

Using Science Fiction Texts to Surface User Reflections on Privacy

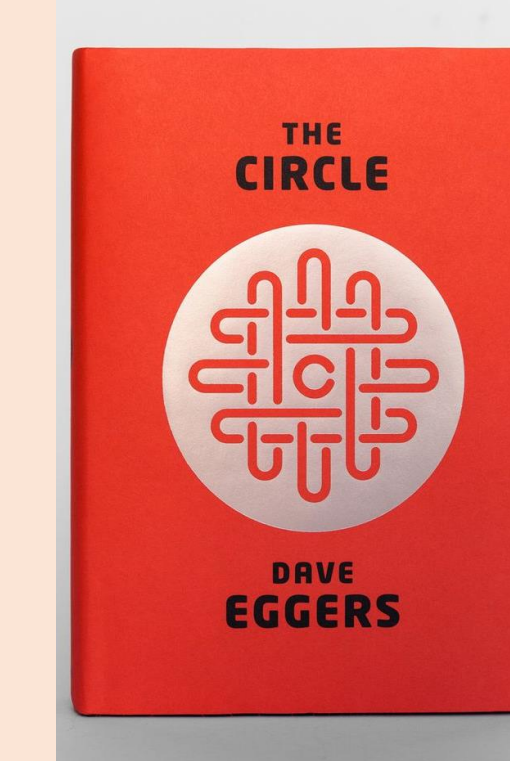
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- Understanding potential users' concerns and conceptions of privacy with regard to emerging technologies
- We suggest that a *narrative* text passage describing a technology product**—sourced from a work of science fiction—**can elicit stakeholders' values related to privacy differently than a plain *functional* textual description of a technology.**
- Prior work shows that participants raise different types of privacy concerns when researchers interact with them differently (e.g. user study vs. survey vs. focus group)¹
- Inspired by prior values in design work, and work utilizing science fiction in design, HCI, and ubicomp research²

Motivation

Study Design

- Between-subjects experiment on Amazon Mechanical Turk with 2 conditions
- n=151 (76 with Functional Description; 75 with Fictional Narrative)
- Age: 32% 18-29; 55% 30-49; 11% 50-64; 1% 65+; 1% no response
- Read a passage → answer Likert-type and free-response questions → answer demographic questions



Fictional Narrative: [Bailey] was holding a small device in his hand, the shape and size of a lollipop. [...] "I set up that camera this morning. I taped it to a stake, stuck that stake in the sand, in the dunes, with no permit, nothing. In fact, no one knows it's there. So this morning I turned it on, then I drove back to the office, accessed Camera One, Stinson Beach, and I got this image. Actually, I was pretty busy this morning. I drove around and set up one at Rodeo Beach, too. And Montara." With each beach Bailey mentioned, another live image appeared, each of them live, visible, with perfect clarity and brilliant color. [...] (Eggers, 2013)

Functional Description: SeeChange is a small camera, about the size of a lollipop, which wirelessly records and broadcasts live high-definition video. Its battery lasts for 2 years without recharging. It is waterproof and weatherproof, and can be used indoors or outdoors. It can be mounted discreetly on public or private property. Live video streams from the cameras can be shared with anyone. [...]

Results

Themes from **qualitative responses** (coding responses for Mulligan et al.'s 5 dimensions of privacy³, including harm and provision)

