# Smartphone App Privacy Icon Study Conducted for LifeLock, Inc.

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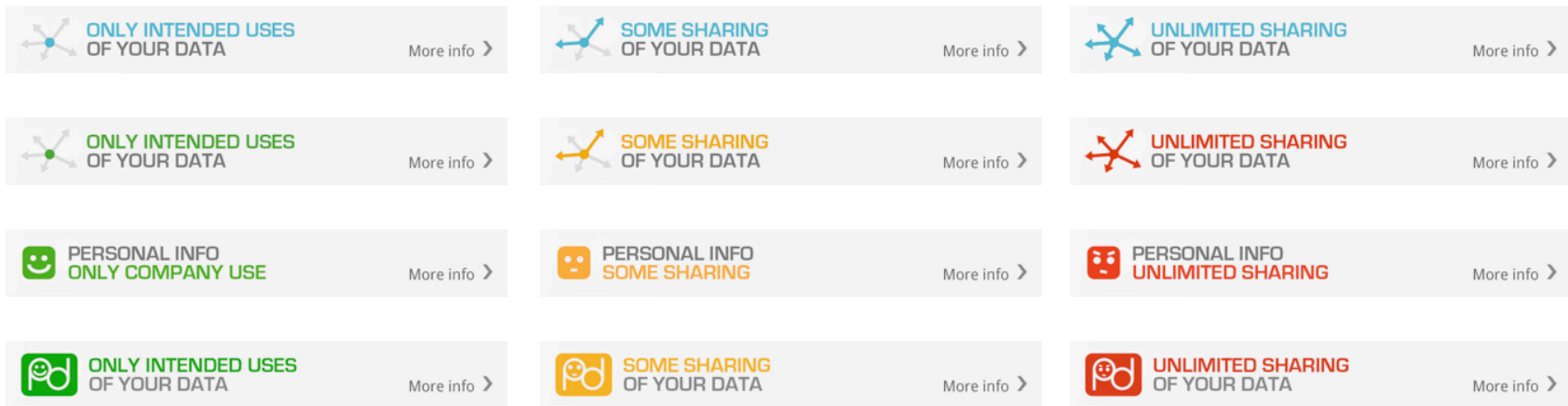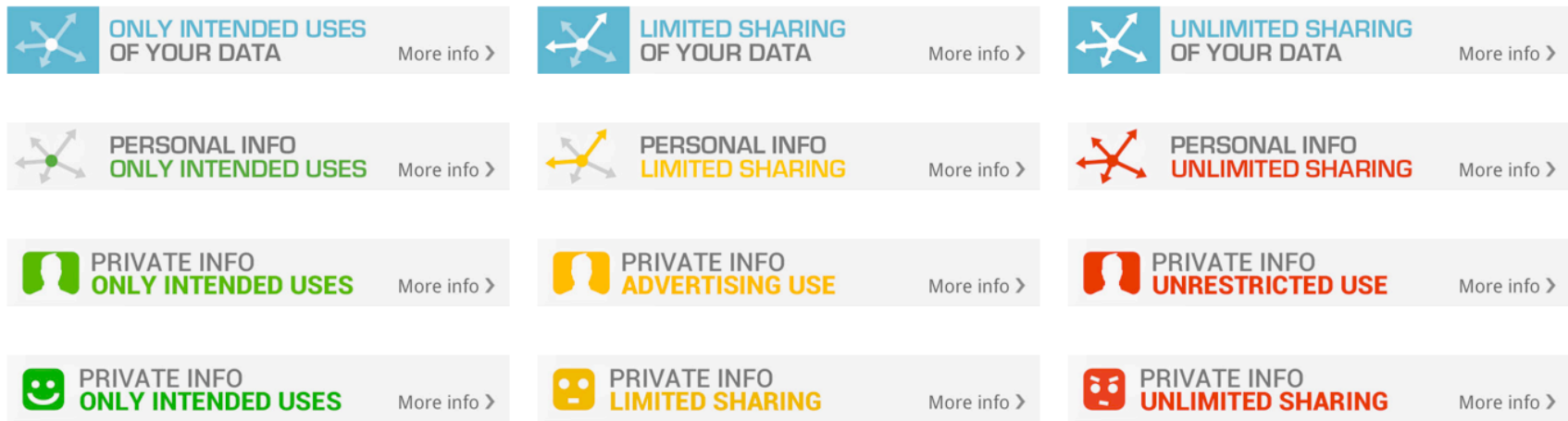
April 4, 2013

# Rapid turn-around study

- Can a single icon and tagline linked to more detailed information effectively inform users about app data use?

