IBM Research Report

Motivating Expertise-Sharing in Online Communities: Altruism or Self-Interest?

David Huffaker
Northwestern University
Evanston, IL 60208

Jennifer Lai
IBM Research Division
Thomas J. Watson Research Center
P.O. Box 704
Yorktown Heights, NY 10598

Motivating Expertise-Sharing in Online Communities: Altruism or Self-Interest?

David Huffaker
Northwestern University
Evanston, IL 60208
d-huffaker@northwestern.edu

Jennifer Lai
IBM T. J. Watson Research Center
Hawthorne, NY 10532
jlai@us.ibm.com

ABSTRACT

This paper examines motivations of workers to contribute to online expertise-sharing communities in the workplace, and presents the findings of a survey and experimental study. Results indicate that younger workers, and those new to the organization, are motivated more by self-interest, such as gaining name recognition and impressing management, while older workers, and those with a longer tenure, are motivated by more altruistic factors such as sharing and mentoring. Results suggest that HCI designers include aspects that emphasize 'belongingness', and that bring newcomers into the community fold as quickly as possible since a sense of community results in greater participation and contribution.

Author Keywords

Expertise-sharing, online-communities, workplace, motivation, survey research, experimental design

ACM Classification Keywords

H.5.3 Group and Organization Interfaces – collaborative computing

INTRODUCTION

Online communities are flourishing on the Internet, and through them, a vast amount of knowledge and information is created and accessed. Harnessing this "wisdom of crowds" has the potential to have dramatic, positive effects for businesses and knowledge organizations [14]. However, while online communities that focus on everyday things such as exchanging goods or sharing opinions are becoming better understood, it is still unclear which models of participation and contribution apply to communities in the workplace where the public good must intermingle with business strategies, shareholder demands and the almighty bottom line.

It is also unclear what motivates individuals to contribute to online communities since both altruism and self-interest are often cited as primary factors.

PRIOR WORK

Communities in the physical world have been studied and fairly well understood for some time. McMillan and Chavis' seminal work defines a 'sense of community' as a shared faith that "members' needs will be met through their commitment to be together" [12]. Studies of workplace settings in the 1970s showed that people with a strong organizational identity or a 'feeling of belongingness' produce and contribute to the work community more often than those who do not [10].

More recent research has focused on contributions in online communities. Studies of Usenet [5] and Linux open source communities [6] found that users with a stronger sense of community contribute more than their counterparts. Additionally, users of a movie-rating community contributed more when they believed their contributions were unique, benefited the community, and achieved the goals of the group [11].

Less work has been done studying motivation for participation in online communities in a workplace setting. Sharrott & Usoro [13] argue that a sense of community is directly linked to reciprocal knowledge-sharing in online communities. Likewise, Weisz and colleagues [16] argue that successful online communities in the workplace benefit from the fact that workers belong to the same organization.

In terms of actual motivations, users often cite intrinsic, altruistic reasons for participating in an online community, including contributing to a public good, and helping or mentoring others [1, 15, 16]. However, other studies suggest that users are motivated by self-interest, including personal gain or an expectation of reciprocity [7, 9].

Other self-interest factors include intangible rewards such as peer recognition or creating a positive reputation, which have been shown to motivate participation in a community [4]. Chan and colleagues [3] find that most users in an online community like being recognized by their peers, which in turn creates a stronger sense of belonging to group. Tangible rewards (e.g. money) have long been considered useful incentives to increase performance or productivity [2], and remain appealing even in open-source

software development and information exchange communities [6, 8].

Given this wide-ranging set of motivators, which encompass both altruism and self-interest, the question arises as to whether certain motivators result in more contribution, and if some are more effective with a given user group than others. Economists have argued that motivations to contribute may vary at different stages of one's career. For example, as workers approach retirement, they may become less concerned with intangible rewards such as name recognition or being noticed by management, and prefer tangible rewards like a token monetary bonus [5].

The purpose of our study is to probe in greater detail what motivates workers to contribute to an online expertise-sharing community in the workplace, and to gain a better understanding of the effects of different motivators on different types of workers. By drawing on the literature from physical work communities as well as non-work online communities, we hypothesize that there are differences among workers, and that these may be influenced by factors such as age or career status.

