

Motivated by Information: Information About Online Collective Action as an Incentive for Participation

Judd Antin

School of Information, UC Berkeley

102 South Hall

Berkeley, CA 94720-4600

jantin@ischool.berkeley.edu

ABSTRACT

This paper describes research focused on understanding the relationships between operational knowledge about how online collective action systems work and participation in those systems. Specifically, I use qualitative interviews to examine knowledge about online systems that form public goods, questioning whether the notions of public goods and social dilemmas are relevant and meaningful for individuals making real-world participation decisions. This paper also describes concurrent experimental research focused on exploring the relationship between knowledge about one's own and others' competence to contribute to collective goals as a factor in participation decisions.

Categories and Subject Descriptors

H.1.2. User/machine systems; Human factors

General Terms

Human Factors, Economics

Keywords

Public goods, social dilemmas, collective action, motivation, incentives, operational knowledge, competence, social psychology, economics

1. Introduction

Recent advances in interactive web technologies, combined with widespread broadband and mobile device adoption, have made online collective action commonplace. Millions of individuals work together to aggregate, annotate, and share digital text, audio, images, and video. Increasingly, innovation in interactive web technologies has been based on harnessing the efforts of millions of web users. In this environment, promoting and sustaining participation is key. Online collective action systems have already been successful in a wide range of domains, from encyclopedic knowledge (e.g. Wikipedia) to media sharing (e.g. Flickr, YouTube) and distributed work (e.g. Mechanical Turk, Project Gutenberg). Despite their scale and popularity, however, online collaborative systems have succeeded largely on the basis of a low level of participation. By one measure, for example, just two percent of Wikipedia users account for 75% of participation [8]. What might be possible if participation moved from 2% to 10% –

or even 50%?

2. Motivation and Operational Knowledge

A key first step to understanding and promoting participation is to examine motivations for participation. In my research I interrogate motivations with the understanding that an individual's motivation depends in part on what he knows about how a given system works. While economists have long investigated incomplete information about goods in the market, they have less frequently addressed the question of what individuals know about how market itself operates – of operational knowledge. Users are likely to come to online collective action with different levels of operational knowledge. Existing research has done little to reveal levels of operational knowledge in online collective action systems, or how that knowledge may influence perceptions, motivations, and behaviors.

Traditional discourse on collective action, for example, identifies just two categories of individuals: those who participate and those who free ride. However, the assumption that those who free ride do so with full knowledge of their range of options is unsupported.

While there are many reasons that individuals do not contribute to Wikipedia, for example, a common one may be that they do not know how to do so. It is easy to imagine a scenario in which a less knowledgeable individual performs a web search and, clicking on the first link in the search result, arrives at a Wikipedia entry. If that individual reads the entry and notices several typographical errors, but does not fix them because she does not know that the system allows her to, she is not a free rider – the traditional notion requires an informed decision – and yet she is not a contributor. Acting with incomplete operational knowledge, this individual is un-accounted for by the traditional model.

This example illustrates a key underlying assumption in this research: in order to meaningfully investigate motivations for participation in online collective action, we must take into account individual levels of operational knowledge.

3. Public Goods and the Social Dilemma

One key aspect of a system's operation is the set of constraints on who can participate and who can partake of the product of collective effort. Many online systems such as Wikipedia form public goods. They are freely available to everyone (i.e. they are non-excludable) and one person's use of them does not diminish the amount available to others (i.e. they are non-rivalrous). This structure presents a social dilemma that can set individual and group outcomes against each other. An individual's most profitable option in a public good situation may be to free ride on the efforts of others, making use of the collective product without

Copyright is held by the author/owner(s).

GROUP '09, May 10–13, 2009, Sanibel Island, Florida, USA.

ACM 978-1-60558-500-0/09/05.

ever contributing. Yet if everyone made that same individually rational decision, the public good would not be provided for anyone.

The concepts of public goods and social dilemmas are useful for summarizing and analyzing the structure of collective action systems. In previous research, I have examined the nature of online collective action systems such as blogs, YouTube, Wikipedia, or Project Gutenberg as public goods, and discussed the influence of these structures on motivations and incentives for participation [1, 5, 6]. These systems comprise some of the most popular and useful resources on the web today.

