

How Short is Too Short?

Implications of Length and Framing on the Effectiveness of Privacy Notices

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**Societal
Computing**



Motivation

- More User Friendly
- Less Legalistic
- Shorter
- 1,300 Words
- 6,500 Characters
- Still Very Long

Addressing this Problem

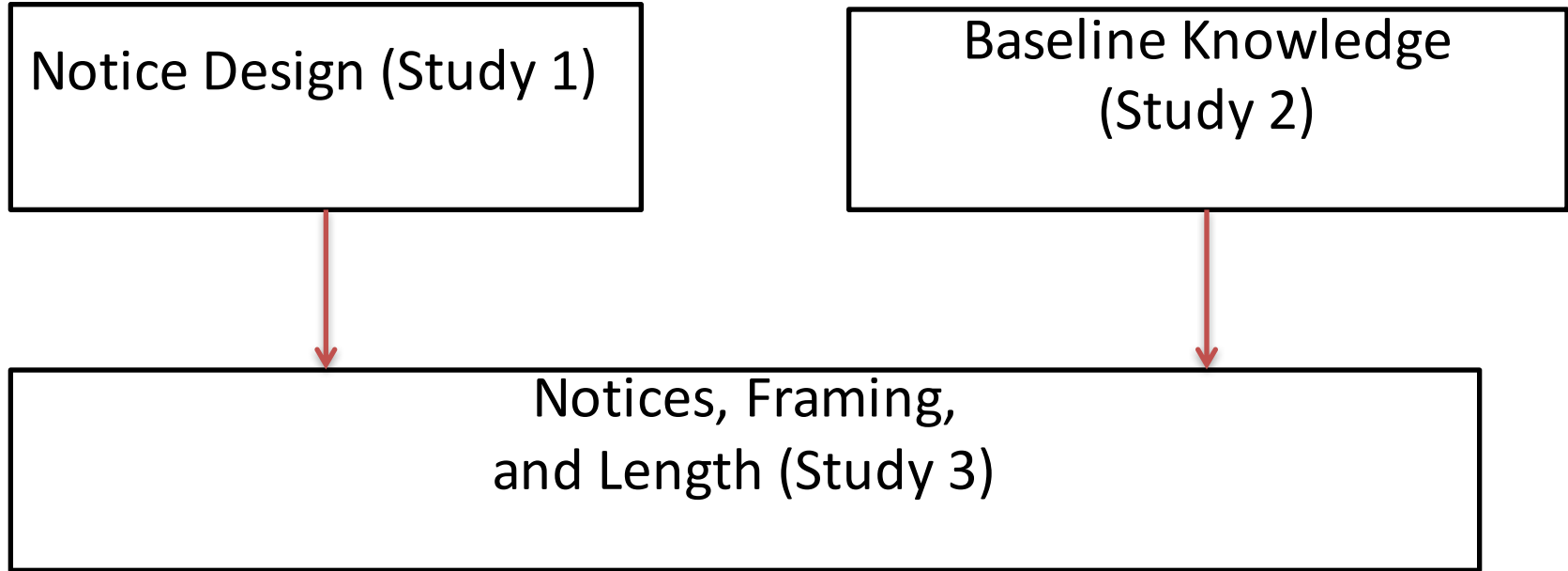
- Short form privacy notices
 - Layered notices (Ben-Shahar 2014)(McDonald 2008)
 - Timing of the notice (Balebako 2015)(Almuhimedi 2015)
 - Format of the notice (Levy 2008)(Earp 2004)
- Framing
 - Providing reasons and consequences can affect concern (Tan 2014)(Shih 2015)
- Proposals to focus on unexpected practices (FTC:IOT 2015)(Ayers 2014)
- Our goal is to test these proposals

Research Questions

- Does removing unsurprising practices from privacy notices lead to higher overall awareness of privacy practices?
- Does framing practices in positive or negative ways lead to higher or lower overall awareness of privacy practices?
- Does showing a short-form privacy notice increase awareness of Fitness wearable privacy practices?

