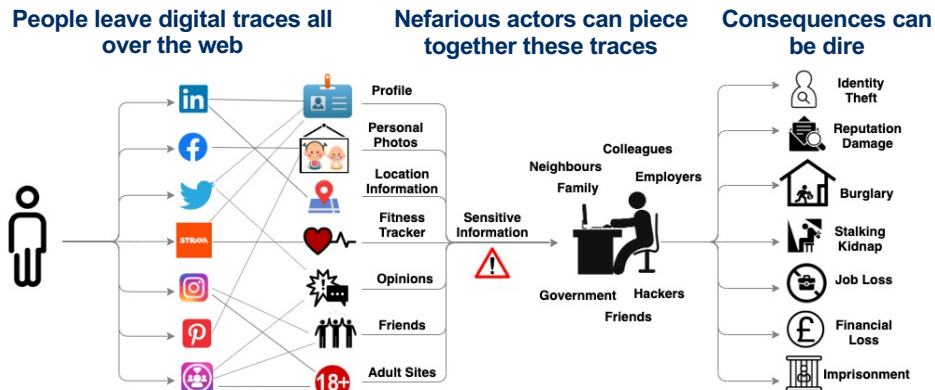


A Preliminary Study on Evaluating Cumulative Revelations in Online Personal Data

Introducing a persona-based cyber safety tool for awareness of online risks and harms

Emma Nicol Leif Azzopardi Wendy Moncur Jo Briggs Callum Nash Melissa Duheric Burkhard Schafer



Small pieces of personal information shared online that, on their own, seem innocuous, can, when combined, pose significant and unanticipated risks to security and reputation. These are *cumulative revelations*.

Charlie Not Risky

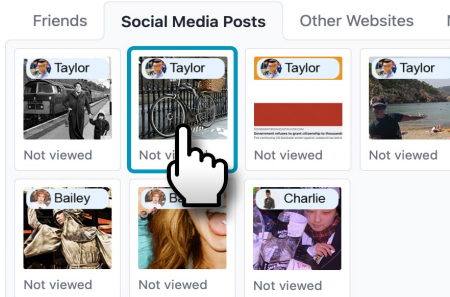
Taylor Not Risky

Taylor + Charlie = Risky

Our persona-based digital cyber safety tool explores how well people can make such connections between items and evaluates their awareness of online risks and harms

DIGITAL TOOL EXAMPLE SCENARIO

① You are Taylor's friend. Taylor is worried that their account has been hacked. You point out that hackers can find clues on social media to hack into accounts. Search through Taylor's online posts to see what information might pose a risk.



② Scenarios employ fictional personas whose online posts are designed to contain small pieces of information that when taken together with other posts lead to cumulative revelations.

Do you think this post might reveal information that could be used to hack Taylor's account or steal Taylor's identity?

☐ No ☐ Possibly ☐ Yes

Do you think this post is concerning for other reasons?

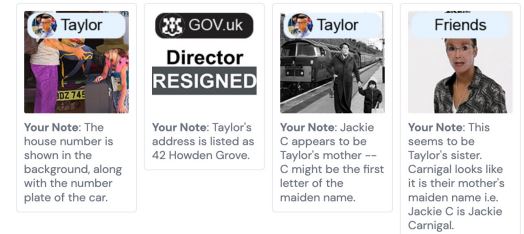
☐ No ☐ Possibly ☐ Yes

If you think this post is of concern, please explain or note down the concern.

③ Participants browse, select and rate individual posts. They can revise their ratings and make notes. Posts may be relevant to the current scenario or risky for other reasons.

④ Participants finish annotating individual posts. They then consider combined pieces of information, rate these, and explain their reasons why, taken together, the posts pose a risk.

⑤ On completion of the scenario, participants are debriefed and given information about how to protect themselves online.



Given these posts that you found, please tell us why you think they may risk giving away information about Taylor's identity to hackers and thieves.

PRELIMINARY RESULTS

In a study conducted on Prolific (n=200) using two scenarios (Identify Theft, Online Reputation) participants' ability to identify risky posts and piece together revelations varied considerably across the population. Using the tool, a majority reported increased awareness and understanding of risks posed by online behaviour. Using such scenarios, we are learning about how people understand cumulative risks online, while assisting them with learning how to better identify risks posed by digital traces and how to be safer online. Future work will explore the tool's application in different employment domains.