

The wiki way: prefiguring change, practicing democracy

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Abstract

The Internet is an unfinished and contested technology that reflects the duality of science and technology - the double aspect of transformation and innovation. Today there is an imbalance of this internal tension, resulting in a disconnect between modern technology and social values. Tech activists have appropriated Internet technology, inflecting it with the goals and concerns of the global justice movement. Through their development of free software - in particular their customization of wiki technology - tech activists have created a space and tool for communication in cyberspace. In turn, this has enabled the realization of new communicative practices offline, establishing a dialectical relation between the technological and the social, and restoring technology's transformative aspect. Democratic practice online prefigures the desire for a more just society; actualized as democratic interventions into the development and use of technology, it then manifests in alternative modes of social organization in the "real" world.

Introduction

What democratic potential does the Internet hold? This is a much-asked question, both within and outside academia. And yet the question remains unanswered, in part because the Internet remains an unfinished and evolving technology. The duality of science and technology - on the one hand its promise for a more humane and just society, on the other, its potential to dominate nature, and therefore humanity - reflects a similar tension between status quo power relations and alternative visions of the future. This tension plays out in the way recent progressive social movements have engaged with new information and communication technologies, in particular the Internet, within a framework of global capitalism. As such, it is not clear whether cyberspace will be fully colonized by corporate forces or whether it will be preserved as a virtual public sphere that can enhance "real world" democracy. Neither has

it been determined if the Internet will be controlled by the state, by its corporate partners or by citizens, although a decidedly less open Internet protocol, IPv6, is currently being tested.

Today, various actors compete for dominance on the web, as the commercialization of cyberspace continues apace. Among them, activists in the global justice movement¹ (GJM) have appropriated Internet technology in their struggle against the negative impact of corporate capitalism on a planetary scale [cite]. Since the eruption of the GJM at 1999's Battle of Seattle, much has been made about the impact of the Internet on progressive activism. Of particular interest have been the ways in which activists have used the Internet as a communication medium, as a forum for information dissemination and as a tool for organizing (Deibert, 2000; Kahn & Kellner, 2004; Meikle, 1999; Smith, 2001). Applications like Websites, email and Internet Relay Chat (IRC) have largely facilitated the new movement as a global phenomenon (Bennett, 2004; van Aelst & Walgrave, 2004). Cyberactivism - political activism on the Internet - is a new mode of contentious action, and new practices such as virtual sit-ins, online petitions and email campaigns have enhanced the repertoire of contention (McCaughey & Ayers, 2003). But what impact have activists had on the Internet? "Tech activists" - programmers, coders, and hackers who subscribe to the philosophy of the free software movement yet are committed to the pursuit of a just society - are largely responsible for facilitating the novel combination of interactive digital technology and activism. They are responsible for the design of the virtual infrastructure used by activist groups. But in addition to building and maintaining websites, wikis, web logs, email accounts and mailing lists, these self-described geeks customize free software to meet the needs of activists engaged in the new global activism. In using and developing technology that augments the notion of cyberspace as a virtual public sphere, tech activists enhance the democratic potential of the Internet. Their work, therefore, alters not only the way people "do" activism; it is changing the face of the Internet itself.

How do we evaluate such a claim? I approach the problem by acknowledging first and foremost that technology is political - both in design and use. I further contextualize the problem historically, considering the origins of critical thought on the interrelation between modern technology and society, noting the inherent tension underlying the human-machine bond. Through the lens of critical constructivism, I then trace the rise of tech activism, which has roots in the free software movement but has cultivated its own ethically

¹ Various called the anti-globalization movement, anti-corporate globalization movement, pro-democracy movement and sometimes simply "the movement".

grounded and social activists have appropriated democratic communication of new communication between the technical online is prefigured as democratized it then manifests world. Feenberg (2004) argues that digital action is an example of how to reproduce capitalism provokes a reaction to technologies..." (Feenberg, 2004). Feenberg suggests that the conditions of tech activism

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From the dawn of the industrial revolution has inspired awe and admiration of technology's triumph over nature. Francis Bacon was the first to associate science with his former master, and to see it as a means to overcome obstacles or "idols" of the 17th century. More recently, the rise of the Internet. But popular opinion has been divided on the impact of technology on society. The digital divide and the digital divide breakdown are two of the most prominent issues to shed its religious and moralistic with the ethos of scientific innovation has been a "two-sided significance" of the duality that produces a "duality" between *invention*

