Personalizing motivational strategies

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Design for behaviour change (BC) has the potential to motivate older adults to increase their physical activity and enjoy the health benefits thereof. Despite this potential, there is a lack of knowledge about how to profile users, to most effectively personalize strategies, which is detrimental to the overall effectiveness of these BC solutions. Thus we conducted a random control trial in which the effects of two BC strategies, implemented in two otherwise similar mobile applications, are compared. From the statistical analysis of the measured step data and the collected survey data, we were able to create motivation profiles for BC by triangulating an individual’s contextual, behavioural and psychological factors. Here we share an overview of our approach. In this way we aim to inform designers doing important work in the field of BC toward increased physical activity.

**Approach**

Participants were introduced to off the shelf wearable activity trackers and provided with a smartphone during the onboarding workshop. In the following four-week baseline measurement, participant physical activity was measured without providing any intervention. During the second workshop participants were introduced to one of two mobile application: application A used the Self-awareness BC strategy and mobile application B used the Social-awareness BC strategy, see figure 2 A and B. We asked to the participants to use these applications throughout the following five intervention weeks, see figure 3. The final debriefing workshop wrapped up the study. Information about participants personal factors was collected via questionnaires during the workshops. In order to successfully facilitate the necessary in-context research, we create a product service system, see figure 1 [1]. Step data was anonymously collected and stored on a local server at the university and collected personal factors from the questionnaire (information including age, sex, stage of change self efficacy and social efficacy) are stored locally and encrypted.

**Results**

After exclusion due to lack of measured step data, 15 people used the Self-awareness application and 38 people. 13 participants were male and 40 of them were female with a median age of 73.

We used a Mann-Whitney U test to determine that there was no accidental bias between the two intervention conditions. We used a multiple regression analysis to find which personal factors were significantly statistically related to a higher relative difference in average steps taken between the baseline and intervention phases of the study. We then analyzed each factor and its relationship to the change in number of steps during the baseline and the intervention phases of the study in more depth.

The purpose of this study was to suggest motivational profiles linked to the appropriate BC strategies. Though further research into this topic is required our findings suggest that people with low phone confidence, at an earlier stage of change and of advanced age could be addressed by the self-awareness BC strategy. While people who are already in the preparation stage, could be more effectively addressed using the social-awareness BC strategy.

**References**


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