Using Persuasive Social Medias to Support and Motivate Prosthesis Carriers

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Abstract. In this paper we present some initial ideas and reflections regarding the use of social networks as a mean to facilitate amputees using prostheses in their daily lives. We therefore combine perspectives from Persuasive Technology with the principles used to motivate patients with prosthesis to complete their rehabilitation. These prosthesis carriers (PCs) experience several challenges in their everyday life, such as exclusion from a group, why the prosthesis inadequacy demotivates the PCs approach to social interaction with others. The idea is to design a persuasive technology that supports, helps and motivates these PCs to deal and comprehend with, not only their psychological issues and worries, but also some of the more fatal consequences there are if they stop using their prosthesis. We thereby hope that the PCs will support, reward and motivate each other through interaction, recognition and self-monitoring.

Keywords: Persuasion Technology, MIP, prosthesis, social media, network

1 Introduction

Every year, thousands get amputated due to numerous causes of trauma and other conditions. These interventions can have fatal consequences for a person's quality of life [1]. Also amputees often experience depressive core symptoms such as; blame, lack of joy, decreased pleasure or interest and increased fatigue also depressive accompanying symptoms; low self-esteem, guilt, self-blame, difficulty concentrating, agitation, sleep disturbances, appetite and weight change [1,2]. These people incur serious disabilities, and therefore have a higher risk of experiencing serious loss of life quality and happiness [1].

People with acquired amputations and congenital limb absence are most likely to experience great trauma as a result of losing a leg or an arm, which creates challenges in their everyday life [3,4]. They are therefore offered prostheses to restore or imbue some of the function and/or cosmetics as part of their rehabilitation [1,3,4,5]. Adapting a mechanical body part is furthermore likely to be a challenge because of the reduced mobility. Many amputees, at some time, experience a feeling of being different or excluded from others non-amputees. But having a strong collective identity helps them feel like they belong in a group [6]. Furthermore a collective identity can provide a profound sense of fellowship with other people and thus help to satisfy a basic

human need to experience themselves as part of a social community. By gathering the PCs, the risk of feeling different or excluded reduces remarkably in such an environment, which may strengthen their quality of life [1,10]. The patients can also benefit from this experience and thereby get the strength to support, motivate and help other PCs in a similar situation [1,6,10]. To motivate PCs, we find a need of success and reward [7,8], which sports and competition hopefully can provide. Furthermore, the PCs must be motivated to work individually with the prosthesis so that they achieve body and prosthesis control [5,9], with the hopes of creating a natural and acceptable body movement [9]. Again sports and workouts can be the solution.

2　　　Consideration of a social media

We find it interesting to develop a network where sharing experiences, independent of time and place is possible, so that physically challenged from all over the world can interact, share information and communicate. We thereby hope to motivate a large number of people at one time - Mass Interpersonal Persuasion (MIP) [11]. MIP brings together interpersonal persuasion and mass media, and is thereby able to persuade a large number of people to change attitude or behavior. MIP uses social influence and competition, which is what we expect to incorporate in the social network. Furthermore we see it as advantageous to consider previous experiences, for example our work in HANDS SPo[1] [12] as well as successful social platforms such as Facebook (FB). Other open source platforms are to be considered, to delineate the right platform for a PC-network; there is need of further investigation of social media platforms, which is a part of our future research. Our immediate expectations and assumptions on these platforms is for example that MIP needs a massive social graph, whereby FB is a valuable choice. Also we expect most of the PCs to already have a functioning profile at FB and we find that most users check their account several times a day. FB makes it easy for users to find PC-friends, which will increase social interaction. Therefore we have an idea of creating a new website or platform for this PC-network, where users login and find friends at FB and apply them to the PC-network.