Leiss (2005) argues that digital change, encompassing a new method throughout the world, is highly uncertain.

nator of scientific change. Uncontested in any meaningful way, it promotes a vision of the continual flow of new products and technologies that improve the material conditions of life. Inventive science also gave rise to the "idols of technology." Evocative of Bacon's idols, which were rooted in devotion to magic, religion and irrational social convention, these are "the false notions that have grown up around modern society's fervent commitment to technological progress" (Leiss, 1990, p. 5). Transformative science - innovation's better half - endured through the end of the 1800s in European culture, maintaining harmony within the project of science. Up until then, the new scientific methods were considered important not only as a toolkit for better understanding nature, but for their potential to positively influence social policy and social institutions (Leiss, 2003).

The society-technology disconnect

Today, however, the two sides of the internal tension within science and technology have become unhinged; thus separated, they no longer support and enhance one another. What Leiss (2005) calls the "cultural mission" of science has faltered. Marcuse (1964) recognizes this disconnection between modern technology and social values in his concept of the one-dimensional society. Here dialectical contradiction (the crux of true reason) is flattened and the Platonic *logos* of a technology - its rationale or reference to the good served - is lost. "The totalitarian universe of technological rationality is the latest transmutation of the idea of Reason" in which logic has become the "logic of domination" (p. 123). Thus technological rationality triumphs as reason - the basis for scientific thought and technical action - becomes unreason in the "closed operational universe of advanced industrial civilization" (124). For Marcuse, the only way to transcend this situation, this closed universe, is through a "catastrophic transformation" of society that is at once technological and political. "The political change would turn into qualitative social change only to the degree to which it would alter the direction of technical progress - that is, develop a new technology" (p. 227). Such a qualitative change would facilitate the transition to a more advanced level of civilization if technologies were designed and used for the "pacification of the struggle for existence" (ibid). What would emerge, Marcuse posits, is a new idea of reason, one opposed to modern scientific and technological rationality.

Feenberg (2005) similarly acknowledges the imbalance in modern times between the transformative and inventive sides of science - or technology and values - and the resulting tendency of technical action toward domination.

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industrial civilization based on values different than those that currently underwrite global corporate capitalism. The critical theory of technology "charts a difficult course between resignation and utopia", seeking to explain how modern technology can be redesigned to support the needs of a freer society (Feenberg, 1991, p. 13). Feenberg retains the Frankfurt School insight that the domination of nature - or technological progress - is achieved through social domination. Indeed, as Langman (2005) points out, critical theory is useful as an emancipatory discourse that roots social injustice and human immiseration firmly within the "rationalized, reified, commodified culture of modern capitalism" (p. 48). The only remedy postulated by the Frankfurt School is democratic advance, leading to the conclusion that "the liberation of humanity and the liberation nature are connected in the idea of a radical reconstruction of the technological base of modern societies" (Feenberg, *ibid*). But critical theory lacks a concrete conception of a "new technology"; Feenberg's approach seeks to rectify this.

Technology as a scene of struggle

According to Feenberg (1991) the technical order is not merely a sum of tools but instead acts to structure the social world in a rather autonomous way. "In choosing our technology we become what we are, which in turn shapes our future choices. The act of choice is technologically embedded and cannot be understood as a free 'use'" (p.14). But critical theory is not fatalist and Feenberg retains this thrust; the future of civilization is not determined by the "immanent drift of technology" therefore, but can be, and is, influenced by human agency. Political struggle continues to play an important role, however tenuous and uncertain of success.

In societies organized around technology, such as modern Western nations, technological power is key to the exercise of political power. Feenberg (1991) explains how the ruling elite preserve their power through his concept of the *technical code*. Whereas earlier constructivist notions, like momentum (Hughes, 1987) and path dependency account for certain technological trajectories, the technical code is the embodiment of dominant social principles at the level of technical design. In other words, the technical code translates what are typically ruling class objectives into technical terms; it "invisibly sediment[s] values and interests in rules and procedures, devices and artifacts that routinize the pursuit of power and advantage by a dominant hegemony" (Feenberg, p. 14). A technology reaches closure when disputes over its definition are settled by privileging one over any number of possible configurations;

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space; nonetheless a community model of the Internet that envisions a virtual space for the development of democracy suggests commercial domination is not inevitable (Feenberg and Bakardjieva, 2004).