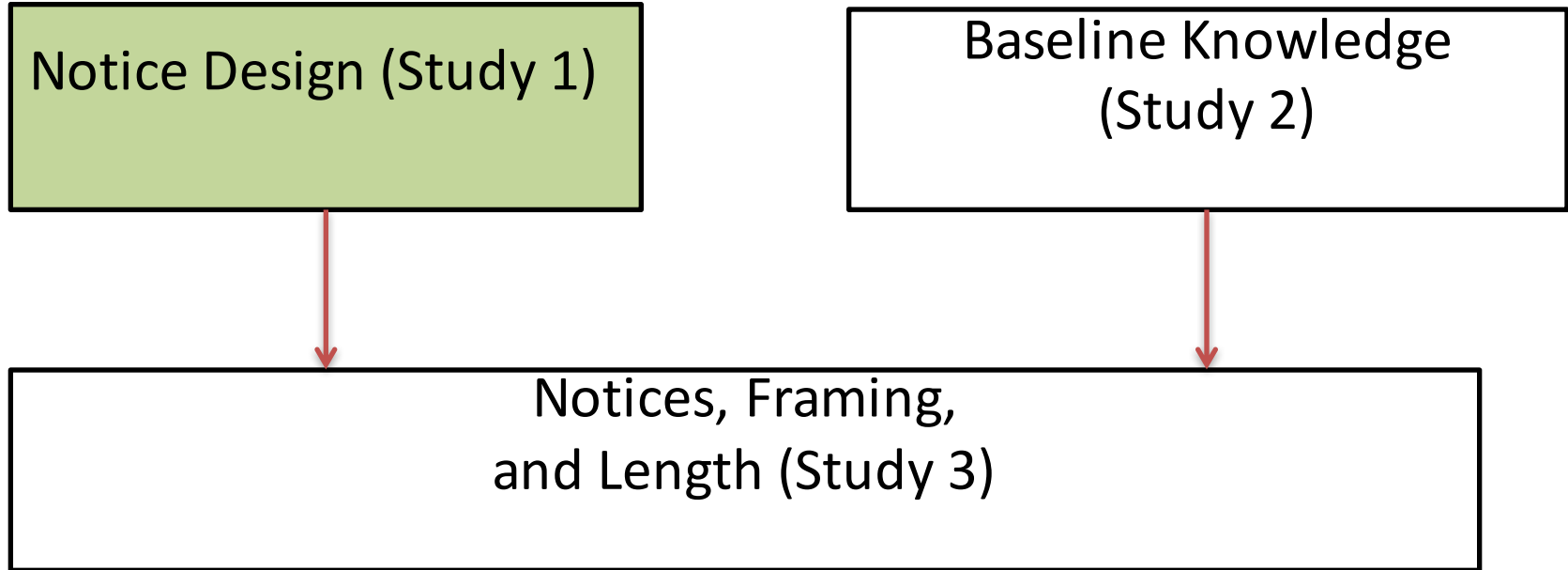
Methodology

Three Stage Mturk Study



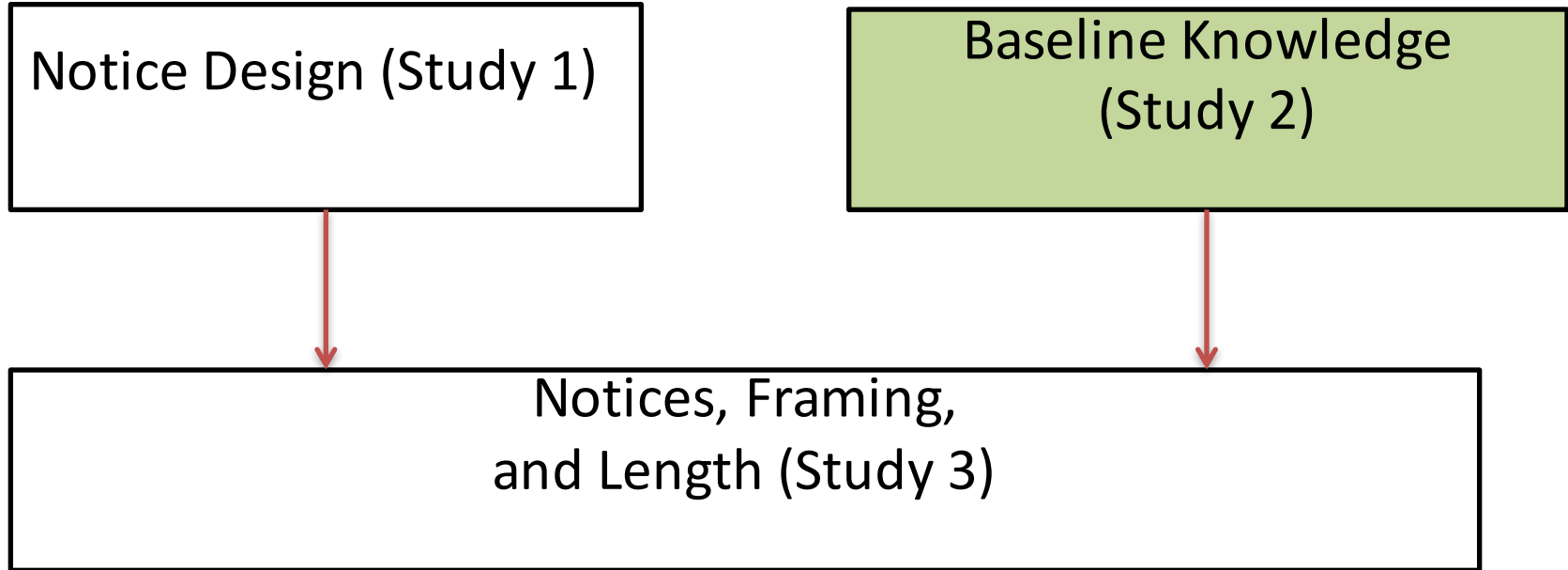
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Methodology

