

Replication: Application of Security Attitude Scale to Japanese Workers

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Introduction

- The SeBIS (Security Behavior Intentions Scale) is a set of questions that quantitatively measures the frequency of security behavior.
- However, the frequency of security measures varies depending on the devices and applications that people use. For example, when it comes to screen locks, if a person has two devices and one of them has facial recognition, he or she will probably use a password less often.
- Therefore, measuring the frequency is not an appropriate measure of a user's ability to take security measures.
- Faklaris et al. developed the SA-6 (six-item scale for assessing people's security attitudes) as a measure of security attitudes in 2018.
- In this study, we report on the results of applying SA-6 and its extended version, SA-13, to Japanese and American populations as of the year 2020.
- **SA-6:** a six-item scale for assessing people's security attitudes

Items	
Q1	I seek out opportunities to learn about security measures that are relevant to me.
Q2	I am extremely motivated to take all the steps needed to keep my online data and accounts safe.
Q3	Generally, I diligently follow a routine about security practices.
Q4	I often am interested in articles about security threats.
Q5	I always pay attention to experts' advice about the steps I need to take to keep my online data and accounts safe.
Q6	I am extremely knowledgeable about all the steps needed to keep my online data and accounts safe.

- **SA-13:** An extended version of SA-6, with four questions on resistance to security measures and three questions on interest in security measures added to SA-6.

"Resistance" in SA-13 scale Items	
Q7	I am too busy to put in the effort needed to change my security behaviors.
Q8	I have much bigger problems than my risk of a security breach.
Q9	There are good reasons why I do not take the necessary steps to keep my online data and accounts safe.
Q10	I usually will not use security measures if they are inconvenient.

"Concernedness" in SA-13 scale Items	
Q11	I want to change my security behaviors to improve my protection against threats (e.g. phishing, computer viruses, identity theft, password hacking) that are a danger to my online data and accounts.
Q12	I want to change my security behaviors in order to keep my online data and accounts safe.
Q13	I worry that I'm not doing enough to protect myself against threats (e.g. phishing, computer viruses, identity theft, password hacking) that are a danger to my online data and accounts.

Method

- A survey consisting of SA-13 (including SA-6) and RSec (Recalled Security actions) was conducted.
- **RSec:** 9 questions on security actions in the last week, including OS and app update status, password change, and leaving the room without locking the screen.
- The survey was conducted in December 2020.
- **Target Japanese:** Users aged 18 or older living in Japan who mainly work on a PC.
- **Target Americans:** Users aged 18 or older living in the United States.

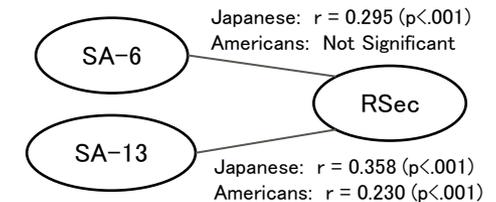
Results

- 219 Japanese, 208 Americans
- **Number of common factors in SA-13:** For both Japanese and American data, SA-13 had three groups, as designed by Faklaris et al. However, for the Japanese data, the breakdown was different.

Grouping of SA-13 questions in Japanese data

Factor 1	Factor 2	Factor 3
Q2	Q7	Q11
Q4	Q8	Q12
Q5	Q9	Q13
Q6		Q1
		Q3

Correlation between Security Attitudes and RSec



- **Correlation between SA-6 and RSec:** A significant correlation between SA-6 and RSec for Japanese, but not for Americans.
- **Correlation between SA-13 and RSec:** A significant correlation for both Japanese and Americans.

Discussion

- We will discuss no correlation between SA-6 and RSec for the US population.
- 6 out of 9 questions where there was no difference in the SA-6 score between the group that did and did not engage in the security behavior on the RSec.
- The questions that can be explained include item 1 (changing passwords frequently) and item 4 (locking tablet screens).
- Possible reasons for this are: for item 1, NIST's report that regular password changes are ineffective has been disseminated to the public, and for item 4, the need for screen locks has diminished for telecommuting due to COVID-19 in 2020.