Persuasive Features in a Web-Based System for Weight-Loss Team Competition

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Abstract. Millions of Americans struggle to lose weight, and various online instruments have been developed to support them. Behavioral persuasion is an integral trait of online tools for weight loss. The goal of this study was to examine the effectiveness of persuasive features of the interaction design in a particular web-based system for weight-loss support using the Persuasive System Design (PSD) framework. In 2012, 1170 individuals competed in a web-based weight-loss challenge in a Midwestern city. Upon completion, 644 participants completed the survey to provide feedback about their experience in the competition. The survey data was analyzed to determine desired features of persuasive interaction design for weight-loss support in a web-based system. The findings of the study suggested that support in the primary task of losing weight, system feedback, and social interaction were the most preferred persuasive features that needed to be incorporated in online weight loss support systems.

Keywords: persuasive features, web-based system, team- based weigh loss competition.

1 Introduction

Obesity has attained epidemic proportions as a health problem in the United States. Millions of Americans struggle to lose weight, and various online instruments have been developed to assist with this challenge. These tools include various websites, online widgets, and smartphone applications making health information more accessible to everybody. According to Mobi Health News (2010), there are about 5820 medical, health, and fitness apps for smartphones with an estimated three million downloads. A number of persuasive strategies have been employed in the development of online health tools, including self-monitoring of daily physical exercise and caloric balance; social learning and teamwork to exercise and sharing health information with friends and families (Sundar, Bellur, and Jia, 2012).

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2 Purpose of Study

The goal of this study was to examine the persuasive features of the interaction design in a particular web-based system for weight-loss promotion using the Persuasive System Design (PSD) framework (Oinas-Kokkonen & Harjumaa, 2009). This framework depicts the process of designing and evaluating persuasive systems and describes the type of content and software functionality to be included in the final product. The web-based system for weight loss promotion was used to support a 12-week team weight loss challenge started in May 2012 and ended in August 2012. The challenge took place in a Midwestern city and was offered to participants at no cost. Teams of four to six individuals competed to lose the highest percentage of weight-loss to obtain prizes. Players were required to use the system to create and regularly update their accounts.

3 Methodology

The participants of the competition were represented by individuals who were older than 18 years of age and pursued a weight loss goal. After four months of participating in the competition, all players were invited to take an online survey. The survey intended to provide information about participants' experiences with the competition and the effectiveness of the online weight loss support system. The survey was administered through Qualtircs, a web-based survey software. Survey data were analyzed both quantitatively and qualitatively: descriptive statistics of the quantitative data was generated through the Qualtrics; qualitative responses were coded manually for the occurrence of common themes.

4 Results and Discussion

Of the 644 participants who completed the survey, 86 percent were female and 71 percent were between 26 and 55 years old. Seventy three percent of the study participants have not achieved the weight loss goal set prior to the contest. The participants reported that their weight loss and overall experience interacting with the system would have been improved if the system provided more support in primary task of weight loss, system feedback, and social interaction. In addition to system credibility support, these categories are essential parts of the PSD framework.

4.1 Primary Task Support

The participants indicated a need for a system that would reduce their efforts with regard to performing the target behavior, i.e., weight loss. This could have been accomplished through offering a list of healthy and low-calorie foods and exercise plans on a regular basis throughout the contest. Relevant content, such as meal and exercise

plans, news and notifications regarding their team activities should have been present in the prominent place on the website rather than in a random order.

Information provided by the system is more persuasive when it is tailored to its users' specific needs and interests (Oinas-Kokkonen & Harjumaa, 2009). To promote the weight loss, the system users expected it to provide exercise accommodation recommendations from experts to individuals with injuries, chronic pain or other health issues.

The participants expressed a need to be flexible in setting their own personal goals, including both desired weight loss and exercise level. They expected the system to provide features to allow tracking user performance or status in relation to predefined goals. This could have been accomplished by using graphical presentation of the user's weight loss progress and duration of the exercise over time. Survey respondents also wanted to have access to both personal and team performance metrics.