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Question
Collection:
Steps
Distance
Info Posted to Profile
.
.
.
Height
Location Specific
Share With
Fitbit Friends
Companies Providing Services
Directed Organizations
Government
Misc.
Where to Find Privacy Policy
Use Fitbit Without an Account
Selling Data Conditions
Data Retention Policy

Baseline Knowledge (Study 2)

- What are preconceptions of privacy practices

Collection Practices Questions

12. Imagine you are using a Fitbit Surge, which of the following types of information do you think Fitbit would collect about you? *

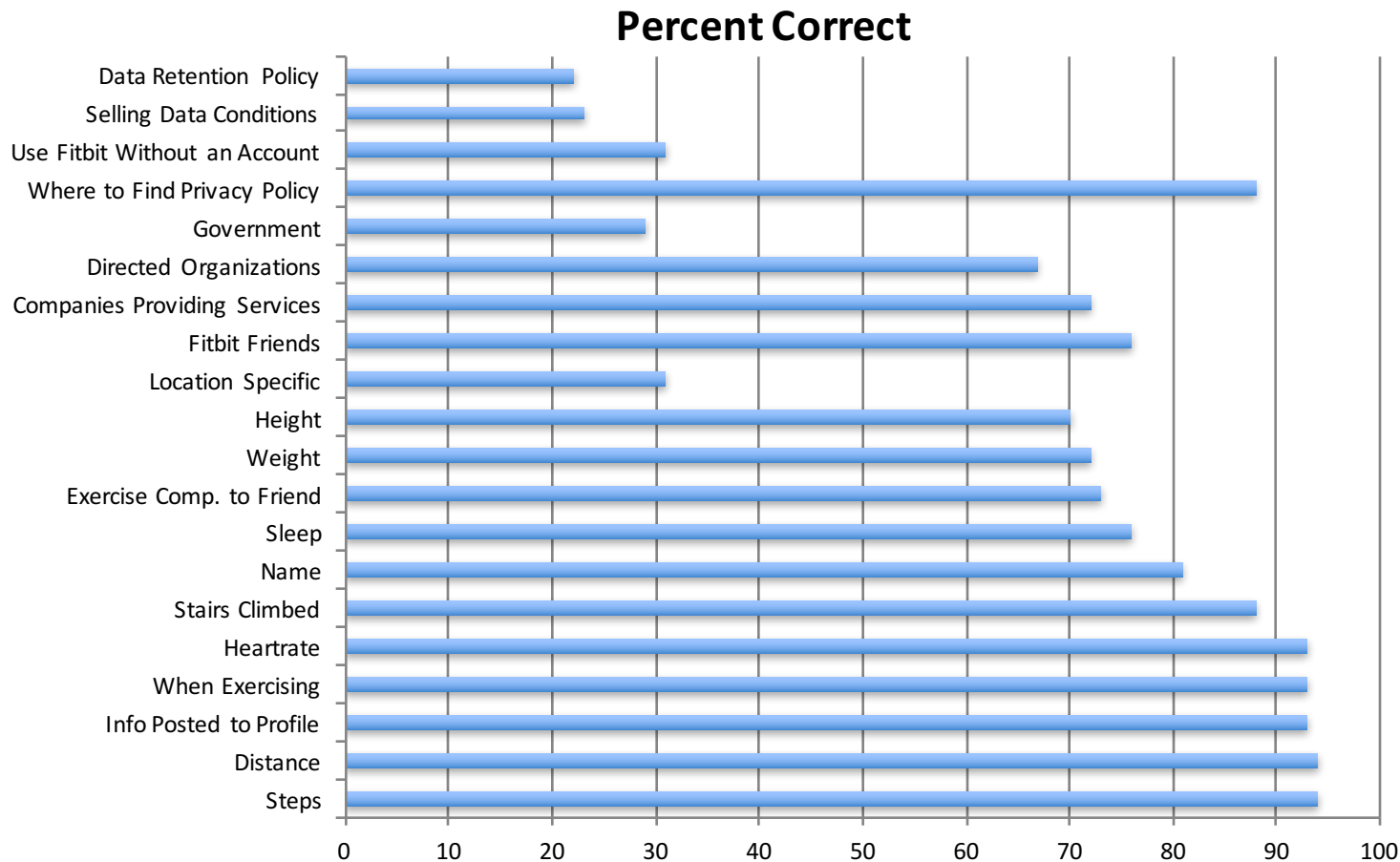
	Definitely Collects	Probably Collects	Might Collect	Might not Collect	Probably Does not Collect	Definitely Does not Collect	I'm Unsure
Your perspiration rate	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your mood	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your altitude	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your shoe size	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How many steps you've taken	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
How far you've walked	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Information you've posted to your Fitbit profile	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
Your name	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
A list of your Facebook friends	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>

