Gamification - persuasion for behavior change using formal argumentation
Additional documentation of the expert elicitation process

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1 Expert elicitation methodology

This paper followed a three-arm methodological approach (see Figure 1) where *features* (*e.g.*reminders, suggestions, etc.) and *strategies* (*e.g.* gamification, proactiveness, etc.) of persuasive technology were identified.

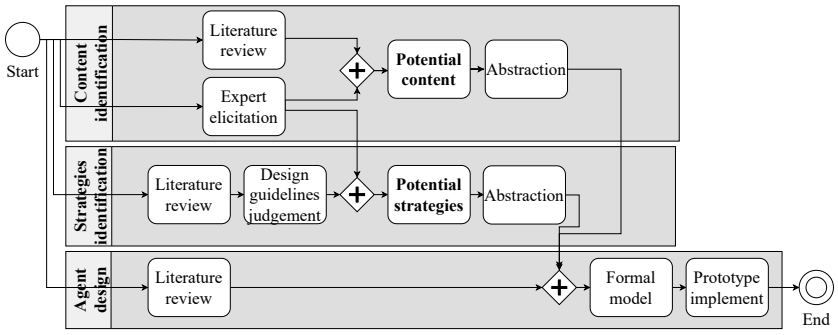

Fig. 1: 3-armed methodological process to integrate: 1) expert elicitation of persuasive features of a coaching technology, 2) strategies used in persuasive technology, and 3) formal models of software agents.

1.1 Expert elicitation process

The expert elicitation process started with an open-ended interview. In the following details of the interview preparation are provided:

- Number of participants: eight
- Age: avg: 47,5 sd: 7,59

- Research areas expertise: physical activity and sedentary behaviour, ageing and disability, social work, social welfare, nutrition, psychology and governance, and health economics
- Initial open questions:
  1. *What should be the main goal for the digital coach?*
  2. *What are the main functionalities of the system?*
  3. *How the visual aspect of the main functionality would be?*
  4. *What direct benefits a user should receive from the digital coach use?*
  5. *What direct risks could the user have when using the digital coach?*

1.2 Analysis

Grounded theory [1] was used as an inductive, comparative process for gathering, synthesizing and identify features and strategies of persuasive/coaching systems.

We used RQDA: Qualitative Data Analysis `http://rqda.r-forge.r-project.org` package with RStudio `https://rstudio.com` v1.2.5 and R language `https://www.r-project.org` version 3.6.3 to make the codes, code categories, and the analysis of cases of every interview.

1.3 Follow-up questionnaire

A follow-up short questionnaire was presented as a validation process to confirm/disapprove potential features and strategies.

2 Results

2.1 Themes and codes

We used 19 codes grouped in nine categories as is presented in Figure 2.

Every interview was transcribed and meaningful entries (discarding off-topic and redundant information) was coded, as is presented in Figure 3

References

1. Charmaz, K.: Grounded Theory: Methodology and Theory Construction. In: International Encyclopedia of the Social & Behavioral Sciences, pp. 6396–6399. Pergamon, Oxford, England, UK (Jan 2001). https://doi.org/10.1016/B0-08-043076-7/00775-0

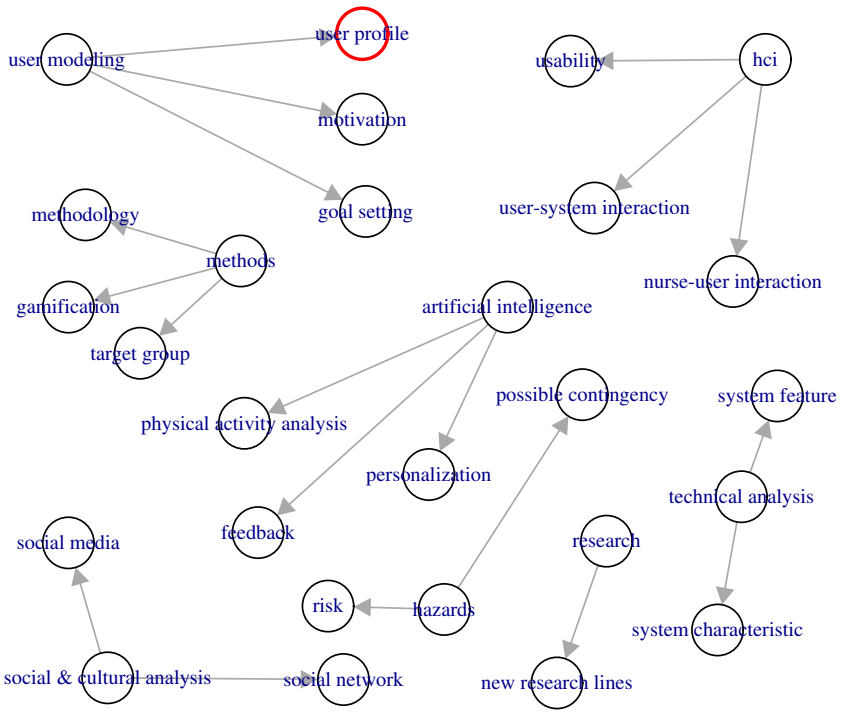

Fig. 2: Themes and codes used for interpreting interviews entries

Fig. 3: Examples of coded interviews scripts