Understanding the Internet's Present, and Values-Based Design of its Future

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The Sound of a Bison, and other Benefits of Online Peer Production of Content

In 2006, we took our then two-year-old son to dinner at Ted's Montana Grill, a restaurant that specializes in bison burgers and has pictures of bison on the walls. Looking around, he asked, "What sound does a bison make?" I told him I really didn't know, but when we got home I opened up YouTube and searched for "sound of a bison." And the first hit was exactly that: http://www.youtube.com/watch?v=f0LXhXaQJqw

The accomplishments of Internet-supported large-scale collaboration are stunning. Should you be curious about bison, you can hear and see them on YouTube and read their complete history on Wikipedia. And note that the information you are accessing is probably being served to you via Apache, the open source web server hosting half the world's web pages (Mockus, Fielding et al. 2002). I am looking at it now on Mozilla Firefox, the open source web browser with which 24 percent of Internet users browse the web (hitlinks.com 2009). The Internet has made new kinds of collaboration possible, with dramatic benefits for business, education, entertainment, and the public information and debate that is a foundation of democracy.

This leads us to a series of questions: How does it all work? What will and won't work in online communication is difficult to predict and understand, because we don't yet have strong theories about it. An old joke says that Wikipedia only works in practice—in theory it can never work. My students and I are try to understand the practice, and help the theory catch up. We have been using a complimentary combination of qualitative and quantitative methods to shed light on questions such as how individuals become a part of the Wikipedia community (Bryant, Forte et al. 2005), how policy on Wikipedia evolves (Forte and Bruckman 2008), and how people learn through the process of writing there (Forte and Bruckman 2007). Based on our understanding, we have been able to design new systems to support students learning through writing online. We have also created tools to support strong citation practices, with the goal of helping people understand the social construction of knowledge and the complex nature of meaning-making and "truth" in a networked world.

Different kinds of sites lead to different emergent phenomena of content creation and user behavior. For example, on sites like newgrounds.com, collaborative creativity is leveraged for artistic aims. Members of the site make animations, and many are viewed by hundreds of thousands of people. Some animations are made by teams of people who have never meet in real life. How is this accomplished? By both quantitative data analysis of activity on the site and in-depth interviews with animators, we have been able to paint a picture of how and why some projects succeed but over 80% fail, never leading to a published animation (Luther and Bruckman

2008). Based on this, we are developing a new suite of tools called Pipeline designed to support the creative collaborative process. We aim both to support the process as it typically occurs now, and also transform it—making new more decentralized modes of leadership of online creative collaborations possible. In these examples, empirical analysis of existing systems has led to the design of new systems to achieve desired aims.

From Empirical Analysis to Values-Based Design

If the current accomplishments of online peer production of content are jaw-dropping, what might the future hold? I believe we are still in the early stages of exploring the medium's potential. There is a pressing need for us to study existing successful online systems, to gain insights into how they work and how they have changed over time. How do specific design features of these systems lead to differences in user behavior? How can we leverage this both to create useful content and to support what individuals gain through the process of participation?

You could devote many lifetimes to the detailed study of already occurring online phenomena. However, this analysis in my view is just a first step towards the over-arching goal of shaping the future of the medium. What do we want the Internet to become and why? This is not a neutral discussion, but rather a values-driven one that challenges us to consider who we are as a society and who we would like to become. For example, we have an unprecedented opportunity to use this medium to enhance the democratic process, and give real people a more meaningful voice in government. By designing ways to support the creative work of individuals and groups, we have the opportunity to democratize culture, supporting the creation of cultural artifacts by real people that reflect their interests and values (rather than mass-produced culture motivated by financial imperatives). We have opportunities to support the activity of small businesses, valuing an entrepreneurial spirit and supporting individuals in the creation of independent, innovative new ventures. We have a pressing need to better articulate what we hope to accomplish, and what goals are within reach.

With a carefully chosen set of goals and a deep understanding of existing practice, the last and most important step is the iterative design of new socio-technical systems to help reach those goals. How to create and evaluate novel systems increasingly poses methodological challenges. As expectations of Internet users rise, researchers are often challenged to develop systems with sufficient polish to attract real users. Can the cost of developing a research platform be shared by academia and industry? What is the correct balance between laboratory and naturalistic studies? Our research methods need study in themselves.

The challenge going forwards is to understand best practices, form stronger fundamental theories, identify our values and goals, and leverage all those things together to design innovative systems that achieve those goals. Through this iterative process, we have an opportunity to shape the future of a medium that is increasingly reshaping society.

Bryant, S., A. Forte, et al. (2005). Becoming Wikipedian: Transformation of Participation in an Collaborative Online Encyclopedia. SIGGROUP, Sanibel Island, FL, ACM.
Forte, A. and A. Bruckman (2007). Constructing text: wiki as a toolkit for (collaborative?) learning. Wikisym. Montreal, Canada, ACM: 31-42.
Forte, A. and A. Bruckman (2008). Scaling Consensus: Increasing Decentralization in Wikipedia Governance. HICSS, Waikoloa, HI.

hitlinks.com. (2009). "Browser Market Share."   Retrieved 11/12, 2009, from
http://marketshare.hitslink.com/report.aspx?qprid=0.
Luther, K. and A. Bruckman (2008). Leadership in Online Creative Collaboration. CSCW. San
Diego, CA, ACM Press.
Mockus, A., R. T. Fielding, et al. (2002). "Two Cases of Open Source Software Development:
Apache and Mozilla." ACM Transactions on Software Engineering and Methodology
11(3): 309-346.