Complex Practice Question

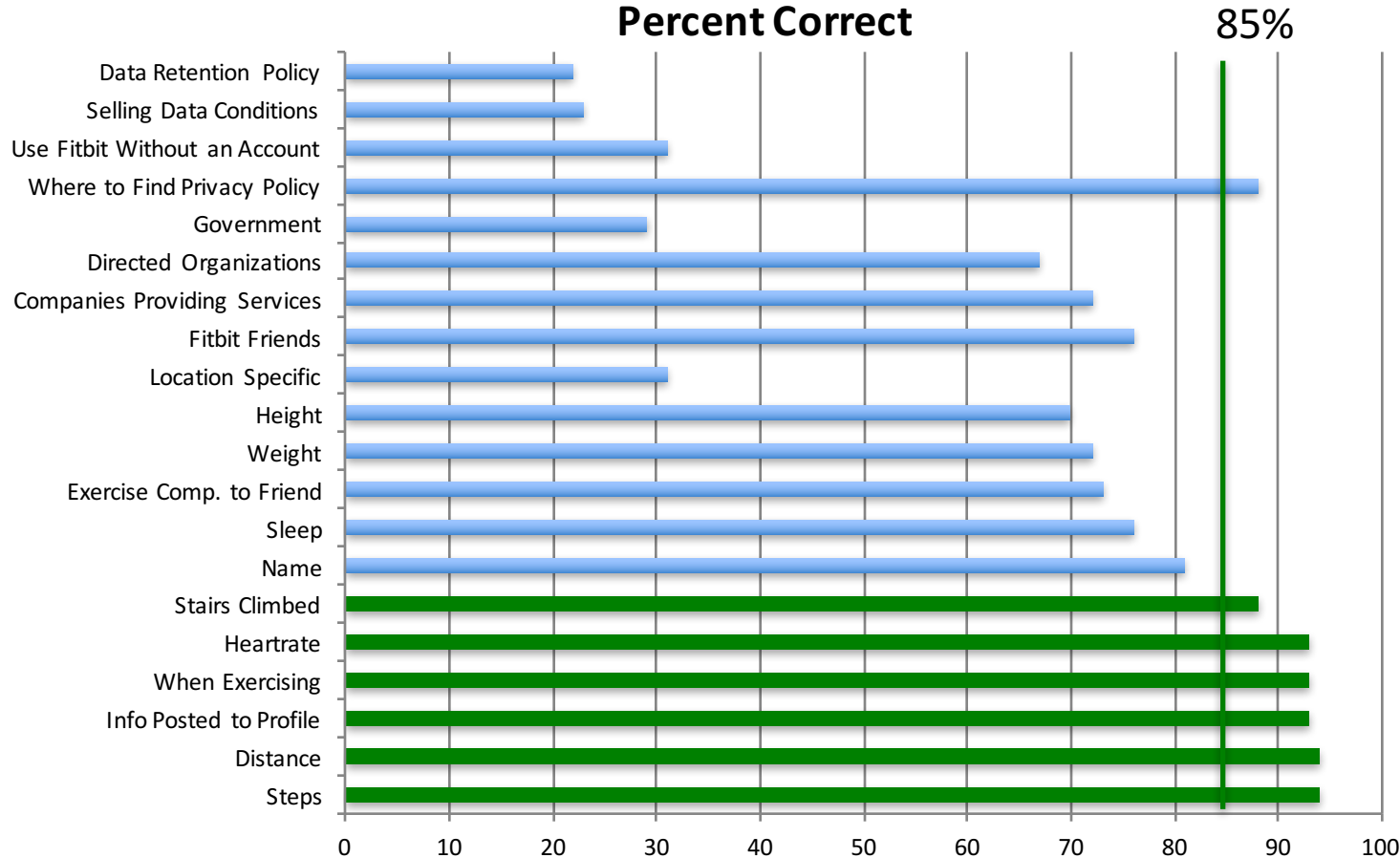
26. Do you think you can use a Fitbit device without having a Fitbit account? *

- ☐ Yes and the device will function the same way as with an account
- ☐ Yes, but only basic functions will work, such as distance, heartrate and step count.
- ☐ Yes, but without an account to maintain calibration data, it won't count steps correctly
- ☐ No. The Fitbit device won't function if it's not connected to an account
- ☐ None of the above
- ☐ I don't know