This research contributes to the knowledge in the field by providing a better understanding of how to design online communities in the workplace, and it begins to tease apart the complex and subtle motivations of why people contribute to any organization or community.

METHOD
We created two datasets in order to test our hypotheses: (1) the responses to an online survey distributed to a range of IBM employees; and (2) an experimental study, in which we asked IBM employees to use an internal website to contribute their thoughts and impressions by answering questions in an information repository.

Survey
We sent a mass email within IBM that included researchers, interns, engineers and consultants, linking to an online survey, in which 168 participants (58% male, 42% female) completed the entire survey.

Participants were provided with an expertise-sharing scenario and were asked to rank-order their reasons for contributing to such a community; their preferred type of feedback mechanism (e.g., a point system or written feedback); and how they would like to be recognized/rewarded for contributing (e.g., by their manager or an honor roll on the IBM intranet). The survey relied on 5-point Likert-type scales to capture attitudes and preferences (1 = weakest ; 5 = strongest).

Experimental Study
Based on the results compiled from the survey (see below), we developed an experimental study to test these findings in which participants were asked to contribute their knowledge to an online community. Unlike the survey,

which only required participants to state why they would contribute, in the study they had to actually follow through. In order to find participants for the study, we sent another mass email to employees inviting them to reply if they were willing to participate in a study on the topic of online expertise-sharing, without describing the study. Approximately 70 employees agreed to participate.

Using a 4 by 3 Matched Random design, 60 participants (20 in each condition) were randomly assigned to one of three conditions, which were balanced for gender and the four age groups (21-30, 31-40, 41-50, and over 51). These participants received an email where the message was manipulated to reflect the condition. All messages began with:

"Please click on the web link below to answer a series of questions about working at IBM. The answers, once published, will be anonymous."

We added the following text to form a community and self-interest manipulation. The control group had no additional text.

1. Community: *Your contribution will help your IBM Community by jump-starting new community members and/or by sharing knowledge among existing community members".*

2. Self-Interest: *"Your contribution may be helpful for career advancement since senior management has recognized the importance of having people contribute to the handbook and your manager will be notified that you have participated."*

In all cases, the link directed them to a web page with the look-and-feel of the IBM intranet, where they were asked to answer as many of 20 open-ended questions as they wanted to. The questions focused on life at IBM, including asking them to describe a typical day at work, what types of employees thrive, or the type of collaborations that occur. Participants were also asked for their demographic data such as years at IBM, gender and age group.

Of the 60 employees who agreed to participate only 43 of them (56% male, 44% female) answered some or all of the questions. Our independent variables were age group and years at IBM; our dependent variable was the number of questions answered.

RESULTS

Survey
ANOVAs were used to find significant differences, and contrast tests were used to reveal where the differences lay between groups with regard to motivation. These results are summarized in Tables 1 and 2.

Contrast tests revealed that employees in the 41-50 age group were significantly more motivated ($F(3,163) = 6.07$, $p<.01$) by a sense of "helping the community" than employees in the 21-30 age group. Also employees in the

51+ group identified mentorship as a primary motivator significantly more ($F(3,163) = 3.12$, $p<.05$) than participants in the 21-30 group.

Employees in the 21-30 age group were significantly more likely ($F(3,163) = 7.12$, $p<.01$) to select management recognition as the primary motivator than employees in the 51+ age group. Similarly, the 31-40 age group selected ($F(3,163) = 3.35$, $p<.05$) peer name recognition as a motivator when compared to their counterparts in the 51+ age group.

I contribute because…	Age Group			
	21-30 N = 57	31-40 N = 27	41-50 N = 44	51+ N = 39
Helps IBM community	3.30*** (1.32)	3.59 (1.34)	4.27*** (0.87)	3.92 (1.16)
Being a mentor to others	3.21* (1.49)	3.70 (1.30)	3.43 (1.15)	3.97* (0.93)
Gain name recognition from my peers	2.84 (1.18)	3.41* (1.22)	2.75 (1.164)	2.51* (1.02)
Want my manager to notice my work	2.25* (1.26)	2.04 (1.32)	1.25* (0.53)	1.74 (1.19)

Note. *p<.05, **p<.01, ***p<.001, denoting pairwise differences

Table 1. Means and (Standard Deviations) by Age Groups

Since there is often a strong correlation between age and years at work, the results were similar with regard to years at IBM. The 'community' response was significantly different ($F(3,164) = 5.395$, $p<.005$); contrasts revealed that those with more years at the company were more motivated by community reasons than those with fewer years. Management recognition was also significantly different ($F(3,164) = 4.68$, $p<.005$); contrasts revealed that being noticed by management was preferred by those with the fewest years at IBM.

