Tailoring Websites to Increase Contributions to Online Communities

Min Kyung Lee
HCI Institute
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213 USA
mklee@cs.cmu.edu

Tawanna Dillahunt
HCI Institute
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213 USA
tdillahu@cs.cmu.edu

Bryan Pendleton
HCI Institute
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213 USA
bp@cmu.edu

Robert Kraut
HCI Institute
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213 USA
robert.kraut@cmu.edu

Sara Kiesler
HCI Institute
Carnegie Mellon University
5000 Forbes Avenue
Pittsburgh, PA 15213 USA
kiesler@cs.cmu.edu

Abstract

Many online communities experience insufficient contributions from their members. In order to encourage contributions to the community, we examined a website tailoring approach to fit a community's website interface with the motivations of the community. In particular, we used the characteristics of other websites as a method of gauging user motivation. We built two different websites with financial and altruistic themes, and conducted an online experiment with 122 users to test the impact of both segmenting and tailoring on contributions to a recycling community. Preliminary results show that both tailoring and segmenting techniques were effective with altruistic users.

Keywords

Online communities, website design, user modeling

ACM Classification Keywords

H.5.3 Information interfaces and presentation: Groups and Organization Interfaces, Web-based Interaction.

INTRODUCTION

Since the advent of the Internet, people have created thousands of online communities. Many of these communities suffer from under-contribution [4]. Even

though all members of a community do not have to contribute equally to the success of an online community, voluntary contributions from a number of members is critical [12]. Online communities such as Freecycle [6], which facilitate the re-use of used items, commonly have a discrepancy between supply and demand; there are typically fewer offers than there are requests. More donations would contribute to the success of this site, as well as ultimately keeping refuse out of landfills.

Imagine a situation in which the message and theme of sites like Freecycle and Craigslist [5] are designed to appeal to the particular motivations of visitors. In this scenario, potential donors might be offered personally appealing ways to exchange their unwanted items. Financially motivated people might be tempted by prizes, or by ways to make money from their donations. Those with more charitable interests might be encouraged by being shown how they could help out people in need.

In this paper, we evaluate tailoring and segmenting as techniques to increase contributions to community websites. We argue (a) that it is possible to estimate and segment users' motivations based on websites they frequent, and (b) that tailoring the message and theme of online communities will increase the likelihood that visitors will contribute to the community. This study explores both our segmenting technique and the effects of website tailoring. The results of the study are intended to aid designers in building successful online community sites.

Identifying User Motivations
A tailoring strategy requires us to identify the motivations of website visitors. That task could be accomplished by examining user profile information, by leveraging a recommender system, or analyzing visitors' behavior patterns [16][10]. Although this approach provides for personalized services, it also heavily depends on users taking the time to enter personal information. Moreover, new visitors would not have data stored, so the personalized service would not be provided on their *first* visit, one of the most important moments when people decide to participate [1].

Instead of analyzing users' behavior patterns, we propose a "lightweight" technique that uses other websites as a recruiting mechanism. The website characteristics can provide a rough method of segmenting users by their motivations. For example, recruiting from the membership of an online health club implies that these people are motivated to sustain or improve their physical well-being. Recruiting from an environmentally focused community also implies that these people are motivated to help the environment. Motivations are often enduring, so it is somewhat likely that the motivation people have in one occasion would apply to other occasions. Also, people use products and services to construct and express their identities, values, and personality [3]. Marcus et al. suggest that personal websites reflect the owner's personality [8]. Extending this argument, we hypothesize that the websites people visit are at least rough indicators of their motivations.

Tailoring to Motivations
Two theories suggest why tailoring can encourage contributions to a community. The first theory derives from the persuasion literature. The basic idea is that increasing the relevance of an argument or appeal to a recipient will positively influence the recipients' response [13]. Consistent with the persuasion theory, tailoring to user interests is frequently used in e-commerce. In the health domain, messages tailored to users contribute to their better understanding of health messages and to behavior change [11].