Privacy Harms Discussed

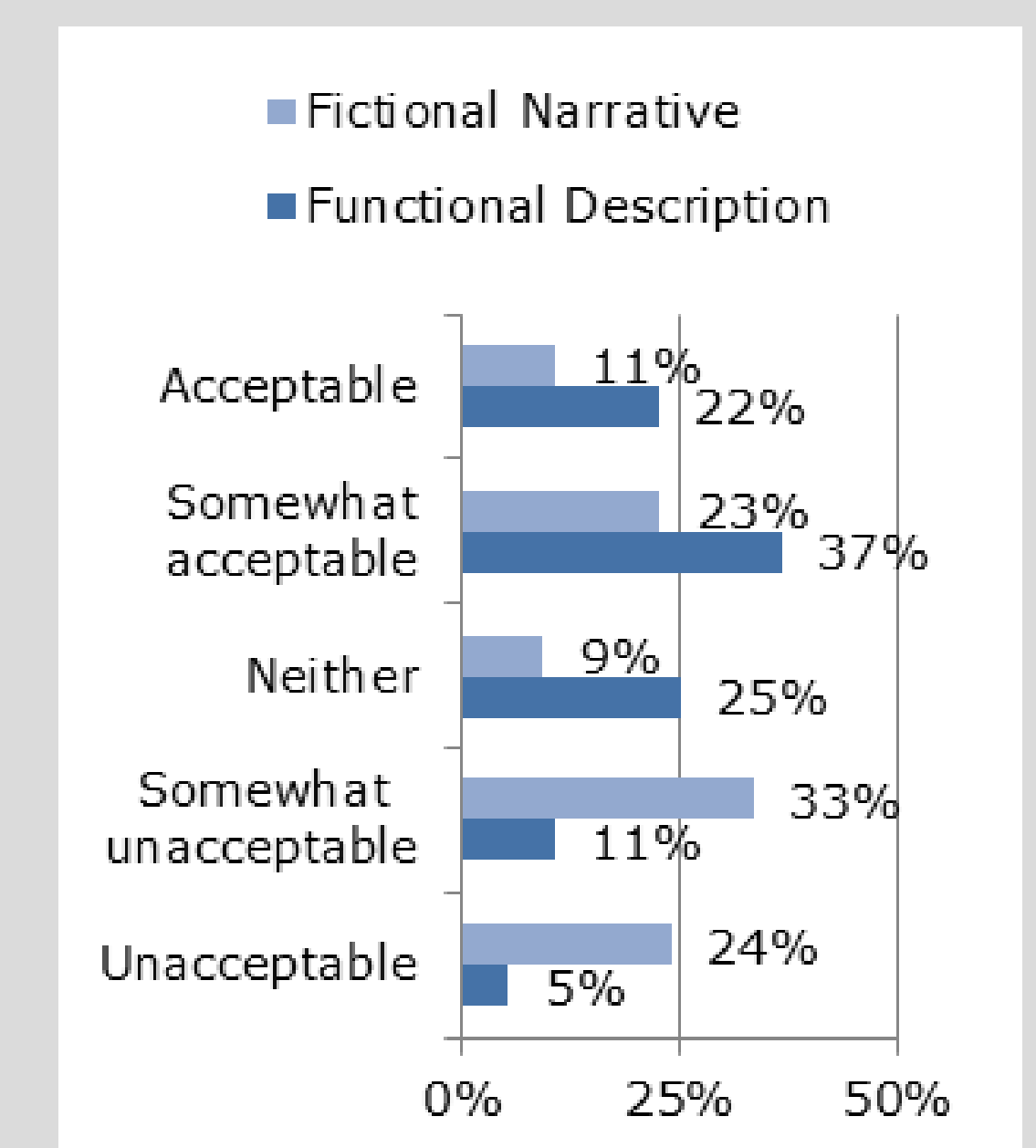
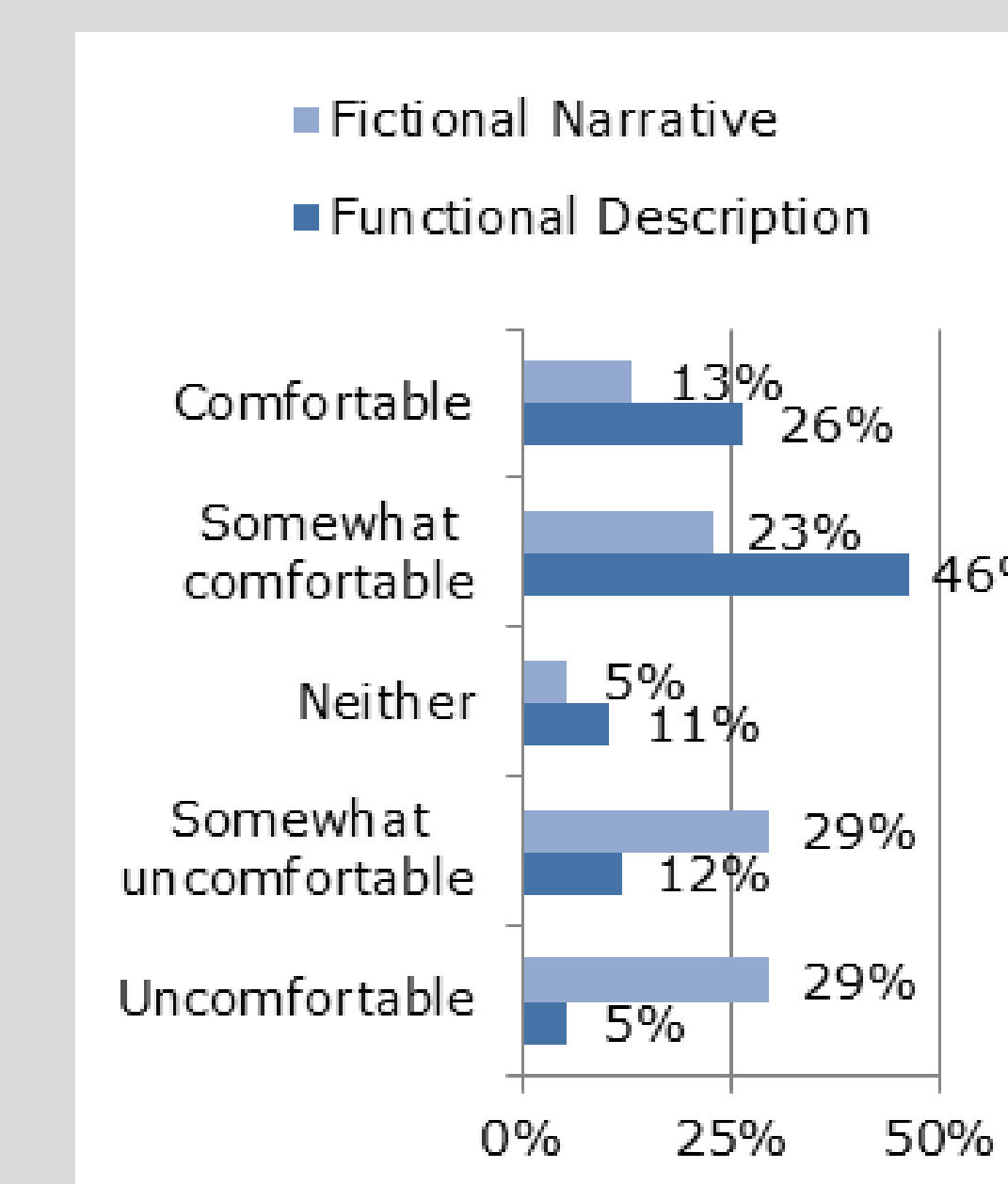
- Both conditions** participants discussed harms in **private spaces** (51% narrative, 53% functional)
- Numerous in **both conditions** discussed harms in **public spaces** (15% narrative, 16% functional)
- Those with the **narrative discussed government violations of privacy more** (32% narrative, 7% functional)

