource is used in different contexts.
2. Users assume the less invasive case when no purpose is given; incentivize apps to give meaningful explanations.
3. Users care where their data goes, underscoring the importance of tools that analyze and track data flow in android apps.

2,198-participant (MTurk) between-subject vignette study. Participants were shown one of 52 different combinations of App, Resource, When, and Why.

First shown a use of the app, then revealed the resource accesses that occurred during the use.

Asked participants how comfortable they are with the scenario and how likely they are to recommend the app to a friend or family member.