# Users Really Do Plug in USB Drives They Find

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## "Do NOT plug any USB drive you find on campus into your workstation." -- Google Security Training



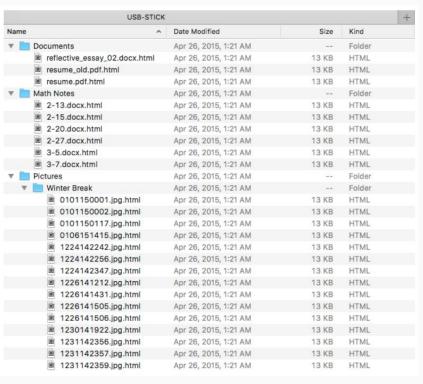
#### **Experimental Setup**

- Dropping 297 USB drives on UIUC campus
  - o 30 locations
  - 5 types
  - o 2 times a day
- Appearances



#### **Experimental Setup**

.html files track when a file is opened



#### Results

Category	Drives Opened					
Drive Type						
Confidential	29/58	(50%)	0.72			
Exams	30/60	(50%)	0.71			
Keys	32/60	(53%)	0.47			
Return Label	17/59	(29%)	0.10			
None	27/60	(45%)	-			
Location Type		0.00				
Academic Room	25/58	(43%)	0.35			
Common Room	26/60	(43%)	0.36			
Hallway	24/59	(41%)	0.23			
Outside	28/60	(47%)	0.58			
Parking Lot	32/60	(53%)	_			
Location Geography						
North	49/100	(49%)	0.26			
South	46/97	(47%)	0.36			
Main	40/100	(40%)	_			
Time of Day						
Morning	71/149	(48%)	0.52			
Afternoon	64/148	(43%)	-			
Day of Week						
Tuesday	58/147	(39%)	0.05			
Tuesday (no Return Label)	41/88	(47%)	0.57			
Monday	77/150	(51%)	32_			

- 290/297 drives were picked up
- Files on 135/297(45%) drives were opened
- 58/135 took the survey
- Drives with return label showed less likely to be plugged in

## Data Interpretation -- Fisher's Exact Test

P-value indicates how likely two datasets comes from the same distribution.

E.g. Are male and female equally likely to be on a diet?

$$p = \binom{10}{1} \binom{14}{11} / \binom{24}{12} = \frac{10! \ 14! \ 12! \ 12!}{1! \ 9! \ 11! \ 3! \ 24!} \approx 0.001346076$$

A diet example<sup>[1]</sup>

	Men	Women	Row total	
Dieting	1	9	10	
Non-dieting	11	3	14	
Column total	12	12	24	

#### Data Interpretation -- Participants Assessment

- How vulnerable are the participants compared to general people?
  - UIUC students and staffs
- Baselines:
  - o DOSPERT<sup>[2]</sup>
    - Risk taking and risk perception of 359 participants
  - SeBIS<sup>[3]</sup>
    - Security compliance of 3,619 participants
- Method
  - Reuse the same questions in the survey
  - Compare results

#### Example questions

#### DOSPERT

- Admitting that your tastes are different from those of a friend.
- Betting a day's income at the horse races.
- Drinking heavily at a social function.

Risk taking, English								
1	2	3	4	5	6	7		
Extremely	Moderately	Somewhat	Not Sure	Somewhat	Moderately	Extremely		
Unlikely	Unlikely	Unlikely		Likely	Likely	Likely		
Risk perception, English								
1	2	3	4	5	6	7		
Not at all	Slightly	Somewhat	Moderately	Risky	Very	Extremely		
Risky	Risky	Risky	Risky		Risky	Risky		

#### Example questions

#### SeBIS

- I frequently backup my computer.
- I am careful to never share confidential documents stored on my home or work computers.
- I never give out passwords over the phone.

I would prefer to live in a large city rather than a small city. [Strongly disagree (1), (2), (3), (4), (5), (6), Strongly agree (7)]

## Data Interpretation - Take Aways

- Participants are more risk averse than general population. (v.s. DOSPERT)
- The security behavior of participants is not significantly different from peer students. (v.s. SeBIS)

## Discussion

#### Conclusion

- What are the key contributions?
- What is the limitation of this paper?
- Do you agree with the claims made in this paper? E.g.
  - Participants picking up the drives are altruistic and curious.
  - College students are more risk averse than general population.
  - Social engineering attack will work on general people.
- What would you do if you spot a USB drive somewhere?

## "If you do find a USB drive, turn it to security desk."

Google Security Training

## Thanks.