"Outsourcing" Security: Supporting People to Support Older Adults

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Abstract

Older adults often rely on the support of trusted individuals (e.g., younger family members) when performing complex tasks on their mobile devices, such as configuring privacy settings. However, a prominent problem is that systems are designed with the intention of a single "main user" using them, with little to no support for cases where the user would like to get external help from others. In this work, we provide anecdotal evidence of problems faced by supporters who try to help older adults in privacy and security related tasks. We outline multiple suggestions for future work in this area, and discuss how systems can support people who support older adults.

Author Keywords

Older adults; privacy; security; mobile devices

ACM Classification Keywords

H.5.m [Information interfaces and presentation (e.g., HCI)]: Miscellaneous; K.6.4 [Security and Protection]

Introduction and Motivation

Older adults increasingly adopt smartphones and tablets. This can be attributed to the fact that many of today's older adults were younger when mobile devices became ubiquitous, and due to many older adults accepting the adoption of technology [6, 7]. However, this user group may face

specific problems when using their smartphones. For example, older adults might be accustomed to receiving a manual for technological products. Yet, with fast update rates and access to hundreds of thousands of apps [1], today's manuals would often be outdated by the time they are printed. To overcome issues like this, many older adults rely on trusted individuals, such as family members or friends, to help them with tasks on their mobile devices [2, 3, 4, 5]. This includes tasks related to security and privacy, such as configuring privacy settings of mobile apps.

In general, we see two ways of addressing this situation: First, customized solutions could be designed to support older adults in making good security and privacy decisions. Second, such solutions could be designed to facilitate help from trusted individuals, that is, to support people in supporting older adults. Here, we focus on the second approach, which might be more suitable for people who are not confident that they can perform the tasks themselves, or fear that they might misconfigure or "break" something.

In this work, we call aforementioned trusted individuals *supporters*, highlighting their role in helping others. However, currently supporters themselves face tedious problems: For example, smartphones are fundamentally designed to be used only by their respective owners, and not by third party individuals. This hinders supporters in helping others.

We see many opportunities to support people who support older adults. For example, a system could offer a "supporter role" setting to enable creating accounts remotely for others. Moreover, systems could provide older adults with recommendations based on their supporter's security configurations. This could potentially improve the experience of all parties involved.

In the following, we describe anecdotal evidence and discuss multiple problems that supporters encounter when helping older adults, leading to suggestions for future research in this area.

Stories
We informally report on observations and experiences with privacy and security issues that older adults might have.
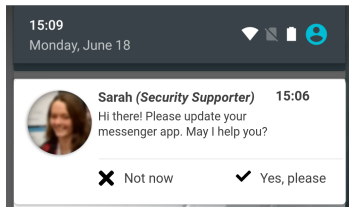
Password Management
We observed older adults managing their passwords in an analogue folder. However, being aware of security issues, they applied a sophisticated way of matching passwords to respective accounts, using ordered numbers and different sheets of paper.
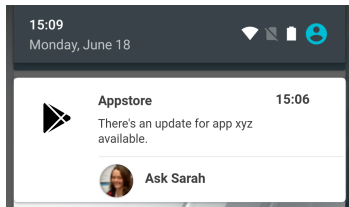
In another example, all three children and even children-in-law were aware of an older adult's password, which was used across multiple accounts. The reason is that the older adult often required help from her family in changing account settings, backing up photos on her smartphone, and so on.

Fallback Authentication
In many cases, supporters are remote and not co-located with the grandparent or parent they are trying to help. In case of phone loss, or setting up a new account on a new phone, situations occur where the older adult needs to remember their account password and email. After failed attempts, the supporter tries to recover the password and email of the older adult using a phone number code. It is often the case that, if the supporter and adult are in two separate countries, the supporter has no access to a local number for code recovery. Such failures of specific fallback authentication cases need to be redesigned.

(a) push

(b) pull

Figure 1: Support for updating an app can either be (a) provided by the supporter (*push*) or (b) requested by the older adult (*pull*).

Figure 2: The supported older adult can access the supporter's advice directly from the security settings screen. Recommendations for security settings can either be given *explicitly* by the supporter or *implicitly* derived from the supporter's own settings.

Privacy Settings
Possible and adequate privacy settings often may be unknown to (elderly) novice users. On the one hand, this is critical when it comes to not applying privacy settings at all. On the other hand, this leads people to finding their own way of protecting their privacy – which might add an unnecessary level of complexity. As an example, we observed older adults using their Android phone without a Google account, which makes many tasks more difficult. At the same time, they installed messenger apps to communicate with their family. As a result, they ran into problems with having to update those apps manually.

Supporting People to Support Older Adults

Based on our observations and anecdotes, we suggest three directions for future investigations into designs for supporting supporters.

Facilitating Communication for Remote Support
Older adults and potential supporters often live apart from each other. This limits the capabilities for direct help. It also makes help requests more tedious to handle, as there are only limited capabilities to provide context (e.g., describe the problem via phone). This could be addressed by giving both sides a medium for communication. Such a solution could include two directions:

- *push:* The supporter is provided with a channel to push relevant information to an older adult. For example, a son could send instructions to upgrade an app, after a security breach for the current version of that app was published (see Fig. 1 (a)).

- *pull:* The other way round, an older adult should get the opportunity to actively request help for a current problem (see Fig. 1 (b)), giving their supporter the necessary context to be able to solve the task.

One way to address this might be an option to take screenshots and annotate them with concrete questions, allowing the supporter to edit those annotations and provide advice towards the necessary steps.

Integrating Supporter Roles
An idea to "outsource" security is to let older adults choose trusted people to support them in concrete roles. As an example, parents could choose their children as responsible supporters. For instance, supporters could then get the option to actively create accounts for others in a management role: Administrative and security-related tasks (also) remain in the hands of the supporter while the supported user can use the respective service, knowing that security management is in trusted hands.

Supporting Personal Recommendations & Customization
Another idea is to nudge the supported user with suggestions based on the behavior of trusted individuals. For example, a mother accesses a privacy settings screen and receives a prompt asking her if she would like to configure according to her daughter's own setup (compare Fig. 2). Such recommended settings could be created in two different ways:

- *implicit*: Supporters share their own behaviour data with the system, which then shows corresponding recommendations to the supported user (e.g. *"Your daughter uses these settings on her device."*).

- *explicit*: Supporters can explicitly (pre-)configure recommended settings on their own devices for the supported user. These are then suggested to the supported user (e.g. *"Your daughter recommends these settings for you."*).

Conclusion

In this work, we presented anecdotal evidence of problems that occur when older adults seek support from trusted individuals for performing security- and privacy- related tasks. We discussed several directions for future work to address these problems. In future work, we plan to investigate the suggested solutions in detail, as well as conduct empirical studies to better understand and identify even more challenges of supporters of older adults in the context of security and privacy.

Acknowledgements

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