

Virtual Social Gym: a Persuasive Training Platform for Independently Living Seniors

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1 Introduction

Physical activities can improve the physical and emotional well being of the elderly [3]. However, a variety of barriers make it hard for them to maintain or increase their physical activity level (e.g., lack of facilities, communities poorly designed and low self-efficacy). Previous studies reveal the power of persuasion strategies in home based interventions (e.g., [1] & [5]), with [5] pointing to the social persuasion (e.g., social support, competition and collaboration) as the dominant strategy to prolong the interest of the elderly in following a long-term physical training plan.

In this paper we introduce a system, namely Virtual Social Gym (VSG), that aims at increasing the physical and social well being of elderly people. It does so based by i) allowing elderly people at different level of capabilities to train independently from home, while still getting the feeling of training within a fitness class with the other training members, ii) exploiting social interactions and the feeling of being part of a community (a gym) as a motivational factor for performing regular training.

2 Virtual Social Gym

VSG provides an ICT infrastructure, applications and sensors that allow the creation, operation, monitoring and animation of virtual gyms where elderly can train unassisted from home. The system comes with a tablet application for trainees, namely the Trainee App; a web application for trainers, namely the Coach App, and the integration with sensors (e.g., mobile phones and Kinect) for dual purpose of monitoring the performance and providing the feeling of training in a gym. On this setting, the design of the applications relies on various elements to encourage elders to start and keep training:

Training like in a gym. A very important aspect of training in a gym is having the feedback and the encouragement that can only come from the expert. Thus, in VSG we wanted to exploit this unique feature to allow elders to receive real-time quality

training and feedback from their favorite coaches, while at the comfort and privacy of their houses. To this end, we designed a virtual environment based on the metaphor of a gym, where trainees could interact with the trainers in live training sessions. Interaction with the coach is bi-directional, but in the case of the elder, mediated through avatars. Sensors allow trainers to have live indicators about the performance of the trainees and give them immediate feedback, and in turn, give trainers and trainees visual motion feedback thanks to animated avatars.

Social persuasion strategies. The VSG provides a series of social persuasion strategies based on collaboration and competition that are proven to be effective in our previous work [anonymous]. On top of this, we build on the metaphor of the gym, to provide specific elements: i) before the training users can enter a virtual “locker room” and be aware of other people joining, and ii) interact with them if so desired. As time passes and relationships are built, trainers can also iii) encourage others to keep up with the training and explicitly “invite” them to join the training sessions. The idea is that the training becomes an opportunity for socializing as well as a persuasive element.

Individual persuasion Strategies. For the individual persuasion strategies we rely on well-known instruments such as: positive and negative reinforcement after the training session and, displaying the progress using metaphors such as growing flower.

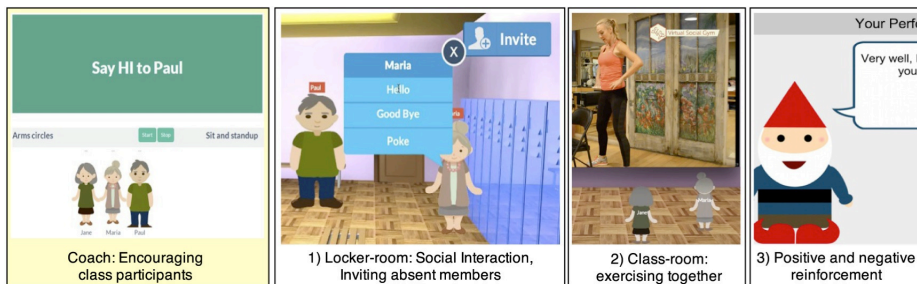


Fig. 1. Screen-shots of persuasive features of VSG

We illustrate how these various elements work together in the target scenario in a demo video at <http://demo.socialgym.org/>

3 Discussion and Future work

In the context of this research work, we have tested the persuasion strategies in home-based intervention, with the results pointing to the power of the social persuasion strategies [5]. In addition, we are currently conducting an intervention with a focused group of elders to study if training in this setting could also lead to an increase in the daily activity of the elders.

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