I contribute because…	Years at IBM			
	<1 N=57	1-4 N=23	5-10 N=22	11+ N=66
Helps IBM community	3.37* (1.36)	3.39 (1.27)	3.82 (1.22)	4.17* (0.97)
Want my manager to notice my work	2.23** (1.24)	2.04 (1.33)	1.73 (1.20)	1.48** (0.93)

Note. *p<.05, **p<.01, denoting pairwise differences

**Table 2. Means and (Standard Deviations) by Years at IBM**

Experimental Study

Again, the experimental study was designed from the findings of the survey, to examine if age and years at IBM continued to mediate motivations to contribute. There was a difference in the overall response rate, such that the Control condition (35%) response was half what it was in the Community (80%) and Self-Interest (70%) conditions.

We used a two-way general linear model (GLM) to examine age and years at IBM, the email conditions and the number of questions answered. We removed six outliers that were greater than three standard deviations from the mean for our dependent variable. There were significant differences among age groups and contribution level, $F(3, 37) = 5.835$, $p<.01$, as well as an interaction effect between age and condition, $F(5,37) = 10.259$, $p<.001$. The overall main effect for condition and contribution fell short of significance, $F(2, 37) = 3.172$, $p = .059$.

Contrast tests using Tukey's HSD revealed that participants in the 21-30 age group (M=16.83, $SD = .65$) contributed significantly ($p<.05$) less than participants in the 31-40 (M = 19.500, $SD = .396$) and the 51 and older (M = 19.583, $SD = .396$) age groups. The 31-40 and 51 and older age groups also contributed significantly more than the 41-50 (M = 17.833, $SD = .501$) age group.
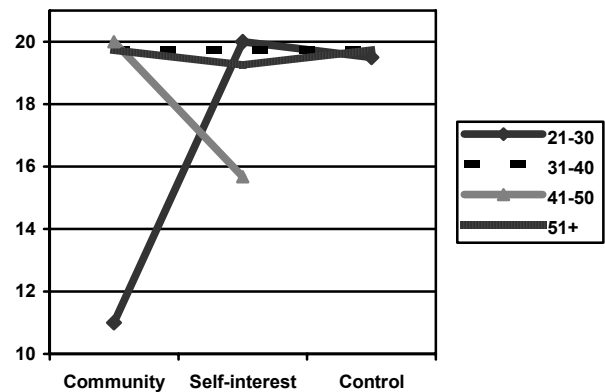
Figure 2. Interaction between Age, Condition and Number of Questions Answered

Interestingly, there were several interactions between age and condition. As seen in Figure 2, the 21-30 age group contributed more in the self-interest condition than the community condition while the opposite effect occurred with the 41-50 age group. Although there was not a main effect for the number of years at the company, there was a similar interaction term between years and condition in terms of contribution, $F(5, 37) = 2.593$, $p<.05$, $\eta^2 = .333$.

As shown in Figure 3, workers with 1–4 years contributed more in the self-interest condition than in the community condition; the opposite occurs for both 41-50 and 51+ age groups.
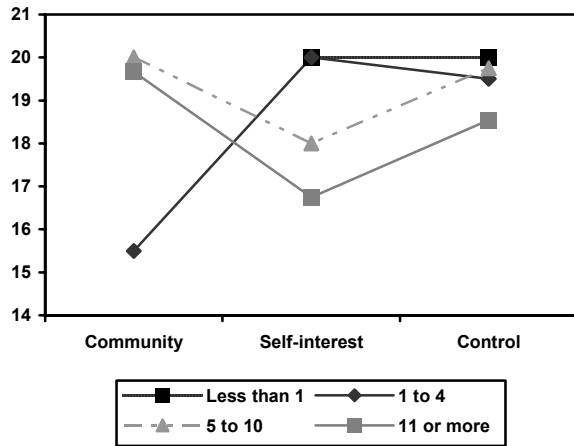
Figure 3. Interaction between Years at Company, Condition and Number of Questions Answered

CONCLUSION

In this paper we examine the factors that motivate workers to contribute to online communities in the workplace, as well as the effects of age and number of years with an organization. Both altruism and self-interest have been presented as the primary reason for contributing to online communities, yet most of the work has been theoretical or based solely on survey research. Our purpose was to identify these factors in a workplace setting and to test the strength of the motivations in terms of actual contribution to a community.

