Understanding online harms and safety of vulnerable groups going through serious life transitions

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Abstract

Life transitions are times of particular importance in terms of online information sharing and support seeking behaviours. At a time in life when audiences and publics may need to be considered, there is a potential for regretful disclosure and harm. Emotions play a central part in this, during a disruptive time, and it can be difficult to make informed choices. At present, online technologies do not offer passive security and person-centred approaches for diverse populations. Previous research for vulnerable groups is limited for certain populations in usable privacy for life transitions. Designing adaptive Privacy Enhancing Technologies (PETs) can offer individuals a level of personalised support to protect them online when transitioning. We took a codesign workshop approach to build on initial survey findings, to understand online lived experiences of four vulnerable populations: LGBT+; Leaving the military; romantic relationship breakdown; and living with cancer. We identified initial themes from our survey relating to (1) A new normal; (2) Continuum of transitions; (3) Types of information sharing; (4) Impact of information sharing; and (5) Moderating privacy and control. These themes have been applied iteratively to develop our co-design workshops. This study aims to deeper understand related factors and impacts experienced from going through a life transition and online safety. This abstract reports the position of creative design methods which bring a novel approach to understanding vulnerable populations during life transitions to best develop appropriate and meaningful PETs.

1. Introduction

Life transitions are times of change and turbulence, with personal life choices affected by many moving priorities, and chaotic patterns [1]. During these times, online safety and privacy can be impacted. Online safety and privacy needs can be complex, multi-faceted and individual. Some transitions offer time and space to reflect, prepare and anticipate changes such as a decision to 'come out' as LGBT+. Sudden illness or loss of income may arrive without any anticipation. There are certain life transitions which involve core changes of identity (e.g., transitioning gender) whilst others, such as the breakdown of a romantic relationship [2]. There are known interactions with the central actor, and others in their social networks both online and offline which require careful consideration when transitioning [3]. This consideration may also affect national security when personnel transition from leaving the military. Therefore, the flexibility of a PET tool must be person-centred to adapt to the highly significant threats of distinctive groups, with the perspective that many may share intersectional impacts [4].

Our initial survey findings highlighted common privacy challenges and practices online across the four transition groups. In total, 100 participants from each population completed our survey. The findings indicated a lack of support for transition specific factors from different social actors; online behaviours specific to transition dependant factors; multiple transitions occurring; technological knowledge and lack of education; those affected who disengage from online life; and non-linearity of transitions occurring. Many views of transition are simplified and do not represent the time that it can take to move through a difficult life change.

1.2. Privacy Enhancing Technologies for life transitions

Present technologies lack flexibility to support users who may not have psychological capacity or coping behaviours to process traumatic life events, rapid and long lasting lifestyle changes, and unsafe online spaces [5]. Privacy Enhancing technologies (PETs) propose to offer respite from the heavy burden placed on the user of technology [6]. At present, this is understudied, and requires further investigation into understanding the nuanced needs of individuals, and the ways in which non-linearity, complexity and multi-factorial experiences define the harms experienced. We propose to build on our survey by conducting 'creative security workshops' with each of the four populations, to ensure the resulting PETs development will consider common experiences but can also adapt to individual needs. Outcomes from our workshops will focus largely on the development of user models to inform the design of the proposed PETs.

1.3. Creative methods in Privacy

Privacy-by-design in Human and Computer Interaction (HCI) research, can include an assortment of approaches and theoretical lenses ranging from Value Sensitive Design (VSD); Participatory Action Research (PAR) to Empathy Design thinking and more recently metaphorical design [7, 8]. These approaches lend an inclusive view to valuing the human experience with technologies.

Value Sensitive Design (VSD) supports human value in technological design and is theoretically underpinned. An accepted approach within the CHI community during previous workshops. Arguments are ongoing to build evidence for evaluation of outcomes in relation to changes led by VSD. Participatory Action Research (PAR) positions citizens as part of the research process by including them in the design and processes of studies. This can be practical, theoretical, and reflexive which aligns with person-centred, iterative study approaches[9]. Codesign allows for agency and representation of the voice of the "co-researchers", by maintaining a non-judgemental, and non-parental stance. There is evidence to support our four groups live through trauma [4, 10-12]. By probing into retrospective memories, there is an awareness that focus of traumatic memories specifically, are extremely difficult and demanding on effort, attention, and can become time consuming [13]. Therefore, we consider our design to be trauma-aware.

