Evaluation of Persuasive Design Features in a Prototype of a Tobacco Cessation Website[*]

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Abstract. Tobacco smoking rates are higher in the lesbian, gay, bisexual, transgender, and questioning (LGBTQ) community when compared to mainstream groups. There is an increased interest in designing and implementing online cessation programs tailored for this community. This work-in-progress contributes to our understanding of issues for supporting online tobacco cessation by reporting findings from the evaluation of design features included in a paper prototype developed for a proposed LGBTQ health and wellness website.

Keywords: online tobacco cessation, LGBTQ, persuasive technologies

1   Introduction

Research evidence indicates a high frequency of tobacco use among individuals in the lesbian, gay, bisexual, transgender, and questioning (LGBTQ) community [1, 3]. As such, there is an interest in designing and implementing effective tobacco cessation programs specifically targeting this audience [1]. In fact, evidence exists to support the notion that members of the LGBTQ community prefer tailored cessation programs that are sensitive to their unique identity and culture [6, 7].

Despite the emerging literature on this issue, little guidance exists to inform the design of persuasive technologies intended to encourage tobacco cessation in the LGBTQ community. To address this knowledge gap we conducted an evaluation of persuasive features in paper prototypes for a LGBTQ health and wellness web site. Specific questions addressed in our study:

1. How does the target audience react to persuasive design features derived from the Functional Triad Framework [3]?
2. How do tobacco users at different stages of change in the Transtheoretical Behavior Change Model [5] react to the site?

2   Theoretical Underpinnings

To address these questions, we drew upon theory from both human-computer interaction (HCI) and behavior change. Specific frameworks and models informing our study include: the Functional Triad Framework [2] and the Transtheoretical Model for Behavior Change [5].

- The Functional Triad Framework [3], served to guide specific persuasive features included in the website prototypes. This framework suggests that computers, including Web based designs, can influence behavior as tools, media, and social actors. Given the goals of the proposed site, we chose to focus our design suggestions and analysis on the computers as a tool and social actor aspects of the framework.
- The Transtheoretical Model, or Stages of Change Model [5], allowed us to examine how individuals at different psychological stages of change interact with a website designed to influence their behavior. This type of feedback provides important information to guide future iterations of the proposed website.

3   Methodology

3.1   Prototype Development

The study was conducted with paper prototypes of three pages from a larger website promoting health and wellness in the LGBTQ community. Pages evaluated included the home page, a page devoted to LGBTQ specific smoking cessation topics, and a page with prominent online smoking cessation programs. Specific persuasive design features, derived from the Functional Triad Framework [3], included:

- user testimonials to facilitate self-efficacy and provide models for target behaviors.
- inclusive graphics and design elements relevant to the target audience.
- decision making aids such as thumbnails of linked sites, text descriptions, and social information. (e.g. 300 people liked this)

3.2   Participants

We recruited 5 members of the LGBTQ community to participate in the study - three female, one male, and one genderqueer. The participants had a mean age of 32 years with a range of 19-47 years. With regard to sexual orientation, two identified as lesbi-

an, one gay, one bisexual, and one queer. Four were current smokers and one had quit within the last six months. According to responses to the Smoking Stages of Change Questionnaire [6], two had no intention to quit (Precontemplation Stage); two stated an intention to quit within the next six months (Contemplation Stage); and one indicated quitting in the last six months (Action Stage). The site owners provided a $20 incentive for participation[1].

3.3 Data collection and analysis

We used semi-structured interviews to collect data. The interviews lasted approximately 30 minutes and involved participants evaluating each page of the paper prototype. All interviews were audio recorded and transcribed for analysis. Data were analyzed qualitatively using a structured thematic analysis process proposed by Patton [4]. After initial independent data analysis, the researchers collaborated to identify a consistent coding scheme. The researchers then applied this coding scheme and met periodically to evaluate and adjust their consistency.

4 Preliminary Findings, Limitations, and Future Research

Participants responded in a variety of ways, both positively and negatively, to the persuasive design features included in the paper prototypes. Specific themes identified from the interviews included:

- *Testimonials:* All five participants noted the potential value of including testimonials as part of the site. For example, one participant noted that the stories have the potential to "humanize" an otherwise clinical topic. However, after reading the sample testimonial two of the five participants cautioned that the tone needed to feel authentic and include specific information in order to be impactful.
- *Content Organized to Trigger Decision Making:* All participants generally spoke positively about content included to trigger decision-making. Three of the five participants specifically indicated that the visual preview of each resource was an important initial criteria used to determine whether or not to "click through." All participants discussed the use of the text descriptions for each site as a secondary line of information when reviewing the options presented on the page. In addition, four of the five participants indicated that the popularity information in the mockups might be helpful in deciding which resource to attend to first. One participant felt that since the information was on a health website, relevance should be refereed by a qualified individual not other users. Two participants cautioned that the "like" button might imply that the user had to sign-up or reveal his/her identity.
- *Inclusiveness Images, Messages, and Design Elements:* All respondents commented positively on the tailored nature of the prototype graphics. Participants specifically referenced that the use of diverse images of gay and lesbian couples gave a

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sense of inclusiveness. However, participants voiced concern about the use of images that may stereotype the LGBTQ community or may have been too casual.

This study also offers some preliminary data to support the claim that individuals at different stages of change may view websites differently. Below are themes unique to participants at two of the stages of behavior change included in the study. Since there was only one participant at the action stage, convergence on major themes could not be identified and reported.

- *Precontemplation Stage (no intention to quit smoking):* The two participants at this stage indicated a sense of skepticism toward the site. For example, both participants expressed a sense of skepticism as to whether or not "a website could really make them stop smoking." Further, both participants were skeptical of the unseen "man" who wants them to stop smoking.
- *Contemplation Stage (intention to quit smoking in the next six months):* The two participants at this stage expressed concerns about some of the site content. For instance, both participants seemed more sensitive to pointed messages on the dangers of smoking. Additionally, both participants demonstrated a keen awareness of the criteria they would use to select a cessation resource.

These observations, while limited by a very small sample size and the use of paper prototypes, may point to important implications for the design of persuasive websites, particularly smoking cessation resources. For instance, the findings may support the implementation of creative ways to tailor sites to a user's unique psychological needs. Future exploration of these issues on this site and others of a similar nature may be fruitful to the field of persuasive technologies for health-related issues.

5   References

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