These discordant models of the Internet indicate that it is an unfinished project (Feenberg and Bakardjieva, 2004); that is to say, conflicts over its design and meaning have not been resolved. Herein lies the "two-sided significance" or the dual nature of technology. With its potential to be both inventive and transformative, the future direction of Internet remains dynamic and very much contested. It is unclear whether cyberspace will be sold off to the highest bidder or whether it will be preserved as a place for public communication and interaction. The turf war in cyberspace is still being waged, and actors with competing goals, values and interests continue to battle for supremacy. Thus Internet has not reached closure, nor have the dominant norms of modern western capitalism sedimented into a technical code; both the social and technical definition of the Internet remain at stake. Many possible outcomes are visible on the horizon of the future, making this is an opportune moment to investigate the Internet's emancipatory and democratic potential.

Interpreting the Internet

Viewed through the lens of critical constructivism, the Internet's contingent nature is apparent. Its development is characterized largely by interpretive flexibility, and the concomitant notion of user agency in the arena of technological design. The Internet was originally conceived as a means for connecting government researchers at various military and academic institutions, enabling them to share expensive computing resources (Abbate, 1999; Ceruzzi, 2003). But it quickly developed into a medium for human communication, demonstrating interpretive flexibility. The designers of ARPANET, the progenitor of the Internet, were also first generation users, and as such, they intervened in the design process in ways that strayed from the official vision of military computer networking. What makes the Internet unique in the history of communication and information technologies is the openness of its design principles - in its standards, its software and its engineering - and the prospects this offers for user agency. This was a deliberate choice of its originators with profound impact on the Internet's social meaning. "From the very beginning these principles have been understood to have a social as well as a technological significance. They have, that is, been meant to implement values as well as enable communication" (Lemley & Lessig, 2004, p. 44). The value of openness that characterized the Internet's birth has endured, despite

increasing contestation (Feenberg, 1999).

Alternative conceptions of the Internet as a public space have been widely upheld. These conceptions are often based on their work, collegiality, and the desire for a wide range of participation and power" (Feenberg, 1999). The Internet at its "core" is not in the corporate realm of profit and power. Tim Berners-Lee, who created the World Wide Web in 1990, described it as a "public space" endorsed by capital, but not "exclusive" (in Ceruzzi, 2003). The history of the Internet in the United States is one of universities and research centers, not the personal computer, the

Tech activism

The Internet is a site of progressive contestation and movement are at the heart of this intervention. They argue that their activism is a response to the quest to democratize technology (Ceruzzi, 1991). The current movement that emerged in the late 1990s, often associated with Artificial Intelligence, is based on a belief that information technology is a student culture that is being commodified (and later, controlled) largely designed by corporations (Castells (2001) of

² Taken as the official slogan for the global movement, as astutely observes, similar to the capitalist hegemony, which is the only possible one.

cultural movement in the same way as many radical activists of the day. "And yet they were permeated with the values of individual freedom, of independent thinking, and of sharing and cooperation with their peers, all values that characterized the campus culture of the 1960s" (p. 24).

By the 1980s, these values were increasingly marginalized as the computer industry became more and more proprietary. One of the MIT hackers, Richard Stallman, quit the AI lab in response to this change and founded the free software movement in 1984. This was, arguably, the formalization of a long tradition of openness in the computing community. Ceruzzi (2003) traces the custom of sharing source code as far back as 1955, to the forming of SHARE, a disparate group of programmers who banded together to tackle upgrading their IBM systems. Stallman (1999) took the moral stance that proprietary software was antisocial and unethical, rejecting the assumption that "we computer users should not care what kind of society we are allowed to have." He began developing an operating system, GNU (Gnu's Not Unix) that became complete with the addition of the Linux kernel in 1992 (gnu.org). The movement was based upon four essential freedoms: the freedom to run a program; the freedom to modify a program; the freedom to redistribute copies (gratis or for a fee); and the freedom to distribute modified versions of the program. Because freedom is considered in the context of liberty rather than price, the ability to share source code, and sell a finished program are not necessarily incompatible. The crucial point is that the source code always remains freely available - in proprietary and free software.

Free software vs. open source

Freedom, and not simply program development and use, is the central concern of the free software movement, making it an explicitly political project³. In this way, it suggests "a digital revolution that is social before it is technical" (Obscura, 2005). But some in the tech community have purposely avoided the subversive potential of free software. In 1998, Eric S. Raymond launched the Open Source Initiative (OSI) in response to the value-laden approach of the free software movement. Although it assumes an apolitical stance, this movement reveals its bias in its support of the status quo.