  – Our focus was on testing the icon and tagline, not the linked information

- 2 exploratory focus groups

  – 5 Android users from the Pittsburgh area in each group

  – Participants discussed screenshots of Android screens with various icons and taglines

- Online study

  – 895 Android users recruited on Mechanical Turk

  – Each participant shown Android screens with one set of icons and taglines

  – Participants asked to choose apps for a friend

  – Measured impact of icons and taglines on app selection decisions

  – Collected additional data through exit survey

**A set of screenshots used in focus groups. Each phone shows a different word game app-installation screen with an accompanying data sharing icon.**

| ONLY INTENDED USES OF YOUR DATA | More info › | SOME SHARING OF YOUR DATA | More info › | UNLIMITED SHARING OF YOUR DATA | More info › |
| ONLY INTENDED USES OF YOUR DATA | More info › | SOME SHARING OF YOUR DATA | More info › | UNLIMITED SHARING OF YOUR DATA | More info › |
| PERSONAL INFO ONLY COMPANY USE | More info › | PERSONAL INFO SOME SHARING | More info › | PERSONAL INFO UNLIMITED SHARING | More info › |
| ONLY INTENDED USES OF YOUR DATA | More info › | SOME SHARING OF YOUR DATA | More info › | UNLIMITED SHARING OF YOUR DATA | More info › |

**The four sets of icons and taglines tested in the first focus group**

| ONLY INTENDED USES OF YOUR DATA | More info › | LIMITED SHARING OF YOUR DATA | More info › | UNLIMITED SHARING OF YOUR DATA | More info › |
| PERSONAL INFO ONLY INTENDED USES | More info › | PERSONAL INFO LIMITED SHARING | More info › | PERSONAL INFO UNLIMITED SHARING | More info › |
| PRIVATE INFO ONLY INTENDED USES | More info › | PRIVATE INFO ADVERTISING USE | More info › | PRIVATE INFO UNRESTRICTED USE | More info › |
| PRIVATE INFO ONLY INTENDED USES | More info › | PRIVATE INFO LIMITED SHARING | More info › | PRIVATE INFO UNLIMITED SHARING | More info › |

**The four sets of icons and taglines tested in the second focus group**

# Focus group main findings

- Icons and taglines need to be visually distinctive to be noticed on Android app installation screens

- Traffic-light colors preferred to all-blue icons

- Distinct icons for each level of data sharing preferred to the same icon in varying colors

- Both arrow symbols and smiley icons understood by some participants

- "Personal info" seemed to better convey the meaning of the icons than "private info" or "your data"

- More concrete terms such as "advertising use" preferred, but *More info* could help explain vague terms

- Participants understood the use of the *More info* button and said they would likely click on it for details
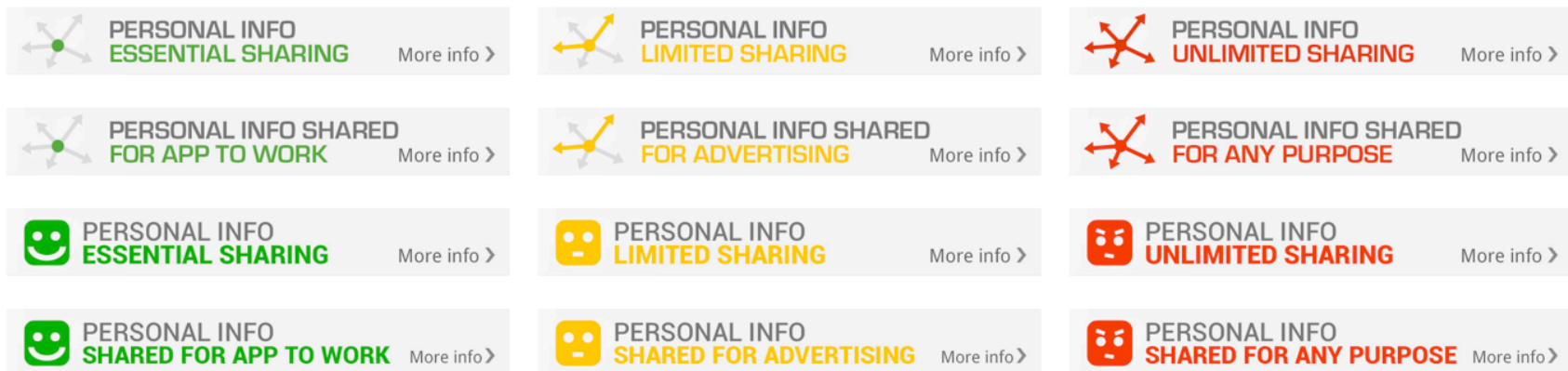
**The four sets of icons and taglines tested in the online study**

**APP TITLE**

**SCREENSHOTS**

**RATINGS**

**DOWNLOADS**

**STORAGE SPACE**

**INFO HANDLING**

**DESCRIPTION**

**REVIEWS**

Screenshot of app-installation screen. This screen or a similar one (adjusted for the icons shown in each condition) was shown to most participants before they began the app selection tasks.