Here we find the need for ethical reflections and considerations important. Users of a social network must consider what kind of information they choose to share with others about their privacy as well as who has the rights over their public accessible and personal information available on the Internet. These ethical considerations must be clearly specified and discussed. Likewise, the pros and cons of either, using an already existing social network as FB versus creating a new social network must be considered. The possibility of becoming a part of the social network is primarily an offer for PCs living with the aforementioned physical and psychological challenges. Although there are several benefits for choosing FB we must on the contrary ensure that we reserve the rights to keep the PCs log-data private.

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[1] Helping Autism-diagnosed teenagers Navigate and Develop Socially. Sharing Point (SPo) a group at FB, where young autistics share experiences and learn about sarcasm.

Another important motivation factor is independence and natural movement with the prosthesis [5,9]. Competition and exercise releases endorphins and therefore hopefully can become a successful persuasive strategy [1,7] like team sports; football or running teams. By exercising or playing sports the PCs will be able to focus on opportunities rather than limitations, and they may get positive experience and feel of their bodies. However the PCs may risk finding it demotivating to train alone, due to lack of competition and social contact. The solution might be to practice with others through an interactive network such as Endomondo or NikePlus as a supplement to the PC-network. Here participants can share goals, distances, etc. and hereby interact and compete, independent of time and space.

Designers often have a specific intention with the design of a technology, and the intention is often more complex than 'wanting to motivate patients to use their prosthesis', and so the users intention towards applying a specific technology must to some extent be motivated by exogenous factors [1]. For the social network to help motivate the users to interact and share information and experiences, credibility is required. This is the same type of credibility and persuasion that has made FB so popular – recommendations, affiliation, opinion makers and social acceptance [7]. If friends use the site, communicate and share information, pictures, running routes, experiences and goals with each other, an unity is created.

3   A social network

Through the PC-network users will be able to manage and monitor their own actions and performances, set goals and check others' training tips, running areas, distances and times [7]. The network can create a virtual world or environment, which has to be tailored specifically to each user to support the persuasion and learning process. For example the users have their own avatar, similar to their body shape, weight, height, age, hair color, etc. to personalize [7,12]. Furthermore in the social network we find that operations are to be simplified for example by illustrating distances, time taking etc., to inform others about the user's workout. Here other users can rate each other's workouts, try the suggested routes and rate them to illustrate were the good running tracks are to find, according to what kind of disability each user has. Also we find it interesting to include positive feedback through reward, approval and praise of the users' work [8]. This may be in form of 'likes' (e.g. a thumb on FB) [7], compliments and statements as well as comments on achievements. Another type of positive response can be earning points in the form of symbols such as stars, thumbs or numbers where each user can monitor their progress [7,8].

In this environment, creating different levels that the user can accomplish by completing the various running routes at each level, can persuade and motivate users to keep working out [7]. An example:
-    Level 1: A beginner's route of approximately two miles. The route must be completed by the user physically running the distance (GPS). When the route is completed, the virtual avatar moves to the next level.
-    Level 2: Route length approximately five miles etc.

In this virtual environment each user chooses his friends and competitors in the same way as on FB, by recommendations, networks, social ties etc. Hereby each user is able to create his own tailored network online, to compete and monitor his and his acquaintances progress [7]. Furthermore this environment hopefully will be able to illustrate how the user moves, using GPS navigation. The avatars simulate the user's presence on a virtual map on for example a smartphone. Hereby the users can monitor his and his friends' movement on the virtual map [12].

4   Future research

In this paper, we have presented our hypothesis and ideas on how to motivate PCs through a social network. As described FB is a possible platform, to persuade as many PCs as possible, with the intention to gather users as well as create an environment for social interaction and support, and hereby change their behavior or attitudes. In our future work we expect to verify these hypotheses and find which kind of platform is advantageous for the PCs. Also we hope to create such a network and evaluate the network during the design process with the help of a social focus group of PCs, to insure participatory design. By involving the PCs in the actual design process, they most likely experience that their feelings, opinions and experiences can enrich and strengthen the technology's potential – and so the persuasion/motivation is further enhanced.

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