

Motivations to Participate in Online Communities

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ABSTRACT

A consistent theoretical and practical challenge in the design of socio-technical systems is that of motivating users to participate in and contribute to them. This study examines the case of Everything2.com users from the theoretical perspectives of Uses and Gratifications and Organizational Commitment to compare individual versus organizational motivations in user participation. We find evidence that users may continue to participate in a site for different reasons than those that led them to the site. Feelings of belonging to a site are important for both anonymous and registered users across different types of uses. Long-term users felt more dissatisfied with the site than anonymous users. Social and cognitive factors seem to be more important than issues of usability in predicting contribution to the site.

Author Keywords

Online communities, lurkers, peripheral participation, motivation

ACM Classification Keywords

H5.m. Information interfaces and presentation (e.g., HCI): Miscellaneous.

General Terms

Human Factors, Theory.

INTRODUCTION

A consistent theoretical and practical challenge in the design of socio-technical systems is that of motivating users to participate in and contribute to them. Whether this takes the form of commenting in discussion systems, writing articles in online encyclopedias, or posting pictures in user content sites, user participation and contribution is necessary.

Other researchers have found a consistent trend that a majority of contributions are often made by a minority of users, sometimes referred to as a power law distribution of participation, and has been found in a wide variety of socio-

technical systems [31]. One aspect of this contribution is the creation of an account, which is often a pre-cursor to participation in user-generated content sites.

This study compares two theories of user motivation in the context of participation in online communities. *Uses and gratifications* theory [28, 23] helps explain what motivates individual users to consume media based on their own anticipation of what they will receive by doing so. *Organizational commitment* [1] theories predict that the more affinity a member feels with an organization, the more they contribute to that organization. To test the role of these models in explaining user behavior, we studied users of one moderately large online community using survey instruments to measure impressions of both of these theoretical constructs amongst those users, both registered and anonymous, as well as their own impressions of their use of the site.

This paper contributes to the literature by comparing individual motivations versus social motivations amongst both registered and anonymous users of a user-generated content site. Our overall goal is to specify how these individual versus organizational motivations affects users' perceptions of their current and future activity on a site, accounting for differences in both anonymous and registered users.

LITERATURE REVIEW

A consistent finding in the study of user-generated content system is that a small percentage of users typically provide the majority of the content. Most users do not contribute to the systems they visit. Studies of Wikipedia have shown that the majority of contributions are made by a small percentage of the users who have contributed anything to the site [11, 24]. This has been found to be consistently true across different types of newsgroups on Usenet [2, 4], though factors like topic and membership characteristics change the percentage of contributors.

Several theoretical models have been used to explain why this happens. The “tragedy of the commons” model, based in economic theories, has stated that when a good can be freely consumed without constraints, there will be little motive to contribute to the maintenance of that good [21]. Kollock applied this theory to the production of open source software, and defined reputational benefits and learning as motivations that overcome that trend [13].

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CHI 2010, April 10–15, 2010, Atlanta, Georgia, USA.

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Others [14, 20] have additionally looked at these motivations in open source software development communities and found that users had varied motivations for participation.

Another theoretical model for the problems of motivating contributions in online groups has been tied to the social psychological model of “social loafing” [10], which states that individual contributions to a group effort will be reduced when that effort is not seen as unique, or as the size of the group grows. Ling et al [16] measured other constructs in the social loafing theory, and concluded that it was difficult to map social science theory to issues of design, given the mismatched goals of social scientists and designers, and the inability of most social science theory to account for more than a handful of variables at a time.

More rarely, research has looked at why people do contribute their content, rather than why they do not. Ren et al [27] applied Common Identity and Bond theories, most commonly used in the study of voluntary groups, to show how design decisions affected online communities. They found that different design decisions led to different effects in terms of establishing common identity among users, and forming interpersonal attachments. Burke et al [3] looked at rhetorical strategies of new users in eliciting responses from established members of discussion groups. Lampe et al [15] looked at how new user participation was affected by feedback from other users, employing a social learning and social norms perspective. Nov [19] looked at why active participants of Wikipedia chose to contribute their time to the site.