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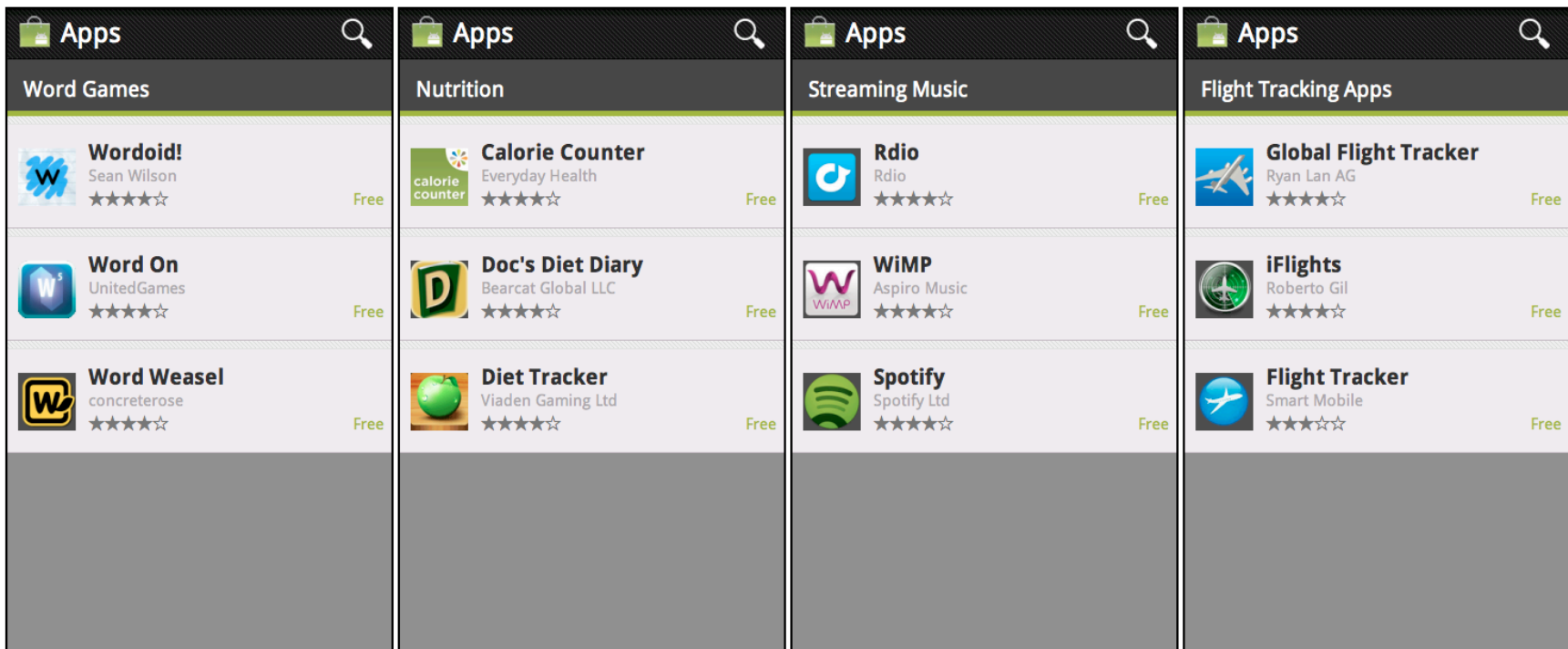
**The lists of apps presented in the four app selection tasks used in the online study.**

# Online study main findings

- Icons and taglines can impact app selection decisions

- Emoticons were more effective than the arrow icons
  - Participants shown taglines with emoticons, made significantly different app selections than those not shown icons or taglines
  - Participants shown emoticons were more likely to mention keywords related to personal info, privacy, or sharing than participants shown arrow icons or no icons

- Participants made different app selection decisions depending on the accompanying taglines

- The effect of the icons was reduced when one of the apps under consideration was a well-known brand

- Icons most useful in attracting attention to the taglines, less helpful for improving understanding

# Conclusions

- Displaying single icon and tagline on app-installation screens to describe information sharing is a promising approach to alerting users and enabling them to make informed decisions

  - Important for icon to stand out on app installation screen
  - Important to link icon to more detailed information

- Further work needed to refine designs and wording

- Further work needed to compare this approach with other proposed approaches