Older Adults and Social Networking Sites: Developing Recommendations for Inclusive Design

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ABSTRACT

This paper outlines the process of developing a set of recommendations to make Social Networking Sites (SNSs) more inclusive for older adults. Thematic analysis is used on transcriptions of focus groups with older adults to outline areas of concern. Recommendations to avoid these potential barriers have been generated, and subsequently evaluated. A comparative analysis study has been conducted, with 25 participants around or over 65 years of age, to measure the impact of these recommendations applied to a developed replica of an established SNS, alongside a control version. We find that the interface version which utilises these recommendations receives a higher System Usability Scale (SUS) rating than the control version. Participants are additionally asked to what extent they agree with each recommendation in a process of verification. A brief description of the processes undertaken in the research is presented and discussed.

Categories and Subject Descriptors

K.4.2 [Computers and Society]: General.

General Terms

Human Factors.

Keywords

Social Networking Sites, Older Adults, Recommendations, Thematic Analysis, Inclusive Design.

1. INTRODUCTION

Social networking sites (SNSs) have seen a large amount of growth in recent years, now with over 1.1 billion monthly active users on the most popular SNS, Facebook [1]. Despite the popularity of the site in the UK, users are much more likely to be young adults, with few older adults using them [2]. Complexities arise from investigating potential reasons behind this lack of SNS adoption for older adults due to the expansive range of reasons existing for this trend. These reasons include, for example, privacy and security concerns, lack of control, and a lack of interest in using such a site [3, 4].

This research aims to suggest measures to increase inclusivity by creating recommendations for the developers of new and existing SNSs alike, therefore avoiding common barriers that can prevent older adults from choosing to use such sites. While the recommendations do not claim to be a solution to every opinion, we argue that they are a step in a positive direction, and may help attract older users who would be interested in using social networking sites, but perhaps have concerns about the behaviour or design of such a site. Hoofnagle et al. suggests that many of these concerns are also common among younger adults, such as a lack of privacy, while many continue to use such sites in order to enjoy social inclusion [5]. While many of the concerns and subsequent recommendations may not be unique to older adults, we support that developing for 'extra ordinary' users creates a more inclusive environment for a wider range of people [6].

2. CREATION OF RECOMMENDATIONS

To generate the recommendations, two focus groups were held at the School of Computing within the University of Dundee. Participants were asked to discuss their opinions of SNSs, including both positive and negative comments, with potential improvements also being discussed. Both focus groups were audio recorded and transcribed so that qualitative analysis could be conducted.

Thematic analysis is a method of analysing qualitative data [7]. Using thematic analysis, we were able to cluster common opinions around a collection of main underlying themes, which led to the creation of the initial list of recommendations. Two existing papers were chosen due to their relevance in the specific field [3, 4], which were then subjected to a further stage of thematic analysis with the codes generated from the transcriptions. This enabled us to verify the consistency of our themes with other research, to see how well they generalise.

For each theme, if a possible solution could be identified then it was included as an initial recommendation. Creating an initial recommendation for every theme where a potential solution existed allowed the authors to evaluate as many recommendations as possible, only removing initial recommendations after a lack of support emerged from the evaluation.

3. EVALUATION

The process of thematic analysis resulted in the generation of 32 initial recommendations to mitigate concerns identified in the focus groups and literature. Some examples of these recommendations include avoiding frequent changes to the interface, providing easy navigation to settings and clarifying the broadcast level of features to prevent social blunders. The next step in the research was to firstly evaluate the individual recommendations for participant agreement and secondly to investigate the impact of the overall set of recommendations as a whole.

For this study, a comparative evaluation was used to investigate the impact of the recommendations as a whole, however this presented a number of challenges. It was difficult to develop a control site which did not follow the recommendations as this would require a conscious effort on the part of the developer to discard good practice (SNSs commonly implement some, but not all, of the recommendations presented in this paper). Our solution

to this issue was to evaluate the impact that the recommendations may have on an existing SNS. This raised further challenges, however, due to the requirement of non-SNS users as participants. Ethical considerations (lack of consent from contacts or friends) and the difficulty of conducting a controlled study on such a diverse site also surfaced in early stages of planning.

The solution resulted in a combination of these options. An offline replica of a popular social networking site was built, featuring a near identical layout and the main functionality. This allowed alternative interface versions and simulating the experiences potentially faced by new users of the site while avoiding any ethical issues relating to requiring participants to sign up an account. This came at the cost of a lack of real-world relevance and applicability as participants communicate on the prototype with simulated users representing 'friends'.

25 adults (aged 64-86, M = 71.2, SD = 5.07), who were all non-SNS users with no severe visual or cognitive impairments, were recruited from the SiDE user pool in Dundee [8] to partake in the study, which was divided into two stages: the comparative evaluation (overall impact) and the questionnaire (evaluation of the recommendations individually).

For the first phase of the study, participants were asked to attempt a total of 11 tasks on both versions of the interface. These represented tasks identified in the earlier focus groups as using features which were important to participants. Participants would attempt a task on one of the two interface versions before moving on to the second interface. The version participants initially attempted tasks on alternated to mitigate practice effects and counterbalance the study. After all tasks were attempted, participants completed two System Usability Scale (SUS) questionnaires [9], which provided a 0-100 score relating to the perceived usability for each version of the interface.

The second phase of the study consisted of a series of Likert questions to measure agreement with the recommendations. The questionnaire implemented further counterbalancing measures to prevent the assumption that all questions should be agreed with.

4. RESULTS
The nature of the SUS scores, along with the normal distribution of the data, allow us to use parametric tests for statistical analysis [10]. Using a paired measures t-test on the means of all scores for each interface version, we can show that there was a significant difference in the SUS scores for the control interface (M = 44.4, SD = 12.651) and the interface modified by the recommendations (M = 56.0, SD = 15.360); paired $t(24)$ = 3.756, p = .001, d = 0.75.

The evaluation of the recommendations provides a 0-4 value representing the degree of agreement participants have to each recommendation. Recommendations are classed as supported when the median response is 3 or above, which represents "Agree" or "Strongly Agree" on the Likert item. 27 recommendations are supported, while 5 have been removed due to a lack of support (having "Strongly Disagree", "Disagree" or "No Opinion" as median responses).

5. CONCLUSION
By taking into account the concerns and barriers to older adults in regards to social networking sites, the experience is improved for people of all ages. We created a set of 27 recommendations, generated from discussions with both users and non-users of social networking sites over 60, and describe our methods of creation and evaluation. Our findings show that following the

recommendations increased perceived usability of an offline replica system designed to simulate the most popular SNS using a comparative evaluation.

The purpose of the recommendations is to guide and suggest measures to improve the site for a wider variety of people, therefore, not all may be applicable to sites with different themes or features. Rather, it is down to the developers of such sites to consider and implement these recommendations as they see fit. We aim to present the final collection of evaluated recommendations for academics and developers of social networking sites in the near future, in order to provide a better online environment for adults of all ages.

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