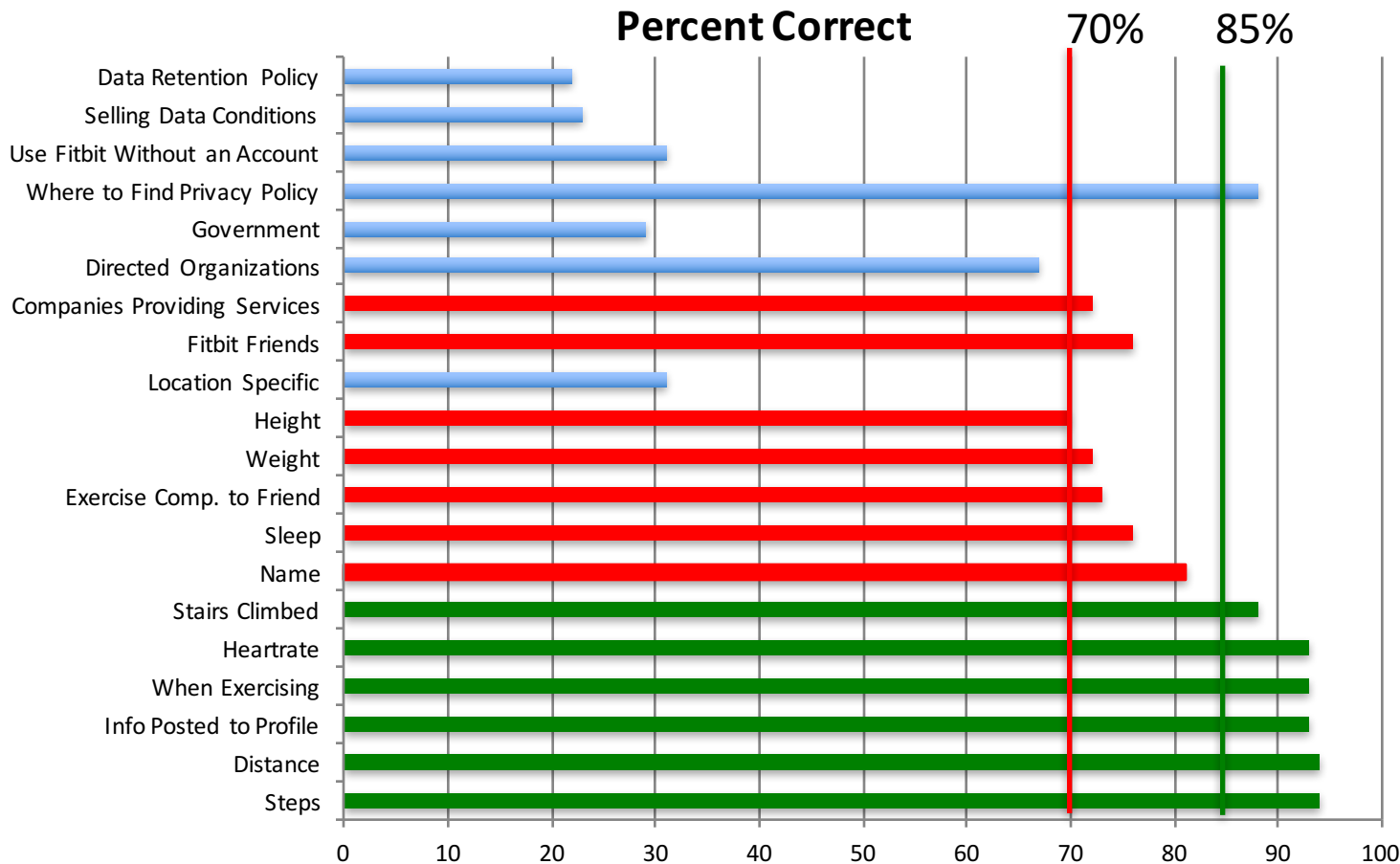
Baseline Knowledge Results



Practices Removed from Medium Notice



Policies Removed from Shortest



Long

With an account, Fitbit will collect:

- * Your **location**, when location features, such as maps, are active
- * Your **name, height, and weight**
- * Your **steps, distance and stairs climbed**
- * When and how long you **exercise**
- * When and how long you **sleep**
- * Your **heart rate** throughout the day
- * Exercise **compared with Friends**
- * **Information posted** to your profile



You can track your heart rate, distance and step count with your Fitbit, without needing an account.

Find further collection practices at [Fitbit.com/privacy](https://www.fitbit.com/privacy)

With whom do we share data?

- * **Government Entities**
- * **Companies** providing services to Fitbit
- * **Organizations** you specifically direct Fitbit to share data with (e.g. Facebook)
- * **Fitbit friends** you've listed (opt-out of sharing with friends in your profile settings)



Fitbit may share or sell aggregated information that does not identify you.

It is sometimes possible to identify an individual from de-identified data.

Find further sharing practices at [Fitbit.com/privacy](https://www.fitbit.com/privacy)

How long do we keep your data?

- * Personal Information, such as your address, is removed **when you delete your fitbit account.**
- * Sensor Information that cannot identify you, such as fitness data, is **kept indefinitely**



Until you delete your Fitbit account, anything you've ever posted will be kept by Fitbit, regardless of deleting your profile.