4. The Current Research

In my current research I take the concepts of public goods and social dilemmas as a starting point for a mixed-methodological investigation. Though they are analytically valuable notions that have been extensively used in a variety of fields, comparatively little research has attempted to understand knowledge about and perceptions of public goods and social dilemmas in real-world contexts. If we are to argue that the structure of collective action influences individual behavior, we must first uncover what individuals really know and believe about those structures.

The qualitative phase of this research will be aimed at understanding the notions of public goods and social dilemmas from the point of view of potential participants. Using a series of qualitative interviews, I will address questions such as:

- How much operational knowledge about online collective action systems do individuals have? What types of operational knowledge do they perceive to be important?
- How do knowledge and perceptions of online collaborative systems as public goods with social dilemmas figure into motivations and decisions to participate, if at all?
- What types of knowledge and assumptions about other potential contributors are salient in online collective action?

I will use interviews to gather meaningful, in-context narratives and ideas as they relate to operational knowledge and participation.

4.1 Competence and Participation

I will also use a series of laboratory experiments to explore the relationships between specific types of operational knowledge and participation. I will focus on a particular type of operational knowledge: knowledge that relates to competence.

One feature of the individual referenced in the above Wikipedia example is that he lacks relevant knowledge about how to contribute. In other words, he lacks competence, where competence is defined as having sufficient knowledge or skills to act effectively in a given context. Perceptions of competence reflect beliefs about one's own ability or the ability of others to contribute to the public good. Once we challenge the assumption that all individuals are fully and equally competent, perceptions of competence become essential influences to behavior in social dilemma situations. Precisely how perceptions of competence figure into decisions to contribute or free-ride in online collective action is the main focus of the experimental portion of this research.

The experimental phase will address two primary goals. First, it will test two hypotheses: (1) individuals contribute more in

collective action situations when they believe that they are highly competent, and; (2) they contribute more when they believe that they are more competent than other group members. Secondly, the experiments will explore attitudes that mediate the relationship between competence information and behavior. I will test three arguments that explain the relationship between competence information and contribution:

1. Perceived high / higher competence leads individuals to frame a task as pro-social helping behavior [2, 4].
2. Perceived high / higher competence invokes a notion of fairness or equity [3].
3. Perceived high / higher competence increases sense of self-efficacy [7].

5. Implications and Conclusion

While researchers have begun to turn their attention to questions of motivation and incentives in specific real-world systems, there is a need for basic research to understand the antecedents of participation. Operational knowledge is a key element of that basic understanding. From a theoretical point of view, this research will add valuable qualitative and quantitative evidence to our understanding of participation decisions. In particular, I hope to reveal the key importance of operational knowledge in real-world settings. In an applied sense, the research will facilitate the informed design of incentives that can use feedback and information about the structure of online collective action to promote participation. By recognizing the potential influence of operational information for potential contributors, designers may learn to target feedback in the most efficient and productive manner to improve participation.

6. References

1. Antin, J. Designing Social Psychological Incentives for Online Collective Action, in *Proceedings of Directions and Implications of Advanced Computing: Conference on Online Deliberation (DIAC 2008)*, 2008.
2. Batson, D. and Powell, A., "Altruism and Prosocial Behavior," in *Handbook of Social Psychology*, I. Weiner, Editor 2003, McGraw Hill. New York, NY.
3. Becker, J.U. and Clement, M., Dynamics of illegal participation in peer-to-peer networks - Why do people illegally share media files? *Journal of Media Economics*, 2006. **19**(1): 7-32.
4. Benabou, R. and Tirole, J., Incentives and Prosocial Behavior. *American Economic Review*, 2006. **96**(5): 1652-1678.
5. Cheshire, C., Social Psychological Selective Incentives and the Emergence of Generalized Information Exchange. *Social Psychology Quarterly*, 2007. **70**(1): 82-100.
6. Cheshire, C. and Antin, J., The Social Psychological Effects of Feedback on the Production of Internet Information Pools. *Journal of Computer Mediated Communication*, 2008. **13**: 705-727.
7. Kankanhalli, A., Tan, B.C.Y., and Wei, K.K., Contributing knowledge to electronic knowledge repositories: An empirical investigation. *MIS Quarterly*, 2005. **29**(1): 113-143.
8. Swartz, A., "Who Writes Wikipedia?," 2006. <http://www.aaronsw.com/weblog/whowriteswikipedia>.