The Open Source Initiative does not have a position on whether ideas can

³ Another political project founded in defense of freedom on the Internet is the Electronic Frontier Foundation. Begun in 1990, the EFF works to protect the public interest in legal battles over digital rights in cyberspace. A discussion of this group, however, is beyond the scope of this essay. See www.eff.org.

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one based on decentralization, volunteerism, cooperation and self-empowerment, with the ultimate goal of creating a freer society. It is an example of what Feenberg (1999) calls *democratic rationalization*, the use of new technology (software) to undermine the existing social hierarchy. Put another way, democratic rationalization highlights the political implications of user agency for technical design, suggesting the possibility of organizing society in ways that enhance democracy, rather than capitalist efficiency and control. In this case, democratic control of software suggests a different Internet and, broadly considered, a different world.

Second wave tech activism: Repoliticizing technology

The resurgence in tech activism in the early 2000s rested firmly on the foundation laid by the free software movement. It is unsurprising, then, that a similar rift exists between tech activists in the global justice movement and the generally apolitical advocates of open source. While both projects share an affinity for collaboration and coordination, with geeks often moving easily between the two, their political, philosophical and technical motivations differ. Programmers working on open source projects are rewarded by the creative expression, intellectual stimulation and improvement of technical skills acquired through programming (Lakhani & Wolf, 2005). Similar rewards may also inspire tech activists in their work but there is no question as to their overarching motivation: "technical means are directed toward political ends" (Coleman, 2004). These political ends include the pursuit of social, economic and environmental justice under the auspices of the GJM. This shift in focus signals a return to the radical tradition of the free software movement and the repoliticization of computer technology.

The reclamation of computer technology as a political frontier for contentious action is a hallmark of the global justice movement. The GJM comprises the latest wave of social justice activism, and seized the world's attention at the "Battle of Seattle", 1999's massive street protest against the World Trade Organization. Here, upwards of 50,000 activists from a variety of cultural, ethnic and political backgrounds formed an unprecedented alliance, united by their common opposition to the debilitating effects of neoliberal globalization, a world economic policy that has generated massive profits for a minority of the world's population at the expense of labour and human rights, environmental sustainability, democratic practice and national autonomy (Langman, 2005). In the face of increasing corporate dominance, there was increasing resistance, and a movement of movements swelled, embracing the

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ly an example of the democratic rationalization of the Internet - activists appropriating Internet technology to not only challenge the dominant ideology (neoliberal globalization), but to foster alternative visions of social organization.

The birth of Indymedia

There are numerous examples of tech activism, such as the construction and maintenance of activist websites (including mailing lists, email accounts and other functionalities), refurbishing old computers for distribution in technology poor areas/nations, and the hosting of hacklabs⁵ and other tech training events. Tech activists are also responsible for setting up media centres for major street demonstrations and during natural disasters, such as Hurricane Katrina⁶. But Indymedia is arguably the most prominent, and perhaps best, example of tech activist work done under the banner of the global justice movement. The building of the first IMC in Seattle now approaches legendary status. The inaugural post, by founding geeks Manse Jacobi and Matthew Arnison, acknowledges the novelty of the new movement; on 24 November 1999, they wrote: "The resistance is global... a trans-pacific collaboration has brought this web site into existence."⁷ But it was activists' prior use of the Internet as a communication tool that enabled the global resistance to unite in one locale.

Another geek, Evan Henshaw-Plath, took part in the birth of Seattle IMC, which he had heard about from a friend of a friend at a pre-protest party. He describes the scene as "packed and hectic", with techies scrambling to shore up the server and code before the protests began:

Almost the instant I walked in to the Indymedia Center I had caught the IMC bug. Without knowing the organizing structure, extent of the projects, political background, I could experience the energy. I worked all night on the server and throughout the day of the protests. My experience of the protests was just a half hour when I managed to escape in to the streets...⁸

⁵ Hacklabs are political spaces (often temporary) that provide community computer and Internet access. They are used for independent media, the promotion of free software and other emancipatory technologies. Here tech activists share skills with one another and the broader public. For example, see www.hacklab.org.

⁶ In Houston, Indymedia and low power FM radio activists set up a disaster information radio station. New Orleans IMC offered breaking coverage and activists set up a media centre in Algiers, a portion of the city that did not flood from the levee breaches. IMC USA created a topical site, Katrina.indymedia.us.org, which carried news from across the Indymedia network (<http://www.anarchogeek.com/articles/category/indymedia>).

