

Impact of Self-Disclosure on Newcomers in Online Communities

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Abstract

User-generated online communities such as online discussion boards have become an important element of life in information society. However, their success is accompanied with challenges. Particularly, online communities' high reliance on user-generated content makes ensuring a continuous flow of newcomers vital to their existence. Newcomers face various difficulties due to their lack of commitment and familiarity with the community and many online communities experience high quitting rate of newcomers. In the current work, we aim to study how self-disclosure can be used as a mechanism to encourage more effort and commitment from newcomers. We present our results from exploring the relationship between self-disclosure and newcomers' effort and commitment in an online community. Our results show that self-disclosure has significant positive associations with newcomers' subsequent effort in the community.

Keywords: online communities; self-disclosure; newcomers; effort; commitment

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1 Introduction

User-generated online communities such as online discussion boards have become prevalent in the information society. As they mature, these online communities and their members face various challenges (Kraut et al., 2012). Their high reliance on members' participation places particular importance on ensuring a continuous flow of newcomers to replace inevitable turnover of exiting members. However, entering a new community introduces many challenges for newcomers. Newcomers are not familiar with the norms and rules of the community and are particularly sensitive to reaction of the community since they have not yet developed any commitment to the community. In this work, we are investigating the impact of newcomers' self-disclosure upon joining online groups on their commitment to the group. Self-disclosure, defined as revealing personal information to others (Cozby, 1973; Wheelless, 1976), has been shown to significantly influence interpersonal relationships (Altman & Taylor, 1973; Collins & Miller, 1994). Research in this field suggests that self-disclosure is positively related to liking of others. While the majority of research on self-disclosure has investigated its impact on relationship formation, there is also evidence that task-focused self-disclosure can improve group functioning in terms of group cohesiveness, commitment, and productivity (Elias, Johnson, & Fortman, 1989). The existing research has been mostly focused on self-disclosure in dyadic relationships or in small groups and there has been less attention on self-disclosure in large groups and the impact of self-disclosure on subsequent behavior of individuals in the group. This can be particularly important in the context of incorporating newcomers and helping them to develop commitment to a group. If self-disclosure in a group can result in individuals liking the group more, we can expect individuals to feel more committed to the group and contribute more to the goals of the group (Kraut et al., 2012). Our research focuses on answering the question of how self-disclosure relates to the subsequent behavior of newcomers in the group. We argue that newcomers in an online community who provide self-disclosure are more likely to develop positive affection for the group and as a result they can be more likely to contribute more and feel more committed to the group.

2 Method

2.1 Platform

We studied self-disclosure in the context of E-Democracy online community. E-Democracy is an online public space for neighborhoods "to support participation in public life, strengthen communities and build democracy"¹. Being active since 1994, E-democracy hosts more than 50 local online forums across three countries including the United States. Many of the discussion forums dedicate a thread to "introduction" and encourage members to introduce themselves to the group upon joining the group. We considered the

¹ <http://forums.e-democracy.org/>

posts in these introduction threads as incidents of newcomers' self-disclosure since they often include personal information such as family information, occupation, address, or wishes for the neighborhood.

2.2 Data Collection

Our dataset includes data from 22 e-democracy discussion forums dedicated to 22 neighborhoods in the city of Minneapolis and St. Paul in the United States. The dataset contains data from August 6, 2007 to September 3, 2013. In total, the data includes 46,396 posts from 3,716 distinct members. Among all the posts, there are 804 introduction posts from 591 distinct members across 21 neighborhoods and the average number of introduction posts per neighborhood forum is 38.28 (Median = 37.00, SD = 34.36). Less than one fifth of members in each neighborhood forum ever post an introduction. (Mean = 17.81%, Median = 14.81%, SD = 13.60%).