Full Fitbit Privacy Policy:
www.fitbit.com/privacy

Length Medium

With an account, Fitbit will collect:

- * Your **location**, when location features, such as maps, are active
- * Your **name, height, and weight**
- * When and how long you **sleep**
- * Exercise compared with Friends



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Short

With an account, Fitbit will collect:

- * Your **location**, when location features, such as maps, are active



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More Information

With an account, Fitbit will collect:

- * Your **location**, when location features, such as maps, are active



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Positive and Negative Framing

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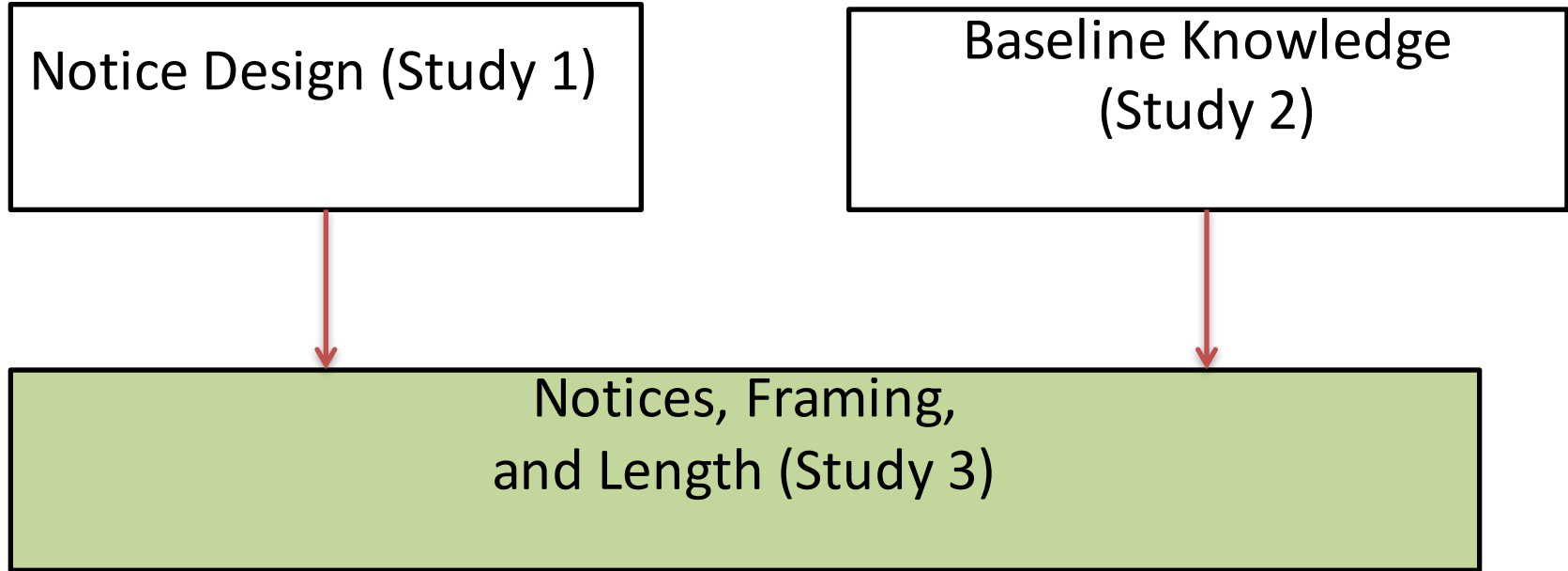
Fitbit may share or sell aggregated information that does not identify you.

It is sometimes possible to identify an individual from de-identified data.

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Methodology

Three Stage Mturk Study



Study 3

Framing, and Length

- 3x3 experimental design + control

	Short	Medium	Long
Positive	Short/Pos.	Med./Pos.	Long/Pos.
Negative	Short/Neg.	Med./Neg.	Long/Neg.
Neutral	Short/Neutral	Med./Neutral	Long/Neutral

Control

Participant Factors Matter

- Diverse Group of Users
 - Median Age 29, Range 18-69
 - 50.1% Female
- Older participants, women more aware

Notices outperform Control

- Short-Form Notices increase user awareness of privacy practices
 - Reconfirmation of prior work
- Fitness wearables companies have been improving communication of practices
 - Ready made way for these companies to increase user awareness of privacy practices

No effect of framing

- No statistically significant effect of framing on awareness ($p=.19$)