How privacy should be provided and protected

- Both conditions** participants discussed **legal regulation** (92% narrative; 83% functional)
- Those with the **narrative discussed technical/design changes more** (55% narrative, 33% functional)

With the **fictional narrative**, participants reported being:

- significantly **less comfortable** $\chi^2(4) = 28.81$, $p < .001$
- find SeeChange significantly **less acceptable** $\chi^2(4) = 29.13$, $p < .001$
- reported significantly **more negative affect** $U = 1425.00$, $p < .001$, $r = -.4$
- no significant difference in positive affect

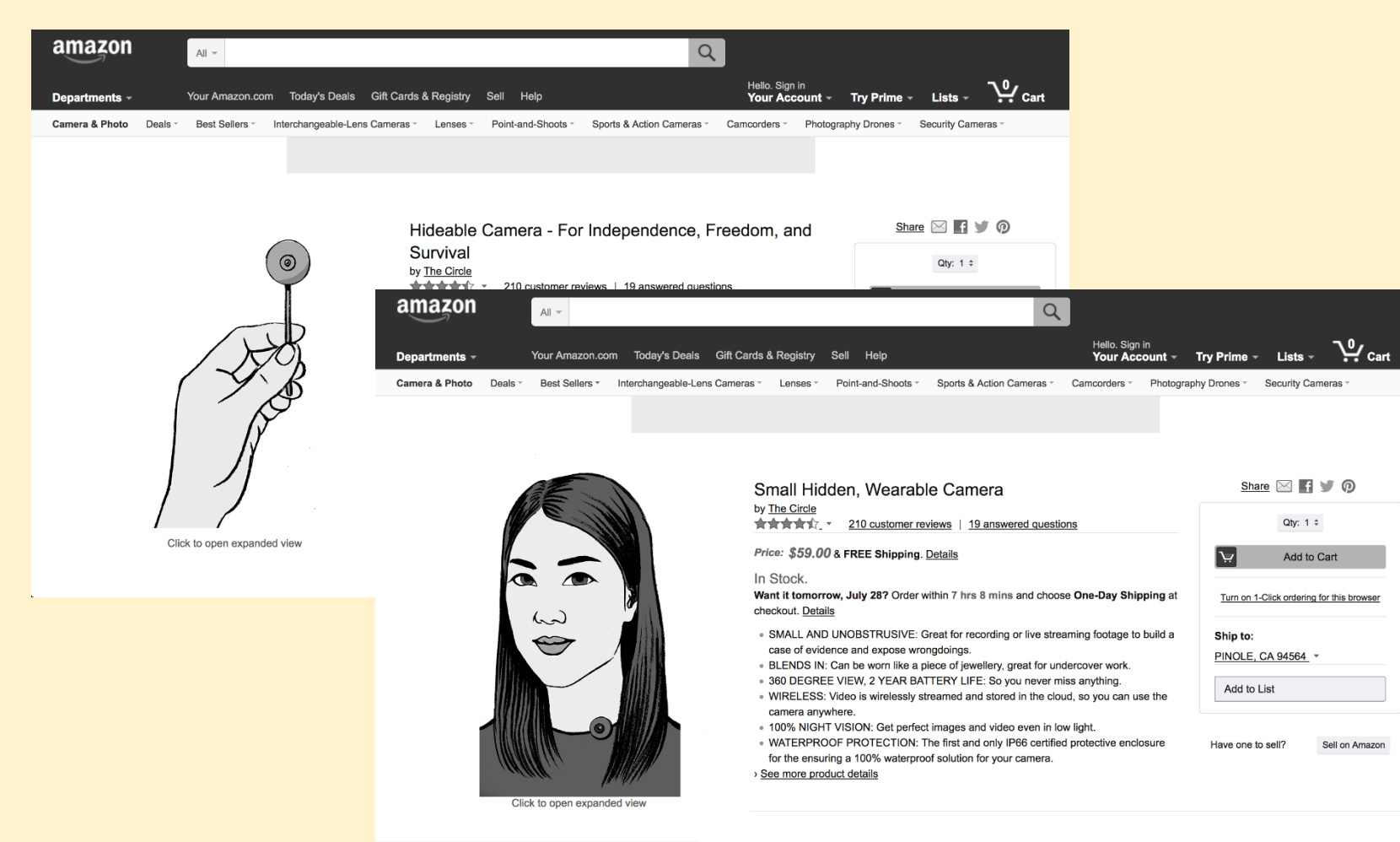


- Narrative texts might encourage different types of engagement and imagination when thinking about privacy and social values** - raising different concerns and types of solutions
- We should **engage prospective users of emerging technologies with multiple representations**
- We can crowdsource use-case scenarios to find **"social corner cases"**

Future Work

- Comparing SeeChange to other technologies from *The Circle*
- Creating other types of representations beyond text

Implications & Future Work



More at biosense.berkeley.edu/projects/sci-fi-design-fiction/