Uses and Gratifications

Uses and Gratifications (U&G) is a theory of why people use a particular kind of media product, and the gratifications they receive from that use [26]. This theory assumes that users actively seek particular media with the goal of gratifying an existing need. Gratifications they sought from the media, influence the actions they perform in order to achieve particular needs [23]. Palmgreen et al [22] distinguishes between two kinds of gratifications: the ones sought by the users and the ones actually obtained from the use of the media.

The U&G approach has been applied to socio-technical systems previously. Joinson [9] derived several categories of use of Facebook, and reported different proportions of those uses among a survey of users. Rafaeli et al [25] looked at motivations to contribute to Wikipedia, and defined three categories of motives: getting information, sharing information and entertainment, ordered in importance to the sample.

Dholokia et al [5] approached motivations to contribute to online communities by deriving five motivational factors from the U&G theory:

Purposive value, which refers to a predetermined instrumental purpose, like giving or receiving information.

Self discovery, which covers aspects of social interaction to obtain social resources and self-knowledge.

Maintaining interpersonal connectivity is related with keeping contact with other people gaining such things as social support and friendship.

Social enhancement is tied to the value derived from the status the user has within a community.

Entertainment, which derives from the fun and relaxation of playing or otherwise interacting with other users.

The authors found that the motivations of users vary depending on the type of online community, based on whether the community was centered on tightly coupled ties in a small group, or loosely couple ties between users in a larger network based on shared interest. However, one of the issues this study did not address was the distinction between two different kinds of purposive value. In our own use of these measures, we separated purposive value into “Get information” and “Provide information” as two dimensions of this type of value, since each one might be related with different set of motivations.

Organizational Commitment

The Theory of Social Identity attempts to explain the psychological processes by which individuals perceive themselves as a group member and why and how they interact within the group. Social identity is defined as part of an individual’s self-concept, which derives from his knowledge of his membership to a social group together with the emotional significance attached to that membership [31]. Consequently, if a person perceives that she has greater similarities with other members, she feels a greater sense of belonging [33].

Organizational commitment is a model of the sense of affinity that members have with the “brand” or identity of the organization to which they belong. There are multiple dimensions of this affinity. Jin et al [8] found that user satisfaction with the online community was the most salient predictor of users intention to participate in the future. Allen and Meyer [1] conducted two studies to measure the antecedents of different types of organizational commitment: affective, continuance and normative. Normative commitment was defined as employees’ feelings of moral obligation to remain with the organization, as well as totality of his internalized normative pressures to act in a way which meets organizational goals and interests. They found that the affective and normative dimensions were most highly correlated with organizational commitment.

Both theories of Social identity and Organizational Commitment deal with the similar phenomenon of sense of attachment to group and intra-group dynamics that influence a person’s behaviors within the group. Our central

concept, sense of belonging, the affective commitment to community, is part of both of the theories. In order to cover all of the possible dimensions of the phenomenon this study employed the normative dimension of organizational commitment together with sense of belonging, and the evaluative and cognitive dimensions of organizational commitment.

Anonymous versus Registered Users

One base measure of participation is the creation of an account in the system being used. The term “lurker” has been used to describe users of online social systems who consume content by reading posts, watching videos, using articles, all without contributing to the production of those resources or the governance of the socio-technical system. Nonnecke and Preece have performed several studies on lurkers [17, 18], and found several reasons exist why people lurk and, a set of relationships between lurking and factors such as personality, needs, satisfaction, and topic attraction. In their recent work [18] these authors prefer the term “nonpublic users” to lurker, and argue they do play a role in sites as audience and as potential future contributors. We use the term “anonymous users” to describe this segment of the site population.

In the same vein, Rafaeli et al. [26] reported that familiarity with the online community and persistent involvement contributed to eventual active participation. This means that once the user feels confident and comfortable as part of the community, she might stop lurking and become an active participant of the community. Furthermore, even without making any contributions at all, sustaining a relationship within the community for long periods of time has been interpreted as a skillful form of participation [30].

Research Questions

From a U&G perspective, the selection and continuance to use an online community is based on the users needs. Users actively seek this kind of medium to fulfill a specific set of perceived gratifications. Alternately, if members of an online community see it as an organization to which they belong, the same way one might belong to a volunteer or work organization in the offline context, these dimensions of affiliation and identity could affect their willingness to participate and contribute to that organization.

