Determining Security Levels of End User's Mobile Devices

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Research Questions

- Are college students preparing to enter the workforce properly securing their connected devices?
- Are IT students better at securing their connected devices than non-IT students?

Smartphones (mid 2011)

- 60% of all cellular phones in the United States were smartphones
- 39% of smartphones utilized Google's Android OS
- 28% percent used the Apple iOS

Tablets (mid 2011)

- 58% use Apple iOS
- 39% use the Android OS
- A 10% shift toward the Android OS from Apple iOS in 2011 from 2010
- 66.9 million units sold in 2011
  - 18.6 million in 2010

Survey of 131 University Students

Major	Response	%
IT	68	51.9%
Non-IT	63	48.1%
Total	131	100%

Gender	Response	%
Male	86	66%
Female	45	34%
Total	131	100%

Age	Min Value	Max Value	Average Value
	17.00	58.00	23.86

What equipment do you have?

Smartphone	Tablet	Laptop or Desktop PC
81%	24%	98%

What operating system (OS) is on your smartphone?

Answer	%
Apple iOS	46%
Android OS	44%
Windows mobile	2%
Symbian	0%
Blackberry	8%
Other	0%
Total	100%

What operating system (OS) is on your tablet PC?

Answer	%
Apple iOS	77%
Android OS	19%
Windows	0%
Blackberry	0%
Other	3%
Total	100%

How would you rate your expertise with securing your equipment?

Question	Mean (Everyone)	IT Students	Non-IT Students
Smartphone	4.75	5.02	4.40
Tablet PC	4.74	5.21	4.35
Laptop or Desktop PC	5.19	5.68	4.67

- 1 = Novice
- 7= Expert

Do you have anti-virus software installed?

YES	Everyone	IT	Non-IT
Smartphone	25.5%	29.5%	20%
Tablet PC	22.5%	21.4%	23.5
Laptop or Desktop PC	85.2%	86%	84%

Do you have firewall software installed?

YES	Everyone	IT	Non-IT
Smartphone	19.8%	19.6%	20%
Tablet PC	19.36%	14.2%	19.4%
Laptop or Desktop PC	87.5%	92.4%	82.5%

Does your equipment require credentials to gain access, such as a password or secret fingerprint pattern?

YES	Everyone	IT	Non-IT
Smartphone	66%	68.8%	62.2%
Tablet PC	48.4%	64.2%	35.2%
Laptop or Desktop PC	83.7%	86.3%	81%

Do you have any rooted software installed on your smartphone or tablet?

YES	Everyone	IT	Non-IT
Smartphone	14.2%	13.1%	15.6%
Tablet PC	19.4%	14.3%	23.5%

Have you ever jailbroken a cellular phone or tablet PC?

YES	Everyone	IT	Non-IT
Smartphone	26.4%	34.4%	15.5%
Tablet PC	16.1%	21.4%	11.8%

Do you use your equipment for any job related activities?

YES	Everyone	IT	Non-IT
Smartphone	78.8%	86.5%	69%
Tablet PC	58.8%	55.6%	62.5%
Laptop or Desktop PC	75%	85%	63.9%

Has your equipment ever been lost or stolen?

YES	Everyone	IT	Non-IT
Smartphone	24.5%	26.2%	22.2%
Tablet PC	6.45%	0%	11.8%
Laptop or Desktop PC	3.9%	4.5%	3.2%

Do you allow your equipment's web browser or any applications to store credentials?

YES	Everyone	IT	Non-IT
Smartphone	37.7%	37.7%	37.7%
Tablet PC	48.4%	42.9%	52.9%
Laptop or Desktop PC	60.5%	63.6%	57.1%

Do you have software installed on your equipment that can wipe the equipment clean of data if lost or stolen?

YES	Everyone	IT	Non-IT
Smartphone	40.6%	55.7%	20%
Tablet PC	48.4%	57.1%	41.2%
Laptop or Desktop PC	26.4%	27.2%	25.4%

Do you access Wi-Fi at work?

YES	Everyone	IT	Non-IT
Smartphone	52.4%	63.6%	39.2%
Tablet PC	64.7%	55.5%	75%
Laptop or Desktop PC	51.5%	65.7%	36.4%

Do you access Wi-Fi with your equipment in public places?

YES	Everyone	IT	Non-IT
Smartphone	78%	77.2%	79.1%
Tablet PC	77.4%	71.4%	82.45
Laptop or Desktop PC	74.6%	73.8%	75.4%

Do you use virtual private network (VPN) software?

YES	Everyone	IT	Non-IT
Smartphone	16%	16.4%	15.5%
Tablet PC	29%	28.6%	29.4%
Laptop or Desktop PC	38%	44%	31.7%

Have you ever installed illegal (pirated) software?

YES	Everyone	IT	Non-IT
Smartphone	14.2%	13.1%	15.6%
Tablet PC	16.1%	14.3%	17.6%
Laptop or Desktop PC	41.9%	48.5%	34.9%

Do you access your personal financial data from your device (i.e. bank, credit card)?

YES	Everyone
Smartphone	67%
Tablet PC	71%
Laptop or Desktop PC	90.7%

Whether currently employed or not, do you expect to be able to use your own devices for work related activities?

Answer	%
Yes	79%
No	21%

Do you expect employers to provide security software for your personal devices if you were allowed to use them at work?

Answer	%
Yes	76%
No	24%

Summary

- IT students are more confident in their ability to secure their devices
- IT students are less concerned with malware
- 25.5% have antivirus installed on their smartphones, more by IT than non-IT; 22.5% on tablets; 85% on laptops and desktops
- 19.8% purchase software from outside traditional storefronts, more by non-IT than IT students
- 14.2% of smartphones and 19.4% of tablets have rooted software , more by non-IT than IT students

Summary

- 26.4% of smartphones are jailbroken, IT students are twice as likely
- 78.8% use their smartphones for job related work, IT students more than non-IT
- 24.5% have lost or had their smartphones stolen
- 37.7% allow credentials to be stored on the device
- 52.4% use their smartphones and 64.7% tablets to access Wi-Fi at work

Summary

- 78% access Wi-Fi with their smartphones in public places
- 16% use VPNs with their smartphones and 29% with their tablets
- 67% of students use their smartphones to access personal financial data; 71% use tablets
- 79% of students expect to be able to use their personal equipment at work

Conclusions

- IT students and non-IT students both fail to adequately protect their devices
- More than half are already connecting to corporate networks with unsecure devices
- Organizations must account for these unsecure personal devices

Future Research Directions

- Compare to an older group

Questions?