Group identity theory focuses more on how people's motivations are related to their group or community identities [14]. The theory suggests that people may join an online community because they admire the group as a whole, or what it stands for, rather than particular individuals in the group [2]. Accordingly, a community website can be tailored to the group identity of visitors, and community websites that emphasize this identity should increase the visitors engagement and contributions.

EXPERIMENT
We conducted semi-structured interviews to understand the motivations of community sites users and an online experiment to evaluate the segmentation technique and the effect of tailoring.

Semi-structured Interviews
We conducted eleven one-hour semi-structured interviews with free online marketplace users of Freecycle and Craigslist, focusing on their motivation for using the websites. Three motivations emerged among interviewees: altruistic, financial, and environmental. Altruists wanted to help others; financially motivated individuals wanted to make money or get something in exchange for their castaway; environmentalists wanted to give items away to save the environment. However, we dropped the environmentalists from further consideration in this paper as there were too few participants with this motive.
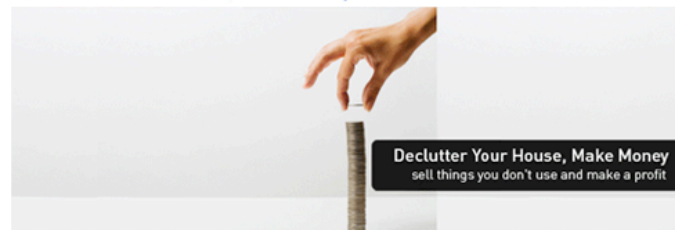
Figure 1 The comparison of altruistic and financial website design. The websites had three main sections: The first section included a slogan; the second section presented a series of photos and text; and the third section explained how the site worked. All designs in all two conditions had the same layout but varied in content. *Photo credit: Flickr (freddy, Nikki McLeod, ohmann alianne) and Gettyimages.*

Tailoring Website Designs

We designed two distinct main pages of a free online marketplace to match each of these motivations. Each design emphasized benefits that matched one of the two motivations using words and images. For example, to encourage contributions from altruists, we emphasized the gratitude felt by the receivers of items donated (Figure 1)[1]. To appeal to those motivated by financial gain, we highlighted the economic benefits of selling used items.

Online Field Experiment

We conducted a 2 (motivations) x 2 (community website design) between subjects online field experiment. The first independent variable was manipulated by recruiting participants from two websites: Craigslist's volunteer and community sections for major U.S. cities and Amazon's Mechanical Turk [9], a pay-per-task online website, representing altruistic and financial motivations respectively. To evaluate this assumption, we measured the motivation of the participants from each group using altruistic and financial scale ratings. For the altruistic motivation, we mixed six items from the empathy scale and three items from the agreeableness Big 5 Personality scale based on Graziano et al.'s research suggesting that helping behavior can be related to the agreeableness and empathy of a person [7]. For financial motivations, we used six items from the materialism scale [15]. The second independent variable was the community website design as described in Figure 1. The dependent variable was the number of items that participants offered to the site.

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[1] The images used in the altruistic web design have been replaced with analogous images due to copyright issues.

Procedure

We posted links to our online experiment site in the two target websites and used unique URLs in each recruitment posting to track the websites that led participants to our study. After selecting the link provided, participants reached our online experiment site, built with a customized online survey toolkit. Once they agreed to participate, they were exposed randomly to a video to elicit either financial or altruistic motivation. There were no differential effects of the priming videos on the results. After watching the priming video, participants were randomly assigned to one of two designs of the website.

In the financial design, we asked participants to sell their items. In the altruistic design, we asked participants to give away their items. We told participants that we were developing a new website, and that the wanted postings were posted by real users. The website contained a main page (as in Figure 1) and presented 'wanted' and 'offer' sections similar to the 'wanted' section of Craigslist or the classifieds. The wanted section had nine wanted postings, and we asked participants to respond by completing the following tasks: list items they would offer to the wanted posting and give a reason why they decided to give or sell their item(s). In the 'offer' section, participants could offer additional items. Participants were not told to follow-through on their donations or sells – they were only ask to respond to the site as if they were actually using the site.