2. Developing creative workshops

The creative security workshops aim to co-develop user models of online privacy experiences, challenges, and motivations of people going through life transitions, specifically those listed in the introduction. Overarching research questions will determine:

1. How online practices and privacy needs of individuals changed as a result of their transition.
2. What are the information needs of the participants going through transition, and what gaps do they identify as important to their online safety?
3. What are the common approaches to sharing information and maintaining privacy across the four populations? Do they differ in any way?
4. What are the privacy needs and challenges across the four populations? Are any specific to a certain transition?
5. What are the personal factors that influence privacy behaviours e.g., technological expertise?
6. How may the privacy challenges and needs of the participants translate to the proposed Privacy Enhancing Technologies?

2.1 Participant recruitment

We iteratively designed recruitment to be flexible to the needs of our target populations. Codesign of recruitment involved asking our Public Involvement Panel (PIP) to review our language and workshop design, before sharing with well established charity partners. We sought to understand our populations for a perspective approach offered by those living in each transition.

We advertised using social media, local networks, and attending events in-person. Many charity partners favoured a personal approach to building rapport and relationships with patrons of their services to develop trust. Trust was further positioned as an axis important to the design of our workshops (see below). Given that our populations were already seeking support online, we encouraged snowball sampling and invited our workshop participants to share our study with friends if they enjoyed taking part.

Screening of recruitment included pre-workshop tech sessions, and provision of a UK home address. In terms of facilitation, the workshops included short time block sessions with respect to the time-consuming burden on recalling traumatic life events.

2.2 Design

Our workshops designs included mapping, card sorting metaphor, and prioritization (MoSCoW) exercises. Through identifying research questions from literature, we adjusted these methods to suit our four transition groups [14-20]. In order to facilitate discussion and unravel sensitive and emotive live experiences, these tools were used with non-judgmental language and prior pilot testing with PIP members. From our previous expertise working with populations with health concerns, and holding research workshops, our design was evidence based [21, 22]. To support trust (both in-person and online), an invitation to attend anonymously was extended.

From our initial survey of 400 people representing each of the life transition groups, thematic analysis of data provided suggestions of the following initial themes: (1) A new normal; (2) Continuum of transitions; (3) Types of information sharing; (4) Impact of information sharing; and (5) Moderating privacy and control. These themes shaped iterative design of our scenario prompts on our workshops and our interview topic guides both for in-person and online workshops.

Once completed, our workshops will collect richer, descriptive, qualitative data to bring depth of meaning to our initial survey findings, for user modelling. Data will be analysed thematically, with our user model developed using empirical and theoretical underpinning from Self Determination Theory [23].

2.3 Procedure

Our workshop protocol was reviewed with PIP members, and the resulting tasks were defined as shown below. There are a suite of four tools which participants are invited to journey through in a sequential format. The understanding was developed that thoughts would move from a past, present, to future mindset throughout the workshop experience. This is explained below:

Tool 1: Adapted User Experience Mapping

Participants are invited to use this tool to facilitate their thinking and to get used to the workshop experience, similar to a warm-up tool. They are asked probing questions to allow retrospection of lived experiences in the past, and current timeline, if they are still undergoing transitions:

1. Which stage are you at in your transition?
2. What events have happened that you wish to share?
3. What was the purpose of sharing information online?
4. When did you share information online, and who with?
5. What actions did you take online?
6. Can you think of an experience online that helped you to progress in your transition?
7. Can you think of an experience online that caused you to go backwards in your transition, or stalled your progress?
8. If you feel you experienced something negative online, how did you escape from that experience?

Tool 2 : Empathy Mapping
Due to the previous tool being used to facilitate a warm-up, and to allow participants to settle into the workshop experience, this tool was developed to address research questions relating to the emotional impact of their journey. Empathy mapping provides participants with an alternative way of visualising their transitions and online behaviours, focusing on four concepts: their emotional states and thoughts; their actions and behaviours; their online environment; and external influences (other actors).