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Positive

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Negative

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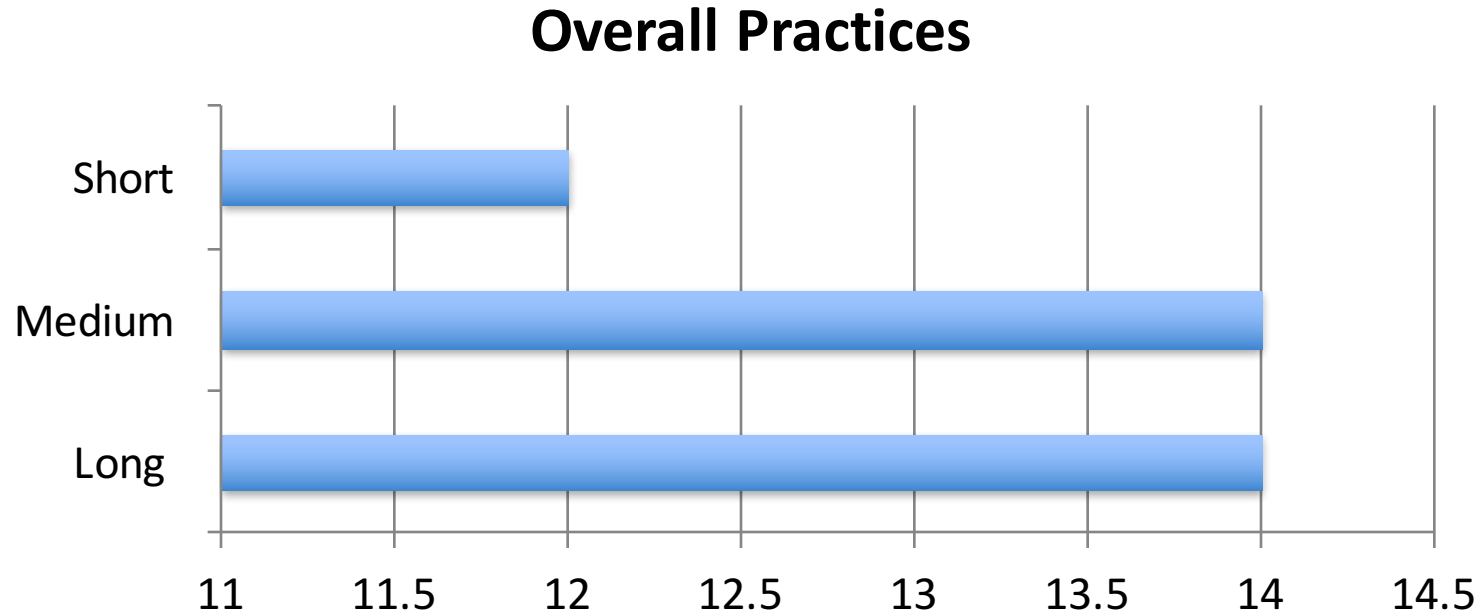
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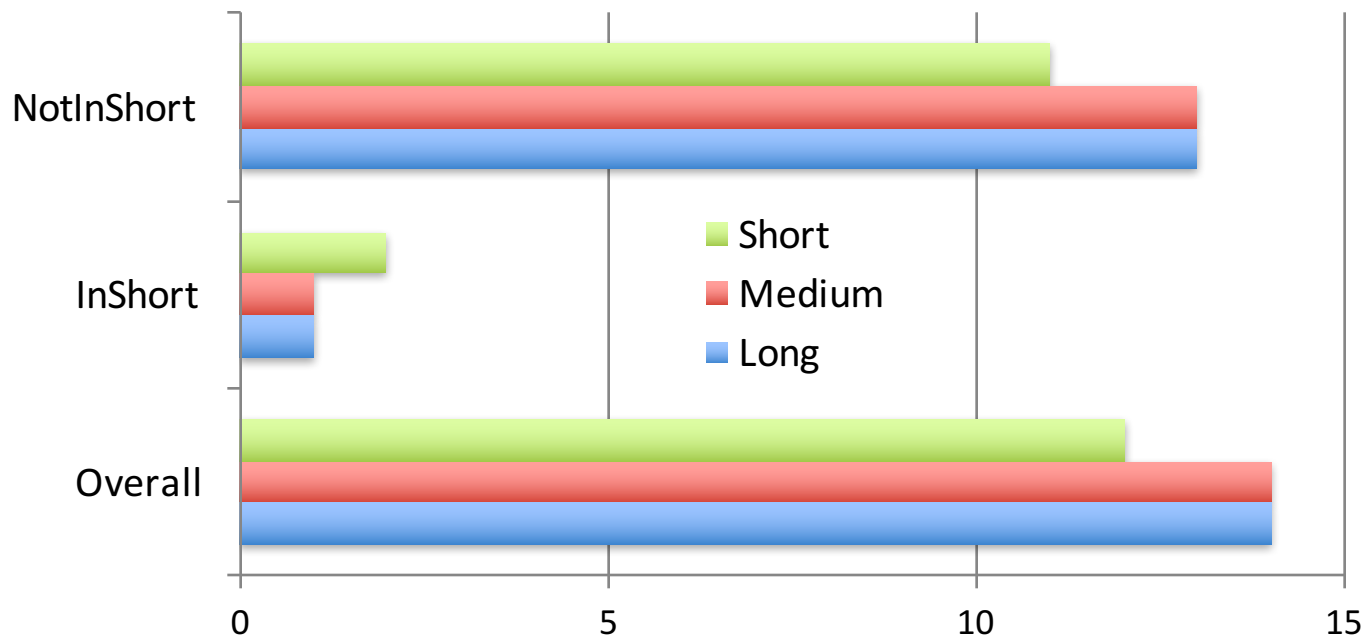