Providing simulations can persuade users to identify the link between cause and effect in regards to users' behavior (Oinas-Kokkonen & Harjumaa, 2009). For example, a system could have promoted weight loss by presenting its users with before-and-after pictures of people who have lost weight in the current or previous contests supported by the same system. The users also voiced an interest in features that could predict their weight loss based on certain calorie-intake or exercise plan.

4.2 Dialogue Support

According to the survey data, respondents expected the system to be more effective in providing weight loss support encouragement, like praise, rewards, reminders, and suggestions on a regular basis. Providing praise via words, images, symbols or sounds can make system users more open to persuasion (Oinas-Kokkonen & Harjumaa, 2009). Receiving automated messages as a reminder to perform a desired behavior and reach individual goals is likely to motivate system users to continue making healthy food choices and exercise during the contest.

Rewarding the target behavior by providing system users with virtual rewards could motivate them to continue carrying out a desired behavior (Oinas-Kokkonen & Harjumaa, 2009). For example, digital prizes could have been awarded to the individuals who accomplished the most significant weight-loss on a weekly or monthly basis. This way they would have been externally motivated throughout the contest.

Reminding system users of their target behavior during the contest could make them more likely to accomplish their predefined goals (Oinas-Kokkonen & Harjumaa, 2009). Notifications or emails containing their preset goals as well as exercise advice, healthy food suggestions, and healthy recipes could have been disseminated to the system users to keep them on track.

Finally, system could have provided users with suggestions regarding their target behaviors, which they could perform during the contest. These suggestions could have been disseminated to system users in the form of email notifications or text messages containing information promoting healthier eating habits and effective exercise plans.

4.3 Social Support

Social interactions among team members of the web-based weight loss contest could have been supported by incorporating content and features that facilitated social learning, comparison, normative influence, cooperation, competition, and recognition (Oinas-Kokkonen & Harjumaa, 2009). Observing other participants as they performed their target behaviors and outcomes of their behaviors could motivate an individual to perform that same behavior. Providing system users with a blog or a discussion board as a central space for sharing food consumption or fitness journal could have encouraged people to make healthy food choices and be more physical active. Enabling system users to compare their performance with the performance of others could have served as greater motivation on them to perform a target behavior. System users should have been able to share and compare their progress by using the system, including individual and team ranks in relation to other contest participants and teams.

The system could also have enabled contest participants to work towards the same goal by getting together to exercise. Creating this type of peer support has the potential to increase the likelihood that the person will adopt a target behavior, in this case lose weight. By providing means for collaboration, the system could have motivated its users to adopt a target behavior and consequently lose weight. Collaboration via web-based system could have been promoted by sharing motivational posts and pictures of individuals and teams as they were exercising, touching base regarding their progress, and planning face-to-face gatherings and team exercise.

The system should have provided means for competing with other teams and within teams to motivate contest participants in adopting a target behavior. To keep participants motivated throughout contest, weekly and monthly contests such as most percentage or pounds lost as well as nutritional and exercise trivia should have been organized.

Finally, the system should have provided public recognition for users who performed their target behavior and lost the most weight in a given time period. Names of individuals and teams who accomplished the most significant progress towards their weight loss goals could have been published on the web site. Email, text or system-based notification could have been sent when one of the team members weighted in and lost weight.

5 Conclusion

Participants expected more activities and features in the system to encourage weight loss, better system feedback to motivate them towards their weight loss goal, and improved support for social interaction with their own and other team members. These social interactions could have included challenges within teams and weight-loss comparisons between teams. Participants emphasized the value of recognition as a significant factor towards their weight loss goals. They wanted digital prizes and reminders from the web-based system for their weight-loss, such as exercises, healthy food suggestions, and recipes. Players emphasized the importance of features that supported community building, such as blogs or discussion boards to allow sharing

their experiences, nutrition and exercise tips, exchange recipes and post motivational pictures of individuals and teams. Having these elements incorporated in the system would have helped online weight loss participants to be more successful in achieving their goal as well as overall improve their experience using the system and participating in web based weight loss contest.

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