2.3 Propensity score matching

In order to estimate the effect of self-disclosure on the subsequent behavior of members in online communities, we compared the behavior of two groups of members in our dataset: members who post in introduction threads (Group A) and members who do not introduce themselves (Group B). However, given the observational nature of our study, assignment of members to conditions is, by definition, not randomized. Therefore, if we simply compare the behaviors between the two groups, the results can be biased by factors influencing a member to introduce themselves at the first place. To reduce the bias, we used the Propensity Score Matching (PSM) statistical technique which estimates the effect of treatment by accounting for covariates that may predict receiving the treatment (Rosenbaum & Rubin, 1983). PSM is widely used for observational studies to mirror randomized experiment. We adopted PSM by creating a sample of users who did not introduce themselves and are comparable to our sample of users who did introduce themselves on number of measures. We matched user A who posts in introduction threads with a user B who doesn't post in introduction threads if the following requirements were met: a) the two users are in the same neighborhood forum; b) at the time T user A posts in introduction thread, user B posts in another discussion thread in the time period $T \pm 5$ (days); c) the number of posts in other threads made by user A before his/her introduction post is the same as the number of posts made by user B before T . Given these criteria, we were able to match about 45% of all users with introduction posts. We dropped users in Group A if there are no matched users found in Group B. Our matching criteria allows us to control for the general activity behavior of the members as well as the characteristics of the neighborhood.

We generated a subset of 262 matched pairs of users across 18 neighborhood forums from our original dataset. Using this sub-sample, we assessed the impact of self-disclosure on members' subsequent behaviors by comparing the differences in members' participation and commitment between members who post in introduction threads and those who do not introduce themselves.

3 Research Hypotheses

To answer our research question about how self-disclosure relates to the behavior of newcomers in an online community, we considered the behavior of the members in terms of amount of contribution and commitment to the group. To measure members' contribution, we count the number of times they posted in any discussion forums, not including the posts in the introduction threads. To measure members' commitment to the group, we assess how long a member has been active on any of the discussion forums. We hypothesized that increase liking of the group as a result of self-disclosure will lead to higher effort and commitment. Considering these measures of contribution and commitment, we framed the following hypotheses related to our first research question:

H1: Members who post in the introduction threads are more likely to post more to the E-Democracy forums.

H2: Members who post in the introduction threads are more likely to come back to the E-Democracy forums.

4 Results

4.1 Self-disclosure and newcomers' effort

To examine the relationship between self-disclosure and newcomers' effort, we conducted a regression analysis using the dataset with 262 matched pairs (524 users). We used the number of times a member

posted in any discussion threads except the introduction thread as the outcome measure. We limited the posts to those happening after the introduction posts. Since the number of posts is highly skewed (Skewness = 14.938), we modeled the data using Negative Binomial distribution. Since members can join more than one discussion forums, we defined the model as a repeated measure with users nested inside discussion forums. Our independent variable is a binary variable representing whether the user has posted in the introduction thread or not for any of the discussion forums they have posted in. Each discussion forum is associated with a particular neighborhood. To control for the neighborhood characteristics that can affect the general participation behavior in the forum, we included the size of the population of the neighborhood, and the average income level of the neighborhood. Additionally, we controlled for users' tenure on the forums, and the tenure of each forum. The significant factors of the results of regression are presented in Table 3. The results confirm our hypothesis one. There is a significant effect of providing introduction on the number of subsequent posts. Controlling for users' tenure and neighborhood characteristics, members who introduced themselves post 55% more in other threads later. There is also a significant effect of group size and user tenure. Those who have been on the forums longer post more which can be related to the fact that they have more chances to post. User tenure and group size were represented as log of number of days on the forums; i.e. 2.7 extra days on the forums results to an increase of 4.57 in the number of posts. The group size also affects the number of posts. Users in larger groups are more likely to post more comparing to those in smaller groups. The income level and population of the neighborhood does not have a significant effect on the number of posts.

