# From Bowling Alone to Tweeting Together: Technology-Mediated Social Participation

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Many observers suggest that the remarkable growth of social media is reversing the 40-year decline in civic and community-group participation [1]. Mobile phones, email, blogs, wikis, tweets, and social networks are transforming the way families and friends relate, while offering new mechanisms for neighbors and colleagues to collaborate. Even more important, the payoffs from technology-mediated social participation may be able to save lives in disasters, improve health by promoting wellness, and restore economic vitality by accelerating business innovation.

The challenge is whether designers, civic leaders, and community managers can deploy the right social media interfaces to restore participation in social, civic, political, and economic institutions. Building on early visions of the Internet as an open platform for communication and information exchange, these new social and civic-participation tools provide people with the ability to work together to address mutual concerns, solve problems, and build consensus—potentially restoring the social capital that has been lost and improving the lives of citizens in every country. These ambitious goals present a challenge to the HCI community: Can we develop evidence-based scientific theories that yield actionable guidelines for usability and sociability?

**Evolution of Social Media for Community Needs**
Computing tools in the service of community needs have a long history, dating back to Berkeley, California's Community Memory project in the 1970s. Recent efforts have shown the possibilities for technologically mediated social participation in the Web 2.0 era. The Obama administration, which may owe its election victory to effective use of social media, has been a leader in using websites, YouTube videos, and participatory strategies to disseminate and advance its agendas. It began with the Change.gov site during the 2008 presidential transition, and then continued with efforts such as data accessibility (data.gov) and stimulating blog discussions of policy issues. A potent example is the lively discussion on the blog run by the Office of Science and Technology Policy (blog.ostp.gov), which solicits citizen input on policy priorities and operational definitions of transparency initiatives. The $787 billion economic stimulus plan, the American Recovery and Revitalization Act, has also become social and transparent with extensive data and requests to report fraud and abuse (recovery.gov).

The independently run Whitehouse2.org continues these efforts, providing tools for setting priorities, compiling talking points for various sides of issues, and charting popularity trends. A different breed of sites covers issues of more local concern. Efforts like Nation of Neighbors (nationofneighbors.com) give residents a forum to discuss concerns, report disturbing incidents, and track crime reports, while building community ties. Other efforts focus on developing community resources; the GreenMap system (www.greenmap.org) has been used to develop hundreds of local maps highlighting sustainable living resources.

Despite their different scales, these efforts share a common goal: providing a technological platform for supporting citizen engagement in areas of shared concern. If properly designed, these systems have the potential to span people, computation, communication, and action—engaging participation

[1] Putnam, R. *Bowling Alone: The Collapse and Revival of American Community.* New York: Simon and Schuster, 2000.

from across the street and across the planet. The connections and discussions that result will lead to profound transformations in health care, community safety, disaster response, lifelong learning, business innovation, energy sustainability, environmental protection, and other spheres of important national and international priorities.

**Recognizing Dangers, Building Trust**

Of course, any sufficiently potent technology, such as social media, is also useful to criminals, terrorists, hate groups, and oppressive regimes intent on quelling dissent. Social-media designers, advocates, and theorists will have to deal with the ethical issues, much as the nuclear scientists of the 1940s and 1950s had to wrestle with the dangers of their science and technology successes.

If responsible designers and researchers for this new generation of social-participation tools can provide compelling interfaces while weighing the dangers, they will encourage large numbers of users to participate. Frequently updated content presented attractively, tutorials and FAQs, clear navigation paths, online help, and well-designed features for reading, searching, browsing, and sharing will help engage people. Once users have had the chance to explore a new group and become comfortable with the content and direction, lightweight participation tools can encourage the transition to more active roles. Support for exploring discussions, comments, and ratings; easily contributing or commenting and making direct contact with other participants; and responding to malicious or destructive content will help users make the potentially scary leap from lurking to posting. Tools for finding relevant individuals, forming groups, collaborating, and resolving differences will help participants gradually transition to greater levels of engagement starting with occasional passive participation, moving on to occasional contribution and engaged collaboration, and, finally, engaged and committed participation—

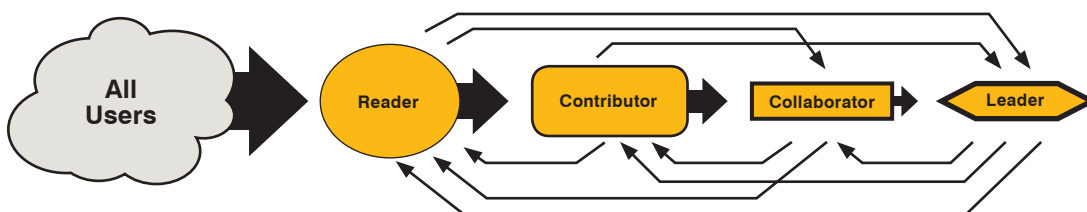completing the evolution from "reader" to "leader" [2]. (See Figure 1.)

