

Seminar 2: Usable Security Case Study

During this week's seminar, we will be working through an example of planning a usable security of design solution using the contextual design techniques.

Prior to this week's seminar, **read**:

- Chapter 22 of the eBook by Hartson & Pyla (2012)
- Chapters 7- 10 of the core eBook by Johnson .J (2021) titled "*Designing with the Mind in Mind*"
- Reynaga, G., Chiasson, S. & van Oorschot, P.C. (2015) Exploring the usability of captchas on smartphones: Comparisons and recommendations. In *NDSS Workshop on Usable Security USEC*.

Then **reflect** on:

- The workings of the human brain and its implications within the context of usable security design.
- How can we design a security solution to fit to human limitations by default?
- What are some of the technologies that can be employed to facilitate the implementation of a security design accounting for the constraints posed by human limitations?

Be prepared to discuss your review during this week's session.

1. The workings of the human brain and its implications within the context of usable security design.

The human mind is sometimes counterintuitive. We can more easily handle an unknown situation with subliminally similar contexts to what we've experienced before than completely novel situations, even if the cognitive load is smaller in the latter than the former. It is important to design features that reflect the expectations of users, even if they are somewhat counterintuitive.

2. How can we design a security solution to fit to human limitations by default?

We must take into account the lower-level psychological factors at play in human desires. Security cannot overburden the user's learning capacity in its pursuit to be secure; the design must have ease of use – in terms of user expectation and experience – as the most essential factor, with strength of security as a close second.

3. What are some of the technologies that can be employed to facilitate the implementation of a security design accounting for the constraints posed by human limitations?

I think AI could be incredibly helpful in this regard. If we were able to teach it the nuances of human expectations as well as the security requirements it could marry the two based on its interaction with an individual user and produce a maximum security result and maximum user ease result. AI's ability to do this is still far off, but it could ease the burden of accounting for an infinite number of individual expectations in the pre-planning phase to make deployment most effective.