U&G, while it does include social gratifications, stems for a cognitive perspective where the focus is on the individual. Organizational Commitment, stemming from studies of groups, has a focus related on social relations. In comparing these theories we are looking at individual versus social explanations of different types of participation.

In comparing these models, the following research questions are posed:

- RQ1: How do U&G and Organizational Commitment relate to different perceptions of site use?

- RQ2: How do U&G and Organizational Commitment relate to the probability that a user is anonymous or registered?
- RQ3: For anonymous users, how do U&G and Organizational Commitment relate to the probability the user is a first time visitor to the site?
- RQ4: For registered users, how do U&G and Organizational Commitment relate to their levels of participation in the site?

METHODS

To answer the questions posed above, we conducted a survey of both anonymous and registered users of the site Everything2.com, and for the registered users we matched survey responses with behavioral traces captured by site servers.

Everything2.com

Everything2.com (referred to by users and here as E2) is a user-generated encyclopedia and writing platform launched in 1999 [7]. Originally a side project from the developers of Slashdot, Everything2 differs from Wikipedia on dimensions that include: scope of articles, no anonymous edits, single authorship of articles, and a focus on creative writing. Articles include definitions, as in other online encyclopedias, but also creative writing. Based on the site’s Google Analytics information, in a recent month E2 received approximately 1.85 million unique visits, 85% of which were new visits. E2 has just under one million “writeups”, which are articles written by individual users.

E2 is administered by a volunteer group of content editors and “gods” who are appointed by committee from the contributing membership. Everything2 requires users to register to interact with other users (through both synchronous and asynchronous tools), and to post content. Users can vote on content, though only after having posted a requisite amount themselves. Reading content is available to all users of the site.

Everything2 is a reasonable case to study our research questions for the following reasons. First, E2 is a decade old, which leads to a heterogeneous set of users and a large corpus of articles. This large amount of content and the linking structure of the site means that E2 is often referenced in Google searches, driving a high level of anonymous users to the site. Both the long history of the site, and its focus on interaction have also created

The E2 administrators granted access to both server level data and permission to post survey invitations on the site, allowing for more rigorous access to users.

Survey of Everything2 Users

A survey was conducted of Everything2 users over a ten-day period in the summer of 2010. An invitation to participate in the survey was included on every page of the site, to account for traffic that would bypass the front page.

Both anonymous and registered users were eligible to participate in the survey. Once a user of either type had clicked the link to participate, or the link to decline (labeled “No thanks”) the survey invitation would no longer appear on pages served to that IP address. If a user selected to participate, they were taken to a survey instrument hosted on the commercial site SurveyGizmo. The survey had 295 anonymous users, 304 registered users. Nine users did not respond to the question regarding an account.

It is important to note that these survey responses are all participant impressions of their past and future activity, and not behavioral measures. We feel the impressions are important to collect in this case, as we are relating them to other user impressions like perceived gratifications and organizational commitment.

Our main independent variables associated with the theories described above were asked as a series of questions associated with each construct. The use of scales in this manner is a standard practice in survey research to help mitigate individual respondent variance in question responses, and to capture a more complete sense of the main construct. It is important to note that these categories are not exclusive. A user can have motivations to get information and be entertained at the same time. Our measures do not explicitly ask them to compare the strength of these motivations to use the site. Table 1 reports the means for these scales and standard deviations of these scales, as well as the Cronbach’s alpha, which is a measure of reliability for the scale. Typical acceptable alpha levels for survey scales are 0.70 and above. A factor analysis of these variables was also conducted to verify these groupings, which validated our separation of purposive value into two independent factors. The motivations of Everything2 use were measured following the U&G research tradition with the preface “Express how likely it is that you use Everything2...” measuring six dimensions such as information seeking, entertainment, social enhancement, among others.

In addition to these construct variables, several control variables were also included in the survey. These include Internet Efficacy [6], a standard 7-point Likert measure of how capable users felt they are in using the Internet ($\alpha=0.93$, mean=5.66, s.d.=1.31) and E2 Efficacy, a series of 7-point Likert questions assessing the users impression that they could operate the features of Everything2 ($\alpha=0.81$, mean=4.12, s.d.=1.72) We also included a 5-point Likert scale derived from questions related to user satisfaction with their use of E2 ($\alpha=0.88$, mean=3.76, s.d.=0.73). Additional control variables for education level and gender were also captured.