Current participatory sites such as Facebook, LinkedIn, and Wikipedia provide guidance for constructive practices while demonstrating some of the challenges. Social networking tools illustrate the importance of leveraging existing social ties to generate perceived community. One-click tools for comments or binary tagging ("like" or "unlike") encourage input. Wikipedia's detailed system and procedures for contributing, editing, discussing changes, and responding to controversy provide models for the challenging task of managing content and maintaining high quality. The patterns of Wikipedia contributions demonstrate the difficulty of generating participation: Although a relatively small group of users might be able to maintain an online encyclopedia, true social participation should draw from a broader and more representative base.

Understanding who and what to trust will be particularly important for participants tackling challenging and controversial questions. Social connections—friends of friends, ratings, and histories of individuals and content—can help critical participants evaluate content quality and credibility, but improved visualizations may be needed to aid in the interpretation of potentially overwhelming quantities of rating information.

Managing real or perceived tensions between accountability and anonymity will be another concern. As full disclosure of participants' names, locations, employers, and affiliations encourage the growth of networks while providing context useful for trust and credibility assessments, social participation tools might provide a variety of incentives, such as increased trust ratings to induce this sharing.

In many other cases, disclosure may not be desirable or even possible. Familiar arguments for anonymity in the face of discussions of controversial topics, potentially illegal behavior, and whistle-

[2] Preece, J. and Shneiderman, B. "The Reader-to-Leader Framework: Motivating Technology-mediated Social Participation," *AIS Transactions on Human-Computer Interaction* 1, 1 (2009): 13-32; http://aisel.aisnet.org/thci/vol1/iss1/5/



▶ Figure 1: The Reader-to-Leader Framework: Motivating technology-mediated social participation. As users become aware of social media, they become readers. Some will become contributors, then collaborators, and possibly leaders [2].

blowing still apply. Accountable anonymity, perhaps via persistent anonymous identifiers endorsed by respected community members, might bridge the gap, helping contributors build credibility without revealing sensitive details.

Social participation may mean decision making. Robust tools for building consensus, canvassing opinion, and voting will help communities move from discussion to action and resolution. Lessons from existing sites like Wikipedia may help inform designs that encourage constructive agreement, instead of flame wars. Flexible tools with customizable options will allow each community to decide how it wants to make decisions.

**Open Government, Participation, and Collaboration**
Access to relevant information is often a prerequisite for constructive and informed participation in public-policy debates. Recent trends toward increased transparency present some promising possibilities in this regard. The Obama administration's pledges for greater transparency may lead to greater availability of federal government information in the U.S., but merely posting information in HTML or PDF files is likely to be insufficient. Non-governmental websites such as Govtrack.us, Opencongress.org, Maplight.org, and Mysociety.org are leading the way in this regard, combining data sets describing legislators and legislative actions with tools that invite citizen participation and open APIs for retrieving data in easily processed XML formats. Customized integration of data sources within the context of full-featured social-participation tools will present some truly intriguing possibilities.

Maintaining the quality of content and deliberation will likely be a challenge, as dedicated participants and system administrators may be forced to walk a fine line between supporting open expression and having discussions captured by minority or malicious viewpoints. The concerted efforts of a relatively small but vocal group pushed marijuana legalization to the top of the Change.gov list. Can designers build interfaces that inform discussion of such proposals with some indication of the breadth and depth of support they enjoy? Tools such as these might help guide debate without stifling the supporters of more marginal causes. How do we understand, and convey, the difference between participants in these technologically mediated discussions and the broader population at large?

Growing these systems to larger communities with more active participants will be challenging. How can discussions of policy proposals scale to hundreds or thousands of contributors debating dozens of differing proposals? How do community-support tools that work well at a local level scale to state, national, or international contexts? Interfaces will be needed to help users navigate histories of detailed discussions, interpret complex discussions, evaluate the credibility of claims and arguments, and to support the transition from discussion to decision and finally action.