Results indicate that there are significant differences, both in terms of workers' perceptions of what motivates them, as well as actual participation levels in either the community-based or self-interest condition. Our results suggest that younger workers and those new to an organization, are motivated more by self-interest, which includes gaining name recognition, or getting management to notice one's work. By contrast, older workers, and those with several years at a company, are more motivated by altruistic reasons such as giving to the community or providing mentorship.

Given previous work that suggests that belongingness and sense of community is positively related to participation and contribution, it remains paramount for knowledge managers and HCI designers alike to focus efforts in the software design on community-building, especially with the newest members. Bringing young workers and those new to the company into the 'community fold' as quickly as possible could very well have a direct effect on the overall success of the community.

REFERENCES

1. Ardichvili, A., Page, V. and Wentling, T. Motivation and barriers to participation in virtual knowledge-sharing communities of practice. *Journal of Knowledge Management*, *7* (1). 64-77.
2. Baker, G., Jensen, M. and Murphy, K. Compensation and Incentives: Practice vs. Theory. *Journal of Finance*, *43*. 593-616.
3. Chan, C.M.L., Bhandar, M., Oh, L.-B. and Chan, H.-C., Recognition and Participation in a Virtual Community. in *HICSS'04: 37th Annual Hawaii International Conference on System Sciences*, (2004), 1-10.
4. Drago, R. and Garvey, G. Incentives for Helping on the Job: Theory and Evidence. *Journal of Labor Economics*, *16*. 1-25.
5. Gibbons, R. and Murphy, K.J. Optimal Incentive Contracts in the Presence of Career Concerns: Theory and Evidence. *Journal of Political Economy*, *100* (3). 468-505.
6. Hars, A. and Shaosong, O. Working for free? Motivations for Participating in Open-Source Projects. *International Journal of Electronic Commerce*, *6* (3). 25-39.
7. Hemetsberger, A., Fostering Cooperation on the Internet: Social Exchange Processes in Innovative Virtual Consumer Communities. in *Annual Conference of the Association for Consumer Research (ACR)*, (Austin, Texas, 2001).
8. Hummel, H.G.K., Burgos, D., Tattersall, C., Brouns, F., Kurvers, H. and Koper, R. Encouraging contributions in learning networks using incentive mechanisms. *Journal of Computer Assisted Learning*, *21* (5). 355-365.
9. Kollock, P. The Economies of Online Cooperation: Gifts and Public Goods in Cyberspace in Smith, M. and Kollock, P. eds. *Communities in Cyberspace*, Routledge, London, 1999.
10. Lee, S.M. An Empirical Analysis of Organizational Identification. *The Academy of Management Journal*, *14*. 213-226.
11. Ling, K., Beenen, G., Ludford, P., Wang, X., Chang, K., Li, X., Cosley, D., Frankowski, D., Terveen, L., Rashid, A.M., Resnick, P. and Kraut, R. Using Social Psychology to Motivate Contributions to Online Communities. *Journal of Computer-mediated Communication*, *10* (4).
12. McMillan, D.W. and Chavis, D.M. Sense of Community: A Definition and Theory. *American Journal of Community Psychology*, *14* (1). 6-23.
13. Sharratt, M. and Usoro, A. Understanding Knowledge-Sharing in Online Communities of Practice. *Electronic Journal of Knowledge Management*, *1* (2). 187-196.
14. Surowiecki, J. *The Wisdom of Crowds*. Little Brown, London, 2004.
15. Wang, Y. and Fesenmaier, D.R. Assessing Motivation of Contribution in Online Communities: An Empirical Investigation of an Online Travel Community. *Electronic Markets*, *13* (1). 33-45.
16. Weisz, J., Erickson, T. and Kellogg, W., Synchronous Broadcast Messaging: The Use of ICT. in *CHI'06: Proceedings of the SIGCHI conference on Human Factors in computing systems*, (Montreal, Canada, 2006), ACM, 1293-1302.