Everything2 Server Log Data

In addition to the survey data, we also used server log data related to the registered users of the site. Registered user data was derived from a database of user contributions, and

Table 1. Scales of uses and gratifications and organizational commitment.

Uses and Gratifications[4] ^a
<i>Information Seeking</i> $\alpha=0.77$, mean=3.49, s.d.=1.09
<i>Providing Information</i> $\alpha=0.87$, mean=2.85, s.d.=1.25
<i>Social Enhancement</i> $\alpha=0.89$, mean=2.04, s.d.=1.16
<i>Maintaining Interpersonal Connectivity</i> $\alpha=0.90$, mean=2.18, s.d.=0.90
<i>Entertainment</i> $\alpha=0.88$, mean=3.77, s.d.=1.07
<i>Self Discovery</i> $\alpha=0.83$, mean=2.87, s.d.=1.34
Social Identity
<i>Cognitive Dimension[4]^b</i> $\alpha=0.83$, mean=2.94, s.d.=1.69
<i>Evaluative Dimension[4]^b</i> $\alpha=0.94$, mean=2.94, s.d.=1.92
Organization Commitment
<i>Sense of Belonging[8]^a</i> $\alpha=0.90$, mean=2.37, s.d.=1.27
<i>Normative Commitment[1]^b</i> $\alpha=0.73$, mean=2.33, s.d.=1.28

^a Five point Likert scale

^b Seven point Likert scale

matched using IP addresses to the survey data. Cases where there were multiple user accounts associated with an IP address were not included in analysis.

RESULTS

We start by looking at macro-scale differences between anonymous users and registered users, and then look more at each type of user to show the heterogeneity in these two groups.

Motivation and Commitment Influence on Use.

Table 2 shows how our respondents perception of their frequency of use relates to the uses and gratifications they receive from using the site, and to the level of organizational commitment. The three columns represent three different OLS regressions using three measures of perceived frequency of use as dependent variables. In the first column, we examine the perceived frequency of past use (“How often do you visit Everything2?” - 5-point scale). In the second and third columns, we examine two measures of perceived future use: general future use (“How likely is it that you will use Everything2 in the next two weeks” - 5-point scale) and perceived likelihood to

Table 2: Perceptions of Use Across Time

	Frequency		Future Use		Future Contribution	
(Intercept)	2.76	***	3.52	***	2.95	***
Has Account?	0.92	***	0.16		0.09	
Education	0.05	*	0.01		0.01	
Age	-0.01	**	0.01	.	-0.00	
E2 Self-efficacy	0.04		-0.02		0.25	***
Internet Self-efficacy	0.10	*	-0.00		-0.08	
Get Information	0.05		0.19	***	-0.03	
Provide Information	-0.20	**	0.16	*	0.53	***
Social Enhancement	-0.13	.	-0.09		0.10	
Maintain Conn.	-0.04		-0.13		0.04	
Self Discovery	0.08		0.09		0.02	
Entertainment	0.22	***	0.38	***	0.02	
Satisfaction	0.16	**	0.19	***	0.08	
Belonging	0.43	***	0.21	*	0.28	**
Cognitive Soc. Id.	-0.01		0.01		-0.14	.
Evaluative Soc. Id.	-0.02		0.15	.	0.13	
Normative Attach.	-0.00		-0.07		0.01	
R ²	0.49		0.48		0.56	

*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

contribute (“How likely are you to contribute content to Everything2 in the future?”).

All three regressions use the same set of independent variables. The “Has Account?” variable is a binary variable indicating whether the respondent is a registered or anonymous user. Next are four control variables: level of education (11pt scale), age (in years), site-specific self-efficacy, and general Internet self-efficacy. Both measures of self-efficacy have been standardized to have a mean of 0 and a standard deviation of 1. Since contributing to Everything2 requires more complex interaction with the site, we are not surprised by the correlation between the Everything2 self-efficacy and the likelihood of future contribution.