Successful implementation of these tools will require attention to social, motivational, contextual, and technical challenges. Credibility of these tools will require open and accountable administration and moderation: Manipulation of content or discussions for partisan or commercial goals may bring efforts into question. Privacy and security protections will be crucial, particularly when anonymity or pseudonymity are concerned. Clear and appropriate policies must respect both participant dignity and free speech. Particularly in controversial cases, system managers and moderators must be committed to the process and willing to accept the very real possibility that they may not like where it leads.

Designing interaction models and interfaces to meet these goals will be a challenge. Given the multiplicity of forms of social participation, a diversity of approaches may be needed. As researchers and practitioners experiment with proposed designs, growing consensus regarding successful approaches may lead to the development of tool kits that might be customized for specific projects.

**Measuring Success, Facing Challenges, Anticipating Threats**
New metrics of success may also be necessary. As many Facebook users (including more than a few HCI professionals) can attest, the premier social-networking site often succeeds in spite of an interface that may not always adhere to accepted guidelines for interface design. Participation will likely be the important metric: How well does a tool attract and retain active participants? How much data is shared? Are problems resolved? Appropriate definitions of these measures will be needed before any rigorous comparisons can be attempted.

Societal and contextual trends may both motivate and constrain participation. Particularly during economic downturns, people may feel too

overwhelmed and overburdened by the demands of every day life. Even in the best of times social participation may be difficult to sustain. Designs that provide encouragement and support— perhaps by letting people know that others share their concerns and fears—might encourage participation. Flexible models may be necessary: Approaches that value varying different types of contribution and degrees of commitment might encourage potential participants to make crucial first steps.

Questions of abuse, manipulation, and other undesired effects will need careful consideration. Can these tools be gamed by malicious individuals or groups intent on creating the appearance of community in order to pursue selfish ends? Does online social participation have unanticipated negative impact on "real world" engagement? Familiar patterns of uncivil discourse, self-selecting groups that reinforce shared opinions rather than encourage diversity, and fears of repercussion around frank commentary (particularly in countries lacking strong protections for free speech) will all likely plague social participation tools. Addictive behavior may present different challenges, as some may take participation to unhealthy extremes [3]. Although some of these questions might be addressed through up-front consideration and design, others may require deploying and assessing real systems.

Addressing these and other related challenges will not be easy, but the payoffs may be substantial. The widespread use of tools supporting neighborhood awareness and discussion of policy issues, from a local to an international scale, will help encourage the participatory citizenship needed for fully functioning democratic societies. Biodiversity sites might encourage citizen scientists and nature enthusiasts to document observations of animals in their backyards and parks, helping conservation and restoration efforts. Topical venues might engage users in addressing pressing problems including climate change, energy conservation, and health care.

## The Next Steps

These and other opportunities and challenges in technologically mediated social participation are the focus of the National Initiative on Social Participation (NISP). Inaugurated with a meeting of researchers from academia and industry in April 2009, the NISP is working to encourage relevant efforts and to build support for an ambitious research agenda. A white paper including

both general and specific research agendas, along with other supporting documentation, is available at iparticipate.wikispaces.com. The next steps were two National Science Foundation-sponsored workshops that helped to define a compelling research agenda (tmsp.umd.edu). These and other efforts are directed at promoting dramatically increased research funding by many government agencies, while accelerating curriculum revisions that make social-media analysis a more common topic. Similar efforts are being made around the world (intlsocialparticipation.net) and include the thoughtful manifesto from the European Society of Socially Embedded Technologies (eusset.eu).

The harm from declining social participation is clear and substantial, but there is hope for the future. As social networking tools continue to attract members, attention, and investment, technology-mediated social-participation tools can tap some of this energy in the service of socially constructive ends. Wellness, health care, sustainable energy, environmental protection, education, and many other vital national priorities can be addressed. There is much academic research to be done, theories to be developed, and courses to be revised. At the same time, advocates will have to change many minds in corporate settings and government agencies so that they shift policies and encourage technology-mediated social participation. The road ahead is challenging, but HCI professionals can help make this happen—come join us!

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[3] Hafner, K. "To Deal with Obsession, Some Defriend Facebook." *New York Times,* Dec. 20, 2009.