We introduce the purpose of the empathy maps, the tasks and what is expected of the participants. Participants can populate the workshop alone in a set amount of time, before presenting their visualisations back to the group, should they feel comfortable doing so.

At the end of the workshops, a presentation of an empathy map of the respective population will be shown to the PIP members to allow us to validate our interpretations of the data.

Tool 3: Metaphor cards
This tool utilises the principles of metaphor cards in a present and future based mindset. Metaphors are gathered from initial survey data and presented to the participants as a vehicle for discussion. The cards themselves are traditionally designed using text to symbolise a concept or idea, the tenor; and a figurative description of the tenor i.e. the vehicle, inspired by Logler et al's framework [15]. This helps to bridge gaps in thinking, should participants feel their traumatic experiences are difficult to retrieve. Participants will then use these metaphors to discuss if they are relevant, or not, to their own lived experiences.

Tool 4: Prioritisation (MoSCoW tool)
The journey through the workshop will move participants to thinking about how future technology can be shaped by their lived experience. We use the prioritisation process called MoSCoW (Must have, Should have, Could have, Won't have) to perform this. MoSCoW can be a collaborative discussion prompt, to encourage participants to move away from convergent thinking (where they have one well-defined solution based on their own experiences) to creative/divergent thinking. During this process, they will be asked to consider "what matters most to them when sharing information online during the transition?" and "how may the proposed PETs protect people's privacy in the future?" This is particularly applicable to the project since the development of the PETs will adapt to the needs and profiles of end users from a person-centred, privacy-by-design lens.

2.4 Ethics
Due to the nature of the topic of our workshops, participants may discuss emotive and sensitive issues related to their transitions. The workshops have been designed to elicit this information in an ethically responsible manner. Our partner charities recommend venues to host in-person meetings, whereas online participants have the opportunity to replace their identities with avatars and name changes, thus ensuring they feel safe and comfortable throughout. Icebreaker tasks are conducted at the start of the workshops to increase participants' familiarity with the workshop experience. Prior to all tasks, we remind the participants they have the right to withdraw consent and can skip exercises that they do not feel comfortable completing.

One researcher is on-hand to monitor the wellbeing of participants and to provide support where necessary e.g., offering a cool-down space for an individual who is becoming upset. We direct participants to appropriate services after the workshops if they require further emotional support. Finally, we offer fair pay for taking part, access to publications and project websites for follow-up communication and presentation of the data in a clear, accessible format.

3. Preliminary results & discussion
Workshops are ongoing at the time of print. So far, recruitment challenges have existed in terms of social media attracting non-human participants (bot replies). These have been noticeable due to the repetitive nature, style, and design of replies, often with Gmail email addresses of several different names but the same text repeatedly sent. Iterative recruitment design has included follow-up communication asking for more personal information, and a pre-workshop tech test session.

Recruitment for certain populations has proven challenging. In terms of veterans leaving the military, we have found it necessary to reiterate more targeted recruitment to the time they left the services (no more than five years ago), and to state that they must be active users online. Those who are living/have lived with cancer, require an immersive presence of researchers at places of support to become familiar with the project. This has involved taking time to build rapport and show support for their treatment commitments and emotional experiences. Offering an online alternative to joining a workshop has proven to show flexibility and can be adapted to meet the participant's schedule.

However, online attendance has shown that less informal discussion takes place due to participants focusing on using technology to take part. This is improved by using a time block of working as an individual, then coming together as reported by MacDonald, Rose [24]. Feedback at the end of the current workshops has been positive when asking participants how they felt about the process. The time-blocking of tasks is of particular favour of participants who feel their ability to focus and provide attention of such emotive topics can be cognitively demanding also.

4. Workshop at SOUPS

We offer an interactive session to explore our methods, prompts, scenarios, and research questions to pivot the position of user and person-centred design for those living through life transitions whilst navigating online spaces. We invite the research community to take part in our brief online whiteboard design which offers an opportunity to facilitate open discussion.

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