Parameters	Coef.	Std. Error	Wald χ^2	Sig.
intro=1	1.55	0.14	10.223	<.001
user tenure	5.57	0.24	51.863	<.0001
group size	3.86	0.52	6.689	<.01

Table 1. Relationship between posting an introduction and subsequent contribution on E-Democracy

4.2 Self-disclosure and commitment to the group

To examine the relationship between self-disclosure and users' commitment to the group, we conducted a survival analysis using Cox regression to compare the likelihood of coming back to the forums for the members who posted in the introduction with those who did not. We used the dataset with 262 matched pairs (524 users). We considered a member as "not coming back" if he/she had not posted for 30 days prior to the last day of data collection. Figure 1 presents the cumulative survival for members over the number of days they are active in the forums. The results show that members who post introduction are not significantly different from members who do not post introduction in terms of the likelihood of coming back to the forums ($B=.140$, $SE=.102$, $Wald \chi^2=1.898$, $sig.=.168$). That is, there is no significant effect of providing introduction posts on members' commitment to the forum. Our hypothesis H2 is not supported by the results.

5 Discussion and Future Work

In this work, we explored the impact of self-disclosure on newcomers' effort and commitment in an online community. Our results suggest promising direction on the impact of self-disclosure on newcomers' effort in the group. We were able to show that self-disclosure has positive relationship with members' subsequent effort as measured by number of posts. However, we did not observe any impact of self-disclosure on their commitment to the group as measured by the likelihood to come back to the group. We believe one reason explaining our results can be not considering community's reaction to newcomers' self-disclosure that can impact their feeling of commitment to the group; it is possible that the community reacts differently to particular kinds of newcomers' self-disclosure and the variation in community's reaction can impact newcomers' commitment to the group. We believe further research is necessary to study the impact of self-disclosure more comprehensively. Our future research in this area will focus on conducting controlled experiments to be able to better manage various factors interacting with newcomers' self-disclosure and their subsequent behavior.

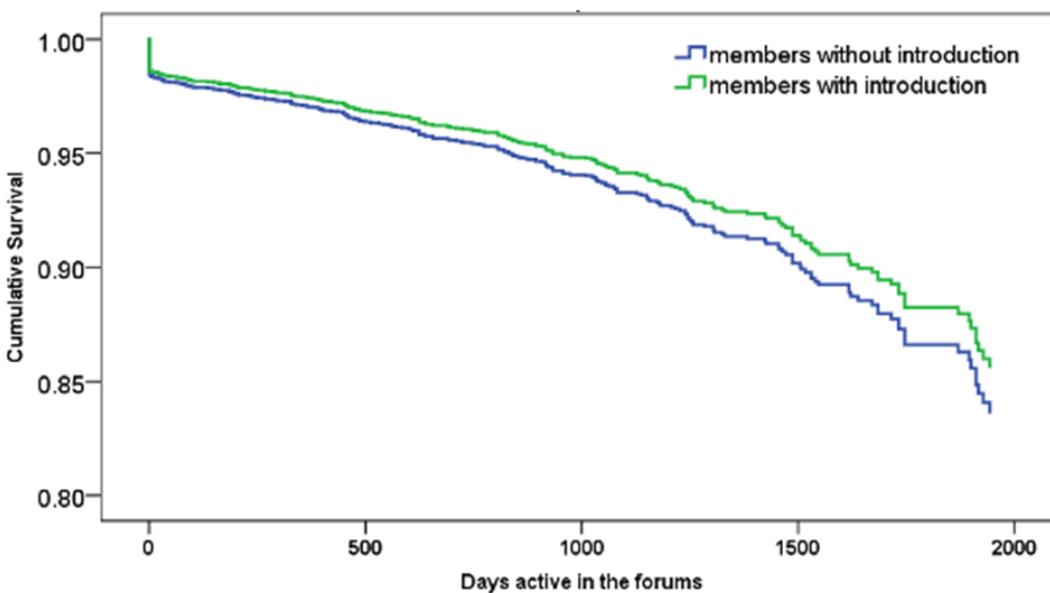


Figure 1. Survival of members with introduction compared to those without introduction

6 Reference

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