We included all six uses and gratifications in these regressions. All six measures have been standardized so that the magnitudes of their coefficients are comparable [12]. The most important reason for using Everything2, both in the past and continuing into the future, is the entertainment value derived from the site. However, while getting information from the site is not significantly correlated with the perception of past use, users did indicate

that it was important for their future use. Respondents also indicated that they were more likely to use the site in the future when they derive value from providing information. Unsurprisingly, value from providing information is the strongest predictor of intention to contribute in the future.

Entertainment value, getting information from the site, and value from providing information are all fairly individual reasons for using the site. The more social uses and gratifications – maintaining interpersonal connectivity and social enhancement – did not play a large role in the perceived use of the site.

Finally, we included all four measures of organizational commitment and social identity. By far the most important form of organizational commitment was having a strong sense of belonging. Respondents with a strong sense of belonging believed that they use the site more frequently, and are more likely to both use and contribute to the site in the future.

Interestingly, anonymous users did not show a significantly different likelihood of future use or future contribution than account holders. Since having an account is a pre-requisite for contribution, we were surprised that anonymous users feel just as likely to contribute in the future as account holders. One explanation of this finding is that the site is “sticky” and that all users, whether anonymous or registered, see value in returning, creating no difference between the groups. However, having an account was significantly correlated with the perception of past use; account holders believed that they had used the site much more than anonymous users.

Motivation and Commitment Influence on Anonymity.

We further describe the users by breaking our sample into two groups: anonymous users and account holders. On Everything2, everyone who wants to contribute must create an account; anonymous contribution is not permitted. Therefore, all of the anonymous users in our sample are either non-contributors, or denied having an account on the survey.

We conducted a logistic regression to understand the influences on having an account, summarized in Table 3. The dependent variable here is the odds of having an account, and Likert scales have been standardized for comparison purposes.

Table 3: Influences on Having an Account (Logistic Regression)

	Coefficient	Percent Change in Odds	
(Intercept)	-2.40	Baseline	**
Education	0.12	13%	
Age	-0.04	-4%	*
Gender: Male?	0.20	23%	
E2 Self-efficacy	0.21	24%	
Internet Self-efficacy	0.13	14%	
Get Information	-0.40	-33%	*
Provide Information	0.76	114%	**
Social Enhancement	0.59	80%	*
Maintain Connectivity	-0.41	-34%	
Self Discovery	0.02	2%	
Entertainment	0.23	26%	
Satisfaction	-0.28	-24%	
Belonging	-0.03	-3%	
Cognitive Social ID	-0.32	-27%	
Evaluative Social ID	0.99	169%	**
Normative Attachment	-0.12	-11%	
Frequency of Use	1.40	305%	***
Future Use	-0.46	-37%	*
Future Contribution	0.03	4%	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

Respondents who receive value from providing information are much more likely (odds increase by 114%) to have an account. However, respondents who value getting information from Everything2 are 33% less likely to have an account. Everything2 has many features that support social interaction all of which require an account, so we are not surprised that users who value social enhancement have 80% higher odds of having an account. Using Everything2 for entertainment does not seem to influence account creation. This makes sense, as the content of E2 can be consumed without an account. This also explains the negative effect on the odds of having made an account that we see in the “Get Information” motivation. Reading and receiving information on the site is possible without creating an account.

None of the measures of organizational commitment have a strong influence on account creation, with the exception of evaluative social identity. This construct measures a person’s perception of their importance to an organization, so it makes sense there would be a strong positive relationship between having an account and this measure. Since this is the strongest influencer of the odds for having an account, it is possible that users perceive the act of creating an account itself as a contribution that makes them a valuable organizational participant. An alternative explanation is that anonymous users are viewing themselves as nonvaluable participants, even though the literature has addressed their importance as audience and peripheral members [17]. We are already accounting for

the motivation of “Provide Information” in this model, which means that this difference is strong even accounting for that, lending strength to the above interpretations.

There is a very strong correlation between having an account on Everything2 and perceiving having used the site frequently. However, non-account holders are more likely to intend to use the site in the future than account holders, which is a counter-intuitive finding. Also interesting, there is little connection between having an account and the intention to contribute in the future. This lack of a correlation is surprising, since technically an account is required in order to contribute. The measure for “Provide Information” is framed as a series of questions regarding how likely it is that they use Everything2 to contribute information, as opposed to the measure of “Future Contribution” which measures their intention to contribute. We interpret from this that actual contributions matter more for predicting account status than intentions.