After the main task, participants rated their agreement with items from the altruistic and financial motivation 5-point Likert scales. The motivation scales showed

reliable Cronbach's alphas (altruistic scale, α = .73; financial scale, α = .82).

RESULTS

Of 140 participants (88 Altruistic, 52 Financial), 122 (87.1%) gave valid responses. We excluded 18 participants based on overly fast completion times or leaving all fields blank in the survey. On average, participants gave away 2.2 (SD = 3.01) items (one person gave away 24 items). Participants spent an average of 18 minutes (SD = 10.01) completing the survey.

As expected, Craigslist volunteer and community section users had significantly higher altruistic motivation as reflected on their scale ratings than Mechanical Turk users did (F[1,122] = 5.12, p < .03; Craigslist user mean = 4.22; Mechanical Turk user mean = 3.99). However, Mechanical Turk users and Craigslist users did not differ in their financial motivation scale ratings (F[1,122] = .51, n.s.; Craigslist user mean = 2.34; Mechanical Turk user mean = 2.45). These findings are shown in Figure 2.
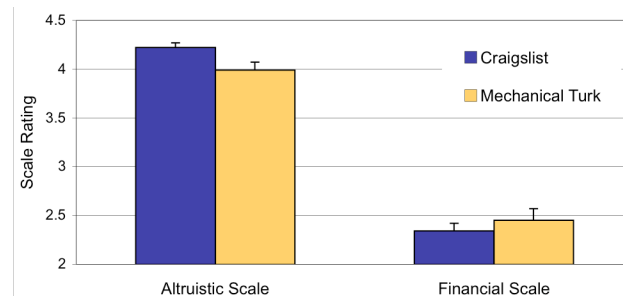

Figure 2. Motivation scale results by user group.

We analyzed the contributions data using a 2 (user group source) x 2 (community website design) ANOVA.

The interaction effects were marginally significant (F [1, 121] = 2.4, p = .06) reflecting the fact of one major difference: as seen in Figure 3, overall, people contributed more to the financial website regardless of their motivations but the Craigslist users (assumed to have more altruistic motivation than the Mechanical Turk users) contributed more items to the altruistic website than did Mechanical Turk users (Students' t = 1.98, p < .05).
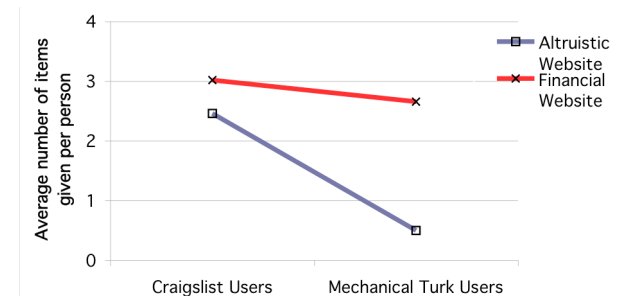

Figure 3. Average number of items contributed by user group.

DISCUSSION

The results of our experiment give some support to our argument that tailoring the design of websites based on perceived motivations can be effective in eliciting contributions. Our hypothesis about segmenting using prior websites was partially supported; we were able to differentiate the level of altruistic motivation on the basis of the websites people used. We were not able to detect differences in financial motivations or responses to a financially oriented design; there are several explanations. It is possible that financial motivation is too general to be assessed using people's website usage. The fact that we recruited both one-time visitors and those who frequently visit may have weakened the

differences considering one-time visitors may not be associated with a website in the same way a frequent user is. In addition, the ethos of our target sites might not have been strong enough to delineate the financial and altruistic motivations.

Our hypothesis about tailoring was also partly supported. Our results suggest that higher contributions to online communities can be obtained, at least from altruists, if one can estimate this motivation from the groups or websites they frequent, and then match the design of the website to an altruistic motivation.

Based on our preliminary results, our next steps include the following: (a) recruiting users based on the amount of their participation on selected sites, (b) recruiting users from multiple sites per each motivation, and (c) testing other types of motivations in addition to financial and altruistic motives.

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