⁷ For the full transcript, visit <http://seattle.indymedia.org/en/1999/11/2.shtml>.

⁸ Interview with Evan Henshaw-Plath, 28 July 2003.

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Tech activists implications. Wh ideals that mirror social purpose of of the continual aware that each te lishing structure way" (Hill, 2003 design to transfor and needs, which ware developmen

⁹ See Hill (2003) for a t

tries inherent in capitalist socio-technical systems, as well as the knowledge that such asymmetries are both socially constructed and reflective of inequality in the broader social context. With Indymedia, it is apparent that the social and technical are tightly coupled; IMC geeks consciously attempt to create a technical environment that promotes equality and democracy and that, in turn, supports the social changes goals of Indymedia, as well as the broader global justice movement.

Wild wild wikis: The latest frontier

Tech activists combat power imbalances in the technical sphere through their development and use of free software. Thus they carve out their own virtual terrain oriented toward the community model of the Internet, which is based on democratic practice. (Feenberg & Bakardjieva, 2004). Recognizing communication as key to achieving the goals of the global justice movement, activists created their own media system. Indymedia's philosophy is summed up in the now-famous slogan: "Become the media." However, it soon became apparent that the importance of communicating movement ideals of social, economic and environmental justice through a global digital newswire depended upon internal communication within Indymedia. The IMC tech collective initially communicated by email lists and Internet Relay Chat (IRC). By 2002, however, a number of wikis were set up in an effort to create a sustainable system for documenting IMC's history and ongoing activities. As one member of the Docs Tech Working Group observed: "Getting a functioning and used wiki is really vital for the network...Email lists just aren't cutting it for the level of organizing and information exchange and growth we need to help facilitate."¹⁰ Techs maintaining the global site needed a virtual workspace with a constant online presence, where they could jointly yet asynchronously on common projects and tasks. In addition to facilitating workflow, the wiki had the benefit of constructing and cohering an online community of programmers interested in contributing their skills to the global justice movement.

Wiki software originated in the mid-90s in the design pattern community as a means of writing and discussing pattern languages. Ward Cunningham invented the name and concept and implemented the first wiki engine in 1995. Because of its speed, he named the system wiki-wiki, a Hawaiian term meaning "quick". According to Cunningham and Leuf (2001), "a wiki is a freely expandable collection of interlinked Web 'pages', a hypertext system for stor-

¹⁰ John Windmueller posting a comment to the Indymedia Documentation Project Wiki, <http://docs.indymedia.org/view/Sysadmin/ImcDocsReplaceWikiEngine>.

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¹¹ For more on Ward Cu <http://c2.com/cgi/wiki>

ates links to existing and potential pages in a wiki, is one example of this organic collaborative knowledge production. It is a critical and deliberate design element that fosters the creation of a shared language. This shared language emerges instinctively and is fundamental to effective communication within a wiki. (Kim, 2005). According to one tech activist, the "link as you think" feature is "a way of building a community-specific vocabulary that allows you to easily formulate complex thoughts by using the terms your community thinks are important" (Schroeder, 2005).

For tech activists, the wiki enables them to enact the social change they seek in the broader society. Here, democracy, equality and justice switch from being abstract ideals to concrete social practices. At the same time, wiki software is part of the digital infrastructure tech activists build and maintain in order to achieve more immediate movement goals, and as such is represents only one tool in the activists' repertoire of contestation. Considered thus, wikis emerge as an ideal mode of communication for distributed networks like Indymedia and the global justice movement, where participants from disparate geographical locales, with varying skill and commitment levels, as well as ethnic, class and technical backgrounds, work together toward a shared vision of a better world.

IMC meets TWiki

Indymedia made early use of wiki technology for the Global Indymedia Documentation Project, which gathers collective knowledge about IMC's history, its current role(s) and its short and longterm goals. Documenting their project is vital to the success of Indymedia; not only does it provide a public record, it creates a fluidity that facilitates participation at varying levels. "The Indymedia Documentation Project looks like a normal Web site... except that it encourages contribution and *editing* of pages, questions, answers, comments and updates" (IMC, *Welcome*). Importantly, participants are not required to know how to code in order to add, change or delete content. Because Indymedia is predominantly a web-based project, implementing a wiki addressed the persistent problem of how to organize communication within the disorganized environs of cyberspace. While mailing lists facilitated information exchange, and IRC enabled real time discussion, neither application provided a collaborative space where Indymedia volunteers could work asynchronously on common projects. Wiki technology appealed to IMC geeks because of its ability to facilitate information flow, which allowed distributed teams to work together seamlessly and productively, and eliminated the one-

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In 2002, IMC corporate intranet one website, docs tions on the World sections made up ing groups, docur ticipate in the Ind Global Tech Tear numerous technic istration, IRC, se information about Logs from past m here. The wiki's d and the history of forum for discuss smooth running o proposals and mee

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¹² In fact, the IMC Doc However, this had mor run collective, such as nology itself.

