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# Understanding Non-Experts' Security- and Privacy-Related Questions on a Q&A Site

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# Research Questions

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Q&A sites are source of advice for security and privacy issues

RQ1:

What topics do non-expert users ask about on Q&A sites?

RQ2:

Which topics do non-expert users perceive as more serious or sensitive?

# Data Collection

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- Q&A site: Yahoo! Chiebukuro
  - Japanese ver. of Yahoo! Answers
- Total 445 question posts
  - Subset–1 : Questions posted in security-related categories
  - Subset–2 : Questions containing “security” and/or “privacy”
  - Subset–3 : Questions containing relevant words (e.g., “fraud”, “app”, and “account”)

# Data Analysis

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- Question topics
  - Two coders labeled themes and sub-themes
- Question seriousness
  - (1) Coder-rated seriousness (5-point Likert scale)
    - Higher rating when askers linguistically expressed urgency, anxiety, or a call for help
  - (2) Whether askers offered rewards
- Question sensitivity
  - Whether askers posted questions anonymously

# Results: Question Topics

Theme	Freq.	Sub-theme (examples)
<b>Cyberattack</b>	40.7%	Is this malicious? / Have I been hacked?
		How to handle this?
		Is there any possibility of being hacked?
<b>Authentication</b>	16.2%	How to handle this?
<b>Security software</b>	13.0%	How to use it?
		Which product do you recommend?
<b>Privacy abuse</b>	7.9%	How to escape from surveillance?
		Am I under surveillance?
<b>Account and device management</b>	7.0%	How to handle this?
		What should I (not) do?
<b>Secure connection</b>	6.5%	How to use it?
<b>Privacy setting</b>	5.6%	How to set it?
		Are my data disclosed?

# Examples: Questions About Cyberattacks

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- Sub-theme: Is this malicious? / Have I been hacked?



*I received a warning that my computer has been infected with Trojan Horse. Is this a fraud or has my computer actually been infected?*

*Was my device already infected with a virus at the moment I accessed the suspicious URL?*



- Sub-theme: Is there any possibility of being hacked?



*Are smartwatches also at risk of being infected by viruses?*

# Examples: Questions About Authentication

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- Sub-theme: How to handle this?



*I can't log in to my <service's name>'s account, where I set up a two-factor authentication with my phone number. Some days ago, I changed my phone number. How do I log in to the account again?*

*I can't log in to <service's name>. I can't find the contact form on the website, so I can't contact them. How do I get my account back?*



# Examples: Questions About Security Software

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- Sub-theme: How to use it?



*How can I stop being blocked from legitimate access?*

*Does this result screen mean that a Trojan Horse has been detected on my device?*



- Sub-theme: Is it necessary/effective/trustworthy?



*I use this computer only for creating documents and surfing popular websites. Please tell me why I should use anti-virus software.*



# Examples: Questions About Privacy Abuse

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- Sub-theme: How to escape from surveillance?



*My ex-husband seems to be logging into my <service's name> account. Please tell me how to remove his surveillance.*

- Sub-theme: How to surveil a target?



*I want to know about the features of <spyware app's name>. Is it possible to track targets even when they turn off the GPS on their smartphone? How about in airplane mode?*

# Examples: Account and Device Management

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- Sub-theme: How to handle this?



*I want to delete my account. But I couldn't find the delete option on my profile page. Can someone please tell me how to delete my account?*

- Sub-theme: What should I (not) do?



*What should I do when I change my smartphone?*

# Examples: Secure Connection

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- Sub-theme: How to use it?



*Which Wi-Fi security mode should I choose among WEP, WPA, WPA2, PSK, and 802.1X/EAP?*

- Sub-theme: Is it necessary/effective/trustworthy?



*Is VPN effective in making public Wi-Fi secure?*

# Examples: Privacy Setting

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- Sub-theme: How to set it?



*I mistakenly accepted cookies. Is it possible to change it to deny permission?*

- Sub-theme: Are my data disclosed?



*I browsed a certain company's websites with my location information turned on. Is my location information disclosed to the company?*

# Results: Seriousness and Sensitivity

Theme	Freq.	Seriousness		Sensitivity
		Ave. Rating	% Reward	% Anonymous
Cyberattack	40.7%	3.6	29.3	48.1
Authentication	16.2%	3.6	29.2	36.1
Security software	13.0%	3.1	41.4	31.0
Privacy abuse	7.9%	<b>4.0</b>	25.7	42.9
Account and device management	7.0%	<b>3.9</b>	45.2	48.4
Secure connection	6.5%	3.2	27.6	48.3
Privacy setting	5.6%	3.7	36.0	44.0

Askers were likely to either appeal linguistically or offer rewards as a strategy

# Findings and Implications

## Findings

- Users struggled to determine if they were victims of cyberattacks
- Users had difficulty explaining their issues
- Highly privacy-sensitive questions were posted (theme: privacy abuse)
- Some issues have not been sufficiently addressed in previous studies

## Implications for Q&A site providers

- Provide a knowledge base system that asks for missing information and presents a solution
- Refer users facing serious privacy abuse to professionals

## Implications for researchers

- Regularly extract and clarify user concerns from Q&A sites

# Future Work and Contributions

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## Future Work

- assess the quality of answers given for the security- and privacy-related questions on Q&A sites for non-expert users

## Contributions

- demonstrated that a Q&A-site analysis can provide insights into non-expert users' concerns about security and privacy

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THANK YOU!