

Enabling Persuasion Knowledge

Methodological Foundations for our Awareness Trainings

Social engineering is the acquisition of confidential, private or privileged information by methods including both technical and non-technical means e.g. such as shoulder surfing, dumpster diving, etc. (Manske, 2009). In Social Psychology the concept of Persuasion refers to an active attempt to change a person's mind (Petty and Cacioppo, 1996, p.4). Therefore, persuasion is an essential element of a social engineering attack. Our training is based on letting trainees gather Persuasion Knowledge, a method to counteract Persuasion (Gragg, 2003). Persuasion knowledge consists of information about tactics used in persuasive situations, their possible influence on attitudes and behaviour, their effectiveness and appropriateness, the persuasive agent's motives, and coping strategies (Fransen et al., 2015; Friestad & Wright, 1994). Activated persuasion knowledge usually either elicits suspicion about the persuasive agent's motives, or scepticism about arguments, and perceptions of manipulation or deception. Furthermore, it directs to options how to respond and selects coping tactics believed to be appropriate (Friestad and Wright, 1994). This positive relationship between persuasion knowledge and resistance to persuasive attempts is demonstrated by (Briñol et al., 2015): People are aware of persuasive attempts when having knowledge about persuasion and respond appropriately. This means educating users not only about common social engineering attack methods (e.g. phishing) but particularly about psychological principles used in social engineering is an absolute necessity. As people also enhance their persuasion knowledge from experiences in social interactions, inoculation plays a vital role.

Our methodology aims at simulating the work environment of possible victims to social engineering and letting them provide persuasion knowledge to each other via creating simulated attacks and judging their realism and likelihoods. Therefore, fostering a discussion about the attacks and their underlying psychological principle.

Nobelpreise winner Daniel Kahneman (2003) explains, humans cognitive functioning is distinguished into two separate cognitive systems. One system intuitively (System 1) and the other reasons (System 2):

“The operations of System 1 are typically fast, automatic, effortless, associative, implicit (not available to introspection), and often emotionally charged; they are also governed by habit and therefore difficult to control or modify. The operations of System 2 are slower, serial, effortful, more likely to be consciously monitored and deliberately controlled; they are also relatively flexible and potentially rule governed.” (Kahneman, 2003)

Our training enables people to activate System 2 when faced with a Social Engineering attack and to resist the persuasion attempt.

Our methodology is based upon the research published in:

Schaab, P., Beckers, K., Pape, S.: Social engineering defence mechanisms and counteracting training strategies. *Inf. & Comput. Security* 25(2) (2017) 206–222

References

Manske, K., 2009. An Introduction to Social Engineering. *Information Security Journal: A Global Perspective*, 9(5), pp.1–7.

Petty, R.E. and Cacioppo, J.T., 1996. *Attitudes and persuasion: Classic and contemporary approaches*, Boulder, CO, US: Westview Press.

Gragg, D., 2003. A multi-level defense against social engineering. SANS Reading Room, March, 13.

Fransen, M.L. et al., 2015. Strategies and motives for resistance to persuasion : an integrative framework. *Frontiers in psychology*, 6(August), pp.1–12.

Friestad, M. and Wright, P., 1994. The Persuasion Knowledge Model: How People Cope with Persuasion Attempts. *Journal of Consumer Research*, 21(1), pp.1–31. Available at: <http://www.jstor.org/stable/2489738>.

Briñol, P., Rucker, D.D. and Petty, R.E., 2015. Naïve theories about persuasion: Implications for information processing and consumer attitude change. *International Journal of Advertising*, 34(1), pp.85–106.

Kahneman, D., 2003. A perspective on judgment and choice: mapping bounded rationality. *The American psychologist*, 58(9), pp.697–720.