The emancipatory power of wikis?

What, then, are the implications of wikis for tech activism in today's global justice movement? Glaser (2004) assesses the emancipatory power of wikis, concluding that participating in a wiki is a political act with consequences that extend beyond cyberspace. The egalitarian structure of the wiki is based on decentralization of authority and horizontal self-organization. Much like Indymedia, wherein the gatekeeping power of editors and news producers to control the flow of information is obliterated, "wikis are administered by a group of people with equal rights who control each other and whose work and decisions are subject to all users' discussion" (p. 4). This egalitarian structure is characteristic of the GJM, which eschews formal leadership and is configured rhizomatically in loose networks of autonomous nodes. Decentralization of power is critical for undermining social hierarchies common to modern capitalist societies, where the few rule over the many. In modern Western capitalism, this elite minority typically dominates the production of information (as well as technology), with the majority of citizens relegated to the passive, disempowered role of perpetual consumer. In a wiki, there are no access barriers: as with Indymedia, producers of content are its consumers, and vice versa.

The elimination of access barriers facilitates participation in wikis as does the purposely designed ease-of-use. "As you edit there is very little to get in the way of clear thinking and writing...The easier we can make a wiki to use, the more participants we can attract and the greater the value of the system" (Why Wiki Works, n.d.). Participation is further enhanced by the self-organization that wikis require, which in turn leads to empowerment. "Everybody feels that they have a sense of responsibility because anybody can contribute" (ibid). A community grows up around well-used wikis, and users are invested in keeping their wiki relevant and functional. As discussed above, this is largely due to the collective production of content. In the process of organizing their wiki, users discover shared interests and begin work on common projects that reflect the concerns and needs of the community, and that promote social cohesion in the virtual environment. Key to this collaboration is the feedback generated through the wiki's interactivity. Unlike the dominant communication technologies of radio and television, the internet is highly interactive. Building upon this functionality, wiki software enables not only adding comments to existing content, as in a weblog, chatroom or email exchange, but the complete restructuring of the entire website, including its deletion. If modifications are not deemed an improvement, however, they are easily "undone" by other

users. This interaction is for the broader good of the community, as a space for democratic

The wiki is a space for the western society and for making their subjects and defending their interests and complex ideas in the "real world" As a result, some people to take part in succeed in the real world and collaboration in the competition or market, not currently producing the "value" of technology, thus evident in the world as well as the Baconian method informs technology and the development in digital communication creates new modes of communication and call for a new rationality to fit human nature.

Conclusion

The Internet remains still subject to international global justice movements, creating and sustaining alternative forms of tech activism on a global scale. Tech activists deliberately adapt it to democratic purposes, employing wiki software for online collaboration. This is evident in the broader context of the GJM (a challenge to dominant communication software that prefers humane ways of communication).

ware, and as such, it is indicative of how tech activists are working at the level of technical design to "open up" Internet technology to a wider range of interests and concerns.

Viewed from a critical constructivist perspective, tech activists comprise a relevant social group that is but one node in the Internet actor-network. Through their free software development, activist geeks are contributing to the reconstruction of the Internet from a "communication medium [to] a lever of social transformation" (Castells, 2001, p. 143). Indeed, a battle lies ahead for control over this virtual frontier. As such, the Internet displays interpretive flexibility - that is, it is used and understood differently by a variety of relevant social groups, as the case of tech activists suggests. Further, the work of tech activists may be considered an attempt to address the duality of science and technology - the internal tension between social transformation and technological invention that together comprise the modern notion of "progress". In their work, tech activists strive to reconnect technology with its logos - the rationale for the good served. In doing so, they remind us that technology matters, that it is political, and that it is a scene of constant struggle. Does this indicate, or contribute to, a radical reform of the technical sphere? It remains to be seen. But it certainly offers hope that another world is possible.

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