

Paper 1 – On Equifax Data Breach

The Assignment

1. Write a short (1-2 pages) **article about a piece of recent computer security and privacy research** from the field of computer security and privacy. This article will be written for a **specific audience of your choice**.
2. Write a **metacognitive reflection** (2-3 paragraphs) explaining the choices you made in writing your review for your audience. (“Metacognition” means “thinking about thinking”).

Deliverable 1: Check Your Understanding

Reading scientific papers is challenging. To ensure that you understand the scientific and technical content of the paper you are reviewing, answer the following questions:

- **What scientific question(s) does this paper address?**

What were the mental models (reactions, thoughts, etc) to the large-scale data breach with Equifax?

How were those mental models related to or not related to people’s actions?

Why did people react a certain way?

How were people’s backgrounds of knowledge influential of their reactions and actions which they took?

What changes can be made such that security is more accessible to the general population?

- **What are the scientific contributions of this paper?**

The paper blatantly identifies where current protective measures by credit bureaus are insufficient, and lays out suggestions that would make protective measures far more accessible.

The privacy paradox is examined, where although one claims that they are worried about one’s exposed data they fail to act in accordance with this. Reasons behind the privacy paradox are discussed in detail throughout the paper which are not limited to optimism bias, accessibility issues, lack of education, and monetary boundaries.

- **Describe the methods used.**

The main method which was conducted to understand victim’s mindsets were tied to semi-structured interviews. These interviews were conducted by individuals who were

Paper 1 – On Equifax Data Breach

gathered from the online social platforms of reddit, craigslist, and facebook. Email lists to college students were also utilized to gather participants.

During the semi-structured interview, interviewees were recorded as a series of questions were asked.

- **Describe the results.**

The results can be categorized into three separate sections: mental models, risk perceptions, and protective actions.

For the mental models, interviewees had a wide range of perceptions regarding credit bureaus. Frequently they were uninformed about what credit bureaus were and the implications of stolen data.

The risk perception behind one's data being stolen also had a variety of responses. On one end, people's sense of trust and privacy was broken. Primarily one's concerns were over identity theft. However, on the other end of the spectrum people frequently misjudged the threat that their information was under. This is a consequence of the wording that Equifax used to publicize their information, which is debatable if it was intentional.

The lack of protective actions that people took are directly related to their mental models and risk perceptions. Due to the lack of information, people were passive. Especially for those who received vague information about the status of their data from Equifax, the common mentality was that it probably didn't affect them. People held a false sense of security and maintained optimism bias where they choose to look past the signs of danger. Lastly, a large portion of the inaction was due to the hassle it would take to do otherwise. Equifax was not customer friendly or clear towards how one should best protect themselves, and due to lack of education people simply were unaware of the best actions to take.

- **Describe any limitations of the work.**

The participants cannot account for the entire U.S. population. Primarily, they are a small sample size of 24. Secondly, although the researchers tried to find a diverse set of individuals from various education statuses, age groups, and incomes, the way in which they found these individuals was all by means of online platforms. This severely excludes those who are not as adept at technology but are still affected by data breaches.

The paper also sites that the timing of the study was conducted four months after the breach was made public, noting that there was possible a "dilution effect" over time. The paper also mentions that the self-reporting nature of the conducted interviews is inherently biased as people may not speak the truth or may be unaware of it.

Paper 1 – On Equifax Data Breach

Deliverable 2: Your Article

Paper: Equifax Data Breach

*Specify explicitly the **venue** for which your article is written. Examples include "the New York Times editorial page", "a briefing for a Senator before a hearing", "an organization-wide memo at a small non-profit", etc.*

*When you write your article, **choose a specific audience**, such as “backend engineers”, “non-technical parents of young children”, “physicians”, or “Senator Rivera”. In your article, tell your audience what they need to know about the paper's results; how it bears on their interests, needs, and values; and what (if anything) they should do about it. Throughout your review, make sure that you define terms, simplify technical details, and use analogy as appropriate for your audience.*

*As you write, **use the security mindset to extrapolate** from the paper to other things of interest to your audience. What other security and privacy concerns or failures might arise from systems or assumptions similar to those described in the paper you review? Ensure that you think **beyond the technical** - what legal, social, economic, or other factors are relevant to your audience and to the security and privacy concerns discussed?*

Venue: A notice posted below or attached to where all credit cards are swiped at the checkout aisle of a grocery store in a less affluent area (ex Dorchester)

Audience: Shoppers who swipe their cards to purchase their groceries.