Differences among Anonymous Users

There are two primary reasons that anonymous users came to the site: to get information and to be entertained. Of the six uses and gratifications measures, these two had the largest means and had approximately the same magnitude; see Table 4 for more details. This is not surprising; as anonymous users they cannot contribute or participate in the social life of the site. They can only consume information, and on Everything2 this consumption can be entertaining. Anonymous users tend to score low on all measures of organizational commitment.

Table 4: More Details About Anonymous Users (Logistic Regression)

	Mean	SD	Odds of being a first time user		
			coef	% change	
Education	6.03	2.49	-0.24	-21%	
Age	29.90	15.93	0.09	10%	***
Gender (Male)	73%	n/a	-1.95	-86%	**
E2 Self-efficacy	3.35	1.54	-0.31	-26%	
Internet Self-efficacy	5.47	1.46	-0.71	-51%	*
Get Information	3.47	1.14	0.42	52%	
Provide Information	2.32	1.18	1.63	410%	*
Social Enhancement	1.58	0.96	-0.41	-34%	
Maintain Connectivity	1.69	1.01	1.59	389%	*
Self Discovery	2.48	1.34	-1.40	-75%	*
Entertainment	3.45	1.24	-1.40	-75%	**
Satisfaction	3.73	0.70	-1.01	-64%	**
Belonging	1.79	1.00	0.18	19%	
Cog. Social Id.	2.37	1.58	0.57	77%	
Eval. Social Id.	1.75	1.29	-0.18	-16%	
Normative Attachment	2.16	1.25	-0.38	-31%	
Future Use	3.42	1.24	-0.32	-27%	
Future Contribution	2.36	1.19	0.07	7%	

Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1

To better understand the anonymous users, we break the users into two groups: those users who are visiting Everything2 for the first time, and those users who are repeat visitors. We use a logistic regression to simultaneously estimate differences between these two groups. The dependent variable is the odds that a respondent is a first time visitor of Everything2. All of the scales are standardized for comparison purposes. Out of 295 anonymous users, 95 were first time users.

Older anonymous users and female anonymous users are more likely to be first time visitors, as are users who feel they are not effective Internet users. Anonymous respondents who value providing information are much more likely to be first time visitors; we suspect that repeat anonymous visitors have made a conscious choice not to contribute. Anonymous respondents who value maintaining interpersonal connectivity are also much more likely to be first time visitors. It may be that users start with the intention to provide information or maintain connectivity, but when they realize the barriers to do so they either make an account, removing them from this sample, or decide the barriers are too high.

First time anonymous visitors are similar to repeat visitors in their desire to get information from Everything2; however, repeat visitors place a much higher value on entertainment. This indicates that users initially come to Everything2 looking for information, but return both for information and for entertainment. Self discovery shows the same pattern as entertainment, in that it was important for multiple time anonymous users, but not first time users. We see this as similar to the above case, where users come to the site for information, but then see personal stories of contributions from other users and subsequently derive value from that.

Interestingly, first time and repeat anonymous visitors do not show a strong difference on any of the organizational commitment measures. This indicates that repeat anonymous visitors return for the value they receive, and not because of any commitment to the site. This was surprising, as many of the anonymous returning visitors reported frequent use of the site. Both first-time anonymous users and repeat visitors have similar intentions to use and contribute to the site in the future. This might indicate that Everything2 is sticky; even first-time users find enough value that they intend to return. It could alternatively mean that users don't form attachments with the "brand" of the site, but rather maintain an ego-centric value for their participation. Another explanation is that users who do form an organizational commitment to the site subsequently create an account, which would remove them from this sample.

Differences among Account Holders

Our sample included 304 respondents who indicated that they have an account. Of these 304 respondents, 165 could

be uniquely linked to a user account via IP address. We begin by looking at two different types of contributions on Everything2: Writeups and Messages. Writeups are non-trivial contributions about a specific topic, and are made public and attributed to an author. Messages are personal, asynchronous, chat-like communications between users or groups of users. Writeups represent large public contributions to the site, while messages indicate social activity on the site. Table 5 summarizes two OLS regressions that examine what types of respondents are most likely to contribute to Everything2. Once again, all survey scales have been standardized for comparison purposes. An additional variable, "Level" has been included in this model. "Level" is a reputation score that is assigned by the site and is a composite of the number of contributions a user has made, and the rating score of that content as assigned by voting in the site¹.