No Framing

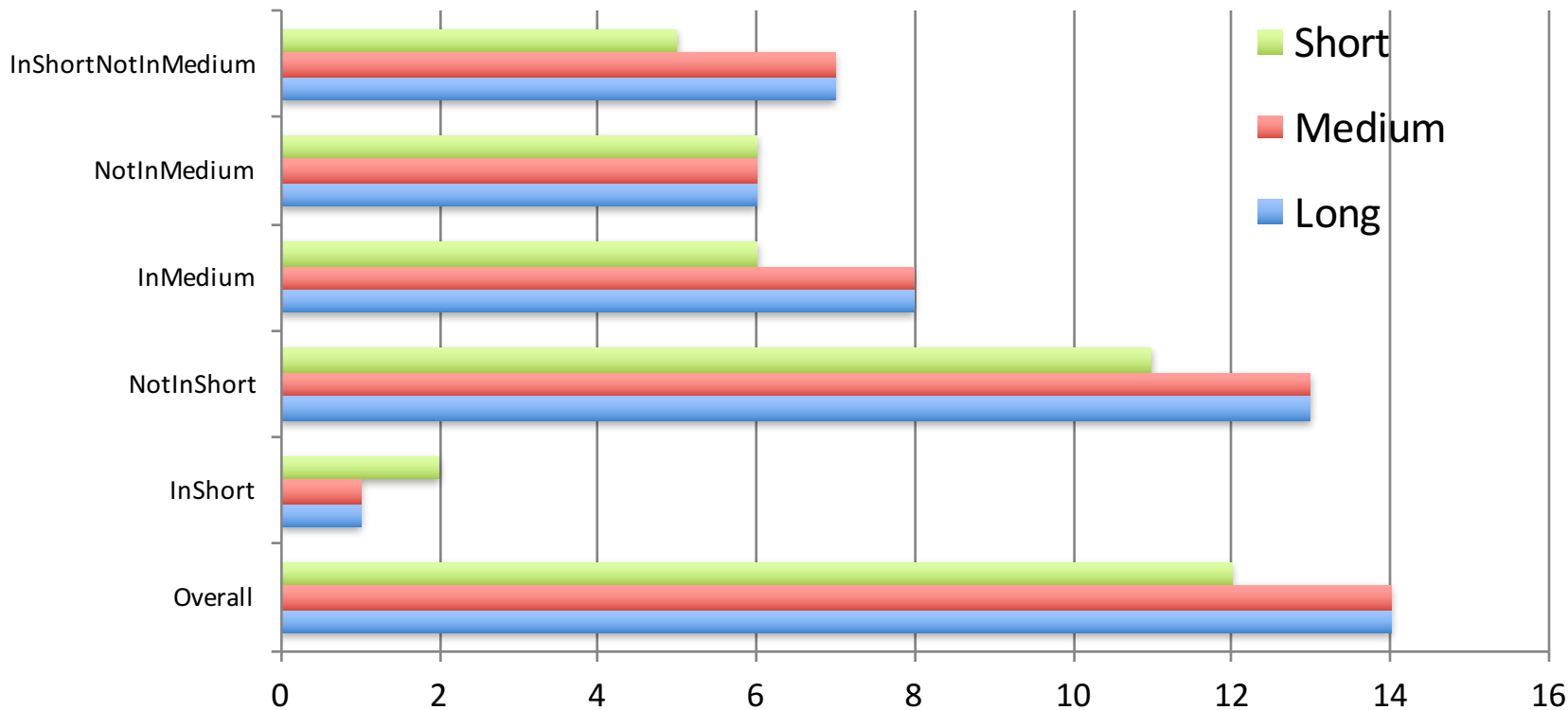
Shortest Notices lead to less overall awareness



Shortest does equally on remaining, worse on practices removed



Medium Similar Performance as Long



Results (Overview)

- Short-Form notices were beneficial
- No effect of framing on awareness
- Shortest notices led to reduced awareness
- Medium notices led to equal awareness

Limitations

- Generalizability
- Wording of notice
- Mturk survey

Take Aways

- Focusing on unexpected practices
 - Some practices can be removed with no negative effects
 - A method for determining these practices
 - There is a lower bound to notice length (policies must be included)
- Short-form notices are effective

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