You just swiped your credit card. Chances are, someone else is using it too.

In the Equifax Data Breach that occurred Mid-May to July 2017, a third of the U.S. population's private data such as social security numbers, addresses, driver's license numbers, and credit cards were stolen.

If you knew there was a shark in the water, would you still stay in it? Consider getting out.

<insert hypothetical link on to-do list of exactly how one should stay safe>

Paper 1 – On Equifax Data Breach

Congratulations. You, unlike the 90% of people conducted in a study from University of Michigan, got out of the water. Why is it that so many people do not get out?

People are unaware, or choose to block out this important lifestyle threatening information. They like to think, “Oh the shark probably will not eat me. Look at all the people around!” (Underestimated likelihood of being affected), “I do not even seem that tasty especially compared to those other people” (Optimism bias, where one thinks that only the wealthy will be targeted), “I have not been bitten yet so I am going to stay in the water” (Tendency to delay actions and false sense of security), and “well, to get out of the water means I have to put in some effort to figure out how to get out” (Usability issues and lack of sources for advice for initiated actions).

As people fail to get out of the water, nothing changes. This is a time for you to get out of the water and to help others do the same. Unless people start having conversations about the injustices of having their private information leaked, and voice their opinions on it then nothing will change. What most people are doing, although seemingly popular, is not right. How can we make legal changes if no one seems to care? How can we disrupt the social stagnation of passivity? It is time to start speaking up and questioning what people like to ignore. It is time to start rethinking what security and privacy should look like to protect people. It starts with you.

Deliverable 3: Metacognitive Reflection

*Write a reflective piece in which you describe **the choices you made in writing your review for your audience**. For the reflection, I (Ada) am your audience. Explain things such as:*

- **Why did you choose this audience?**

I chose this specific audience as it reaches the individuals who would be less likely to be informed of the situation. The intent with the method of advertising the information is really meant to spark conversations with people. Unless it is spoken about, matters will not change. And, unless people realize how uncomfortable and dangerous the situation is, they will not actually look at the problem.

- **Why did you choose this venue?**

Paper 1 – On Equifax Data Breach

I chose to place the information in grocery stores, since there is a diverse set of individuals passing through. The grocery store is a common place that common people need to go to, and thus would reach those who are local to a specific region.

- **What do you imagine are the interests, needs, and values of your audience?**

The interest of the person checking out their groceries in the moment is probably far from going through the trouble to check if their data has been leaked, but it is important that they are informed. On a larger scale, these individuals care about maintaining stability in their lives (in this instance being able to eat), but this extrapolates to being able to use their credit cards. Thus, this is a financial and more fear or shock approach to grab the attention of the shopper.

The needs of this person for the moment are groceries. However, this is analogous to having resources that maintain one's stability in life. Thus, maintaining one's identity is essential to the shopper.

The shopper in the moment likely values good prices at the store, which is a reveal of the financial incentives that are underlying. People do not appreciate when their money is unsafe and has the potential to be stolen.

- **What technical details did you leave out, simplify, or analogize?**

I excluded a lot of information regarding people's mental models and their perception of risk and instead jumped directly to the lack of action that people took. For all the instances where I described lack of action, I continued the metaphor of a shark being in the water. This is to get the point across in a vivid and succinct manner.

I also did not include how the paper gathered such information (such as method process, scientific questions posed) etc and instead I chose to apply what the article suggests we do to improve the systematic issues.

- **How are the above choices reflected in your writing?**

The writing is kept simple, and is in a catchy manner.