Respondents are more likely to have contributed more writeups if they are highly educated. Interestingly, there is little correlation between contributing writeups and the feeling of self-efficacy; feeling like you are an effective user of the site does not necessarily encourage you to write more. This indicates that the barrier to contribution is not a usability issue.

Of the six uses and gratifications, users who value providing information are more likely to actually have

Table 5: Influences on Contributions to Everything2

	log(#messages)	log(#writeups)
(Intercept)	2.32 **	1.53 ***
Age	-0.02	-0.01
Education	0.30 ***	0.16 **
Gender (Male)	0.10	-0.11
E2 Self-efficacy	0.36	0.22
Internet Self-efficacy	0.21	0.16
Get Information	-0.07	-0.19 .
Provide Information	0.19	0.46 **
Social Enhancement	-0.40 .	-0.18
Maintain Connectivity	0.86 **	0.07
Self Discovery	-0.18	-0.29 *
Entertainment	-0.13	-0.18
Satisfaction	-0.68 ***	-0.30 **
Belonging	0.88 **	0.19
Cog. Social Id.	-0.06	0.01
Eval. Social Id.	0.11	0.33
Normative Attachment	0.19	0.15
Level	0.13 ***	0.14 ***
R ²	0.71	0.78

*Signif. codes: 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1*

¹

contributed writeups. This is not surprising. However, users who value self-discovery are significantly less likely to have contributed writeups. Users who value maintaining interpersonal connectivity tend to have sent many messages. This indicates that users are able to use the site for this purpose when they wish. An interesting finding is that the Entertainment motivation for use was not correlated with either number of messages or writeups. This could indicate that the contributing users do not find the act of contributing to be entertaining. In the same vein, the “Social Enhancement” measure was not associated with contribution, indicating that users are not participating for the reputational effects.

None of the organizational commitment measures are strongly correlated with the number of writeups. We estimated a large influence of evaluative social identity on the number of writeups, but there is sufficient variance in this connection that we cannot establish this relationship with a hypothesis test. The existence of this variance could come from either measure, so it could be that this reflects the differential values users place on writeups on contributions. For example, a user who doesn’t contribute writeups could play a role in site governance and have a high evaluative social identity tied to that participation. It appears that sending numerous personal messages has a strong influence on the feeling of belonging or emotional attachment to the site. Contributing personal messages appears to lead to a stronger feeling of belonging to the user community than contributing writeups does. This indicates that belonging, or emotional attachment, is derived from direct interactions with people, not from indirect interactions that are mediated by the content of the site.

Users who contribute many writeups are very likely to have a high level on the site, as numerous writeups are one criterion for gaining levels. However, high level is also correlated with sending more messages, this could be because higher level users often take on governance or mentoring roles. Surprisingly, users who contribute more writeups or messages are significantly less satisfied with the site overall. This could be the result of a “sausage getting made” phenomenon, where users who participate heavily see the processes of governing the site, and not just the end product of the site.

DISCUSSION

One consistent trend across the measures reported above is that users came to the site for information, but some set of users found additional motivations to use the site through receiving entertainment or providing information. This trend can be explained in terms of the distinction between gratifications sought and gratifications obtained. While users come to the site seeking information, they obtain additional benefits, and therefore return to the site. Another explanation is that motivations to participate in a site evolve over time. Our data doesn’t allow us to distinguish between

these explanations for these findings. This indicates that it is important to enable tools or processes that allow users to detect and change their motivations.

Among all the dimensions of Uses and gratifications theory this study examined, social interaction didn’t seem to be a strong motivation for use in the overall dataset, however it could be that it is especially important for cliques of users. For example, it is possible that for the volunteer administrators of the site, who provide valuable governance contributions, social interaction is much more important than it is for other users.

An interesting dimension of organizational commitment is “Evaluative Social Identity”, which is a measure of how important the user thinks he is to the site. This measure has a very strong influence on whether a user has created an account or not, but is not associated with their contributions once they have created an account. One explanation is that users think that creating an account is a contribution in its own right, regardless of your other contribution. Another explanation is that people who feel they will be important to the site are those who create accounts, regardless of their subsequent actual effect.

E2 self-efficacy and Internet self-efficacy are measures of how confident the users feel in using the systems required to participate in the site. We found that E2 self-efficacy, measuring how able the user felt to employ the features of E2 in order to contribute was associated with the intention to contribute in the future, but not with actual levels of contribution in terms of messages and writeups. This means that the barrier to participation in this system of user generated content is not an issue of usability, even though users anticipated that it was. More likely, social or cognitive factors were more important than site usability in predicting contribution.

Implications for Theory

Individual needs and identification with the site as an organization explain different instances of use of Everything2. Participation between users is predicted by social motivations, such as maintaining connectivity, and sense of belonging; while participation directed to the whole community is predicted by the individual need of providing information which is centered on informative content and not social interaction.

Motivations and dimensions of commitment also vary depending on the type of user. The differentiation between getting and providing information allowed us to find that there is a difference between anonymous and registered users in their interest of providing information, and lack of interest in getting information.

Creating an account is preceded by social enhancement motivations, a feeling of importance to the online community, and the individual motivation of providing content. Registered users are motivated by a sense of

affiliation and identity to the organization through feelings of importance, and value to the organization.

Implications for Practice

As has been shown in other work, there were multiple motivations to use Everything2 among different types of users. One clear design recommendation is that sites based on user interactions need to support those multiple anticipated uses, and not presuppose they will know all uses at the onset.

Managers of online communities often make decisions about where to allocate administrative resources, or how to direct the community. The administrators of Everything2, for example, have made decisions about managing the site based on the belief that the purpose of the site is to support writers and foster social interactions. As shown here, that is not the uses anticipated by most of their users, though may be a necessary antecedent to those uses. Additionally, consider the relatively high dissatisfaction of those who had contributed most to the site in terms of messages and writeups. As a site like Everything2 ages, managing long-term users may be more difficult, and could require different online community management techniques.

Finally, in our findings perceived ability to use the site features, which can be roughly mapped to usability, had little role in explaining intentions to participate. This could mean that designers need to focus not just on usable technical tools, but on social and technical systems that support social and personal gratification motives.

Limitations

Most of the measures reported above were derived from a survey of users, which elicits user impressions of what they believe, did, or will do. This is not the same as true behavioral data.

Our method of conducting the survey introduces both a sampling bias and a response bias. By displaying a link to the survey on every page, we over-sampled users who were very active during the timeframe of the study. In comparing the registered users who responded to the survey with the general registered user population, our survey respondents showed much higher levels of activity -- both pageviews and contributions -- than the population average.

In addition to this sampling bias, registered users were much more likely to respond to the survey request than non-registered users. This response bias may indicate that only a sub-population of non-registered users actually participated in the survey. We suspect that the users who participated are likely to be more attached to or committed to the site; therefore, we measured and controlled for organizational commitment. We believe that this control helps mitigate the effects of the response bias.

Selecting a single case site to study always introduces biases based on the peculiarities of the case selected. Everything2 as an older site may have differing levels of

commitment and motivations among users that could not be mapped to the development of a new site. Everything2 has an emphasis on creativity that will exclude many types of users from contributing. In addition, this characteristic likely increases the entertainment value of the site relative to other online communities. Everything2 has a high standard for initial contributions that may discourage users, and may not be comparable to other sites.

CONCLUSION

Sites that depend on user-generated content depend on multiple types of users participating in many ways. How we understand the motivations, both personal and social, of users in choosing to participate speaks to how we both understand online interaction, and to how we could shape it.

In this work, we found that users may continue participating in a site for reasons other than those that drew them to the site in the first place. Additionally, a sense of belonging to the site was important to all types of use across all types of users. Importantly, the predictors of contribution among these users seemed to not be associated with how easy the site was to use for them, but may instead have social or cognitive factors.

ACKNOWLEDGMENTS

The authors wish to thank Tor Bjornrud, and the administrators and users of Everything2.com. This work was supported by NSF grant IIS-HCC-0812429.

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